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Global perspectives on teacher learning: improving policy and practice

John Schwille and Martial Dembélé
in collaboration with Jane Schubert

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Understanding of the complexities of education has reached the point where very little of value can be accomplished without relying heavily on colleagues such as these. We have been extraordinarily fortunate in this respect. We could not possibly do them all justice.

John Schwille and Martial Dembélé

Fundamentals of educational planning

The booklets in this series are written primarily for two types of clientele: those engaged in educational planning and administration, in developing as well as developed countries; and others, less specialized, such as senior government officials and policy-makers who seek a more general understanding of educational planning and of how it is related to overall national development. They are intended to be of use either for private study or in formal training programmes.

Since this series was launched in 1967 practices and concepts of educational planning have undergone substantial change. Many of the assumptions which underlay earlier attempts to rationalize the process of educational development have been criticized or abandoned. Even if rigid mandatory centralized planning has now clearly proven to be inappropriate, this does not mean that all forms of planning have been dispensed with. On the contrary, the need for collecting data, evaluating the efficiency of existing programmes, undertaking a wide range of studies, exploring the future and fostering broad debate on these bases to guide educational policy and decision-making has become even more acute than before. One cannot make sensible policy choices without assessing the present situation, specifying the goals to be reached, marshalling the means to attain them and monitoring what has been accomplished. Hence planning is also a way to organize learning: by mapping, targeting, acting and correcting.

The scope of educational planning has been broadened. In addition to the formal system of education, it is now applied to all other important educational efforts in non-formal settings. Attention to the growth and expansion of education systems is being complemented and sometimes even replaced by a growing concern for the quality of the entire educational process and for the control of its results. Finally, planners and administrators have become more and more aware of the importance of implementation strategies and of the role of different regulatory mechanisms in this respect: the choice of financing methods, the examination and certification procedures or various other regulation and incentive structures. The concern of

planners is twofold: to reach a better understanding of the validity of education in its own empirically observed specific dimensions and to help in defining appropriate strategies for change.

The purpose of these booklets includes monitoring the evolution and change in educational policies and their effect upon educational planning requirements; highlighting current issues of educational planning and analyzing them in the context of their historical and societal setting; and disseminating methodologies of planning which can be applied in the context of both the developed and the developing countries.

For policy-making and planning, vicarious experience is a potent source of learning: the problems others face, the objectives they seek, the routes they try, the results they arrive at and the unintended results they produce are worth analysis.

In order to help the Institute identify the real up-to-date issues in educational planning and policy-making in different parts of the world, an Editorial Board has been appointed, composed of two general editors and associate editors from different regions, all professionals of high repute in their own field. At the first meeting of this new Editorial Board in January 1990, its members identified key topics to be covered in the coming issues under the following headings:

1. Education and development.
2. Equity considerations.
3. Quality of education.
4. Structure, administration and management of education.
5. Curriculum.
6. Cost and financing of education.
7. Planning techniques and approaches.
8. Information systems, monitoring and evaluation.

Each heading is covered by one or two associate editors.

The series has been carefully planned but no attempt has been made to avoid differences or even contradictions in the views expressed by the authors. The Institute itself does not wish to impose any official doctrine. Thus, while the views are the responsibility of the authors and may not always be shared by UNESCO or IIEP, they

warrant attention in the international forum of ideas. Indeed, one of the purposes of this series is to reflect a diversity of experience and opinions by giving authors from a wide range of backgrounds and disciplines the opportunity of expressing their views on changing theories and practices in educational planning.

Teacher preparation has become a controversial issue all over the world. While everybody agrees that teacher education and teacher training are very important, the question of how much formal teacher preparation is needed and how it should be delivered is the object of much debate and experimentation in developing as well as developed countries. The answer depends on several factors, such as the level of financial resources, the number of teachers to be trained, the present structure of training, the knowledge level of graduates who choose to become teachers, and the attraction of the teaching profession.

The process of teacher preparation commences when future teachers are selected and undertake pre-service training, continues when they themselves start in school, and indeed until they reach the end of their career. The process is thus named a *continuum of teacher learning* and includes several stages. This booklet argues that the formulation of policy and design of teacher preparation should take into account the entire spectrum of teacher learning, from pre-service training to the induction phase when teachers become practicing teachers, and throughout their career. The ultimate phase, also the longest, is continuing professional development, which allows teachers to continue adapting and perfecting their skills and classroom practices according to contextual and economic changes and demand. Many of these phases have been criticized for being ineffective; different solutions adapted to different contexts are discussed in some detail in this booklet.

Mark Bray
Director, IIEP

Composition of the Editorial Board

Preface

For a number of years, it was thought that the teaching-learning process could be improved by taking partial measures, believed to be the most cost-efficient. Based on the results of research, it was thus decided that the best investment to improve learning would be to produce and distribute textbooks. Later, the emphasis was laid on ICT and school organization and management, and most recently attention has also been focused on assessment and school standards to improve quality. Yet none of the above measures can be effective without the active support of teachers. The teacher acts as a mediator, and the effectiveness of innovations very much depends on the teacher making proper use of them. The teacher is at the epicentre of the learning process; and learning therefore depends first and foremost on the quality of the teacher.

In future years, many teachers will have to be recruited if EFA is to be achieved in developing countries. According to UNESCO Institute for Statistics estimates, sub-Saharan Africa alone will need another 1.6 million teachers in the classroom by 2015 to reach the objective of Education for All. Although the impact of AIDS on teachers' mortality is not quite as high as was announced – thanks to the use of antiretroviral treatments – the lack of teachers is seriously aggravated by HIV and AIDS, and a number of missing teachers will have to be replaced in the near future. All over the world, enrolment expansion at primary and secondary levels has taken place or is taking place by recruiting large numbers of unqualified and untrained teachers. In several countries of sub-Saharan Africa, South Asia, the Arab States and Latin America, large numbers of practising teachers will have to be trained, upgraded or replaced. Developed countries are facing a similar problem of having to recruit, train and retain large numbers of teachers after the existing ones retire.

What makes a good teacher? Recognizing a very good teacher is one thing: Many of us have kept an excellent memory of two or three teachers who played an important role in our lives; teachers who ignited our interest for one particular subject thanks to their mastery of the topic, their enthusiasm and their encouragement. Defining

what makes him or her such a good teacher is more difficult. And knowing how to produce one is the object of much debate.

In answering this question, there is general agreement that subject knowledge is important, as is the teacher's competence in transmitting this knowledge to different children and adolescents. Good teachers give assignments and homework and provide feedback to their pupils; they cater for differences in learners and they manage their class and their time well. These are professional skills normally taught in teacher training institutions. Much research carried out in developing countries suggests, however, that the qualifications of teachers have little impact on students' achievement: Pupils and students do not necessarily learn better when they are taught by a teacher who has spent a long time in a teacher training college or who has followed different in-service training courses. This is puzzling, but it does not mean that teacher training is not important. It does imply, however, that professional training, as it is organized in many countries, is not effective. In developed countries, research results suggest that subject matter preparation has an impact, but it is not clear how much of it is required; and there is a threshold beyond which it does not have much impact. Pedagogical preparation also matters, but it is not clear which aspect of this preparation is important. Some investigations have identified a number of characteristics that make a good teacher: analytical thinking, initiative, curiosity, a passion for learning, professionalism, confidence, trustworthiness, fairness and respect for others. But how and where does one acquire such qualities and characteristics? How does one sustain them when they do exist? How does one stimulate them?

This booklet discusses different models of teacher preparation and professional development and provides, on the basis of literature and research evidence, some insights for planners, managers and decision-makers on how to evaluate existing programmes and design new ones. The authors present a conceptual framework which integrates different phases in the process of teacher learning: observation during the teachers' own schooling experience, pre-service preparation of teachers, induction and professional development. In most developing countries, phases 1 and 2 bear the most weight, but it is increasingly recognized that induction and continuous training and professional development are essential.

The next chapters discuss the unresolved controversy of how much formal preparation is needed before starting to teach, the different models of initial teacher preparation, the induction phase, and last but not least, the continuing professional development of teachers, not to be confused with existing programmes of in-service training.

This booklet is being published at a time when countries and EFA partners are becoming increasingly conscious of the need to prioritize quality in education. It is written by three authors who are extremely knowledgeable in the area. They have made a thorough review of the literature, and beyond that review they draw upon their extensive personal experience of reforming and implementing teacher preparation programmes in different countries. The IIEP and the Editorial Board are extremely grateful to John Schwille, Martial Dembélé and Jane Schubert for this very stimulating and topical piece.

Françoise Caillods
Co-General Editor

Contents

List of abbreviations

ACE	Advanced Certificate in Education (in Mauritius)
ADEA	Association for the Development of Education in Africa
AKF	Aga Khan Foundation
AKU	Aga Khan University
BEd	Bachelor of Education degree
BESO	Basic Education System Overhaul (in Ethiopia)
BETD	Basic Education Teacher Diploma (in Namibia)
CAPES	*Certificat d'aptitude ou professorat de l'enseignement du second degré*
CIDA	Canadian International Development Agency
CIES	Comparative and International Education Society
CONFEMEN	*Conférence des ministres de l'éducation nationale*
EQUIP	Educational Quality Improvement Program (USAID)
EU	European Union
FBTDP	Field-Based Teachers Development Program (in Pakistan)
IDRC	International Development Research Centre
IEA	International Association for the Evaluation of Educational Achievement
IED	Institute for Educational Development (at the Aga Khan University)
IIEP	International Institute for Educational Planning (in Paris)
IUFM	*Institut universitaire de formation des maîtres*
MEd	Master of Education degree
MIITEP	Malawi Integrated In-Service Teacher Education Programme
MOE	Ministry of education
MSU	Michigan State University

MUSTER	Multi-Site Teacher Education Research project (at University of Sussex)
NCRTL	National Center for Research on Teacher Learning (at Michigan State University)
NCTAF	National Commission on Teaching and America's Future
NGO	Non-governmental organization
NIED	National Institute for Educational Development (in Namibia)
NQT	Newly qualified teachers
OECD	Organisation for Economic Co-operation and Development
OJT	On-the-job training
PASEC	*Programme d'analyse des systèmes éducatifs, Conférence des ministres de l'éducation des pays ayant le français en partage*
PBI	Practice-based inquiry (in Namibia)
PCK	Pedagogical content knowledge
PGCE	Postgraduate Certificate in Education (in England)
SACMEQ	Southern and Eastern Africa Consortium for Monitoring Educational Quality
Sida	Swedish International Development Cooperation Agency
SNNPR	Southern Nations, Nationalities, and People's Region (in Ethiopia)
TDMS	Teacher Development and Management System (in Uganda)
TE	Teacher education
TEDS-M	IEA Teacher Education Study in Mathematics
TERP	Teacher Education Reform Project (in Namibia)
TFA	Teach for America
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organization

USA	United States of America
USAID	United States Agency for International Development
VSO	Voluntary Services Overseas

Introduction

Researchers who have been analyzing evidence accumulated since the 1970s have suggested that teaching is arguably the strongest school-level determinant of student achievement (see, for example, Gauthier, Bissonnette, Richard and Djibo, 2003; Gauthier and Dembélé, 2004; Hopkins, 2001; and Scheerens, 2000). Heightened interest in and concern about teacher quality worldwide, as well as interest in and criticism levelled against teacher education systems, can be attributed to such evidence. It is possible to identify excellence in teaching according to various criteria. However, there is still much debate on what it takes to produce excellence among teachers at large. In most developing countries, the situation is compounded by the urgent need to increase the teaching force substantially in a context of economic hardship and other constraints. For example, according to World Bank simulations based on data provided by the UNESCO Institute for Statistics, to achieve universal primary education, sub-Saharan Africa will need 1,361,000 new teachers between 2000 and 2015, or an average annual increase of 3 per cent (compared with 2 per cent between 1985 and 2000). In addition, given calls for pedagogical renewal, the 2,491,000 practising teachers will need to be provided with professional development opportunities. This is a formidable challenge with implications for teacher education, regardless of how countries decide to tackle it.

The purpose of this booklet is to provide a way of thinking about the preparation and continuing professional development of elementary school teachers that can be used as a basis for evaluating existing programmes and planning new ones. It is based on a selective review of the huge array of literature on the education and professional development of teachers. The emphasis is on elementary school teachers, but it is also useful to compare their opportunities to learn with those of their colleagues in secondary school. Parts of this literature have already been synthesized through the efforts of international organizations such as ADEA, IIEP, OECD, the World Bank and the EU (the latter as represented in the Eurydice project) and by reputable scholars throughout the world (such as Avalos, Darling-Hammond, Floden, Gauthier, Tatto, Villegas-Reimers and Zeichner).

This booklet builds on such prior efforts to the extent possible. However, it must be noted that the sources used in this and other reviews vary greatly in their quality and conclusions. They do not provide clear-cut, consensual guidelines for the path to improvement. The review of this literature is not limited to evidence-based research (i.e. based on systematic, documented inquiry with conclusions that can be substantiated to the satisfaction of experts in the field), though this literature is highlighted where it exists. Since we are not in a position to give recipes or issue prescriptions for the many diverse settings of teacher learning, virtually any serious research, even with noteworthy methodological flaws, can be a source of hypotheses, insights and questions that merit further consideration and investigation. In the presence of controversy and disputed findings about the effects of various models of teacher education and continuing professional development, we discuss concepts and issues in a way that will hopefully help readers to think in new and better ways about how to shape reform efforts and how to design and implement effective policies, programmes and projects.

The booklet argues that the formulation of policy and the design of programmes must take into account teachers' opportunities to learn from the beginning of their own schooling and throughout their teaching careers. Hence the concern is not with teacher preparation programmes in isolation, nor with the continuing professional development of practising teachers as somehow separate from and independent of the prior programmes experienced by the latter. The concern is also with aspects of teacher learning that are not part of formal programmes, but that nevertheless influence what is learnt by future and practising teachers and the capabilities that result from this learning. It is essential to take into account informal as well as formal opportunities for teacher learning. Also to be considered is what teachers have learnt in the past from observing their own teachers in elementary or secondary school.

In *Chapter I*, we elaborate on this way of thinking about teacher preparation and continuing professional development. *Chapter II* deals with unresolved controversies over how much and what kinds of professional preparation are necessary for teaching, or even whether or not such preparation is at all necessary. Assuming that such preparation *is* necessary, *Chapter III* examines the main policy

and practice options available. Then, in *Chapter IV*, attention is turned to looking at how entry into teaching is assisted in various national contexts, i.e. the kind of induction support and learning opportunities available to beginning teachers. In *Chapter V*, organizational support to teacher learning beyond the first years of service is considered.

Teacher education is complex and raises many challenges, such as the lack of agreement among experts, policy-makers and reformers about what is most important; competing views on the importance of subject matter, pedagogy, knowledge of students, etc; the problematic relationship of theory to practice; disagreement over what teachers learn best from experience; the lack of standardization or even shared expectations for many aspects of many programmes; and finally the great variation in the commitments and prior knowledge of future teachers. The task of this booklet is therefore daunting. However, much is known about exemplary practice and this booklet discusses the principles of such practice while admitting that empirical evidence for this is weak. Indeed, conclusions about best practice are, in the main, logical extrapolations from innovative experience and fragmented, not-too-tightly-done research.

The booklet has as its intended audience policy-makers and educators with busy lives (especially those in developing countries) who may have neither the time nor the opportunity to read widely and deeply across all the issues raised. We hope this will help them find new sources of insight as well as old friends among the sources cited.

I. The continuum of teacher learning: a conceptual framework

The formulation of policy and design of teacher preparation and continuing professional development programmes optimally takes into account the whole spectrum of teacher learning, that is, teachers' opportunities to learn from the beginning of their own prior schooling and throughout their teaching careers. This perspective is what has become known as the *continuum of teacher learning*, a comprehensive framework for organizing and understanding how professional educators acquire and improve their capability to teach (Craig, Kraft and du Plessis, 1998; Day, 1999; Feiman-Nemser, 2001; Villegas-Reimers, 2003). The use of this term thus implies being concerned not only with formal teacher preparation, induction and continuing professional development programmes, but also with the many informal influences on what and how teachers learn to teach. While each of these phases is unique in terms of learning needs, the notion of a continuum of learning calls for an integrated approach to meeting these needs. From this perspective, whatever is done in any one phase should be informed and will be influenced by what has been learnt before and what is likely to be learnt later, as well as the opportunities to learn that co-exist during the phase in question. In other words, when designing opportunities to foster teacher learning and development at any phase, one must keep long-term professional goals in sight while remaining cognizant of what happened in the past. In this respect, Feiman-Nemser (2001) offers a useful task-oriented framework that forms a practical agenda for both teachers and teacher educators. Another, still more recent analysis of the domains of teacher learning is provided by Darling-Hammond and Bransford (2005).

Opportunity to learn refers to an experience with an anticipated or inferred learning outcome. Such an experience may be carefully planned and purposefully structured, or it may occur naturally and informally. In the case of formal courses of instruction, the identification of opportunities to learn is fairly straightforward: the anticipated learning outcome is the outcome envisaged by the teacher and/or the officially prescribed curriculum or syllabus. Outside formal courses of instruction, it is more difficult to say what

the anticipated learning outcome is. In the case of informally or formally organized practica, mentoring assignments and induction programmes (as described in the following chapters), presumably there are anticipated learning outcomes associated with these experiences. However, these may or may not be formally adopted and documented, and the same understanding of these intentions may or may not be shared among the participants. Finally, it is important to consider opportunities to learn that are not associated with any formal courses or prescribed training experiences, but which instead occur in the natural course of events as teachers gain more experience. For example, teachers sometimes learn 'on the job' to value keeping students busy and apparently learning with certain types of mathematical exercises that are not recommended by mathematics educators. Since many teachers think the latter type of informal opportunities to learn is the most important in learning to teach, it would be foolish to neglect it (Tatto, Schwille, Schmidt, Ingvarson and Beavis, 2004).

Apprenticeship of observation

The continuum of teacher learning begins with *apprenticeship of observation*. This term, coined by Lortie (1975), refers to what teachers learn about teaching from observing their earlier teachers during their own schooling at primary, secondary or general higher education levels. Most people who have not made a study of this area do not think of this as part of teacher preparation. However, research indicates that this learning often has a powerful effect on how future and beginning teachers think about teaching (Evans, 1999; Feiman-Nemser, 2001; Hollingsworth, 1989; Kagan, 1992). In fact, many teachers are more influenced in teaching by how they themselves were taught in elementary and secondary school than by their formal teacher education. In other words, a teacher who has been taught throughout elementary and secondary school by respected teachers who used a direct transmission mode of delivery and very little student-centred inquiry is likely to identify with that mode of teaching and be deeply resistant to superficial attempts to change. Ignored or neglected, ideas instilled through the apprenticeship of observation can completely sabotage later efforts at formal teacher preparation.

Pre-service preparation of teachers

The next phase in the continuum of teacher learning is the formal pre-service phase – the institutional phase that we ordinarily think of first when thinking about teacher education. But the fact that pre-service teacher education is so familiar may lead us to be blind to its characteristics and significance. For example, we may think we know what happens during this phase, but without the fastidious and systematic research necessary to gain an accurate assessment of what is typical and what is exceptional during this phase, our conclusions may have little merit. Many are also misguided by either the rhetoric or the stereotypes used to promote or denigrate the value of this phase. In the United States of America (USA), for example, this phase is often characterized by critics as lacking in rigour and substance. The rhetoric of teacher education programme documents, in contrast, makes many positive claims for programmes that are either not at all or very imperfectly realized in practice. Moreover, perceptions of this phase tend to be too influenced by one's own experiences or those of acquaintances. One often fails to give due consideration to any variation in this phase that one has not personally experienced. Even among those who specialize in the study of teacher education, there are very few, if any, who can do justice to the enormous cross-national variation in the opportunities to learn of this phase.

The relevance of the teacher learning continuum to the pre-service phase has been demonstrated by Feiman-Nemser, a scholar who had much to do with its formulation. She has used the framework to analyze the structural fragmentation and conceptual impoverishment of pre-service teacher education and professional development in the USA. The problem, according to her, is the lack of "connective tissue holding things together within or across the different phases of learning to teach". This means that "the typical pre-service program [in the USA] is a collection of unrelated courses and field experiences. Most induction programs have no curriculum and mentoring is a highly individualistic process. Professional development consists of discrete and disconnected events. Nor do we have anything that resembles a coordinated system" (Feiman-Nemser, 2001: 1049). Feiman-Nemser also critiques the pedagogy of teacher education. She claims that this pedagogy "mirrors the pedagogy of higher

education where lectures, discussions, and seat-based learning are coins of the realm. Too often teacher educators do not practice what they preach. Classes are either too abstract to challenge deeply held beliefs or too superficial to foster deep understanding. All of this reinforces the belief that the [elementary and secondary] classroom is the place to learn to teach" (Feiman-Nemser, 2001: 1020).

Research on pre-service teacher education is not sufficiently developed to determine to what extent this negative assessment applies in many countries outside the US, although there is reason to believe that it does. To provide a basis for this sort of more systematic and comprehensive comparison, the International Association for the Evaluation of Educational Achievement (IEA), long known for its cross-national studies of educational achievement in elementary and secondary schools, is undertaking the First IEA Teacher Education Study in Mathematics (TEDS-M). This cross-national study is focusing on the preparation of teachers of mathematics for elementary and lower secondary school. Data will be collected from national probability samples of teacher education institutions, future teachers, and instructors of future teachers of mathematics (whether generalist or specialist) in all participating countries. The focus on mathematics is important in that it represents the point of view that teachers' opportunities to learn vary by subject matter and that the continuum of teacher learning cannot be adequately understood on the basis of generic studies which do not differentiate among different subject-matters (Tatto *et al*., 2004).

Induction

Once future teachers have completed the pre-service phase and taken full responsibility for teaching one or more classes in elementary or secondary school, they enter what is known as the 'induction phase'. Induction is the formal or informal process by which beginning practising teachers adapt to and learn about their roles as teachers. Induction may involve formal programmes intended to support and enhance teacher learning. Such programmes are typically organized around the process of mentoring and the role of the mentor. Induction research, which initially focused on the organization of such programmes, has progressed to also include analysis of the content – or the 'curriculum' – of mentoring. If there

is no formal programme of induction, it is important to note that induction still occurs as an informal process of on-the-job learning from practice and from the cultures and norms of school settings. In some instances, structured or informal on-the-job learning is the second phase of the continuum. In such contexts, there is either no, or a very short, preparation before taking full responsibility for teaching in an elementary or secondary school.

Continuing professional development

The length of induction as defined by policy-makers or programme developers varies according to the setting. In some settings it is seen as the first year of teaching, whereas in others induction is conceived as a process lasting several years. In any case, once the teacher has completed this culturally and bureaucratically defined transition, another phase of teacher learning follows and continues to the end of the teaching career. This is the phase of continuing professional development. While the pre-service phase is a phase of specialized institutions with an expectation of full-time engagement by the learning teachers, continuing professional development is for the most part a marginal add-on to the practice of teaching. In some cases teachers have been withdrawn from classrooms for extended periods for professional development (such as the residential programme studied by Tatto, Nielsen, Cummings, Kularatna, Dharmadasa, 1991 and 1993; or the case of Guinea, where all primary school teachers were given successively a period of three months' training outside the classroom to improve their knowledge of mathematics and French − the official medium of instruction). More typically, however, continuing professional development has taken the form of short-term training designed and delivered by trainers who have not based this training on specific knowledge of what is happening in their trainees' classrooms and for which there is little or no classroom follow-up. This sort of professional development is also rarely designed as one part of a larger, cumulative life-long curriculum of teacher learning, based on what is needed to keep the overall knowledge, skills and dispositions of practising teachers solidly based, up-to-date and effective. This fragmented short-term training has been shown by research to be ineffective; the characteristics of more effective programmes are discussed in

the literature but have rarely been put into widespread practice (see *Chapter V*). Nevertheless, as with pre-service and induction, there have been enough innovative, experimental programmes to point the way to improvement.

Professional development practices in China and Japan seem to be an exception that has gone a long way to close the gap between the ideal and reality. In Japan in particular, the pre-service phase of university preparation is generally given little credit for preparing teachers for the realities and challenges of classroom teaching, whereas various schools of *lesson study* have evolved forms of cumulative, continuous improvement that avoid many of the deficiencies of professional development in other settings. Likewise, the requirements for induction that have developed in recent decades in Japan offer an apparently rigorous programme of opportunities to learn for beginning teachers (Britton, Paine, Pimm and Raizen, 2003).

The Chinese and Japanese experiences are both testimonials to the importance of teachers working together for purposes of professional development. Unlike countries where teachers are said to be 'isolated in their classrooms', peers play a very important role in efforts to improve what practising teachers know and do in these countries. Moreover, China and Japan are countries in which there are well-developed centres for in-service or professional development, with buildings, equipment and staffing, which are seldom available as infrastructure for professional development in other countries (Britton *et al*., 2003).

Conclusion

Overall, this conceptual framework as discussed above will help show throughout the remainder of this booklet that a great deal is known about both the continuum of teacher learning and how to enhance it that has not been put into practice in any widespread sort of way. However, a great deal remains to be learnt and/or verified before we will have evidence that more or less adequately addresses all of the issues raised in *Chapters II* to *V*.

II. Unresolved controversies: How much formal preparation is needed, if any?

The title of this chapter captures the ongoing controversy regarding whether elaborate formal programmes of pre-service teacher education, such as those found in universities and colleges, are really necessary or whether they cost more than they are worth in terms of the benefits in increasing the quality of elementary and secondary education. The movement to abolish or reduce the role of pre-service teacher education institutions in universities or post-secondary colleges has been most vociferous in the USA and Britain. Sankey describes this movement in Britain in the years 1989-1992. He cites a policy study by a Conservative Party think tank proposing that "both PGCE [Postgraduate Certificate in Education] and BEd [Bachelor of Education degree] courses be abolished – and with them the university departments of education" (Sankey, 2003: 5-6). In the US, this movement was particularly evident in Congressional hearings leading up to the reauthorization and amendment of the federal Higher Education Act in 1998. "As Congress considered how to revise [this law], the information lawmakers heard about teacher education could be classified into three general messages:

- The current preparation of teachers is inadequate;
- Teacher education should be guided by strong standards (as proposed by [the National Commission on Teaching and America's Future or] NCTAF); and
- Formal teacher education is unnecessary, as characterized by NCTAF critics" (Earley, 2001).

Becker, Kennedy and Hundersmarck (cited in Wilson and Youngs, 2005) indicated that policy debates about the need for teacher education have been partially driven by differing assumptions about what characteristics are most needed in new teachers and in turn how they should be selected and prepared. One assumption is that schools most need new teachers with a reputable first university degree and high verbal ability. A second assumption is that teachers need, in addition to general and foundational knowledge, professional knowledge of the subject(s) to be taught and pedagogy for those subjects. Still another assumption is more about the dispositions

and values of prospective teachers – how committed are they to the education of all students and what do they bring to the classroom by way of character traits, such as tolerance and patience.

Those who make the first assumption are inclined to criticize most existing pre-service programmes of teacher education as inherently ineffective and wasteful because they believe that the capabilities needed for teaching cannot be taught in formal programmes to people who lack the necessary prerequisite strengths of general education and intellectual ability. Such critics often argue that new teachers of sufficient promise need little more than subject matter knowledge before beginning to teach (e.g. *Education Next*, 2002).

Derek Sankey of the Hong Kong Institute of Education, though not of this persuasion, called attention to those who think that content knowledge is sufficient preparation for those who already possess the necessary character traits:

> "Consider the argument, for example, that good teachers are born and not made, and that in the end much depends on individual character traits, on personality. If that is the case, then what is teacher education meant to achieve, indeed, what can it achieve? Perhaps, also, born teachers are best inducted into the job by doing it, and refining their innate skills through trial and error? Then there is no need for the massive expenditure on pre-service teacher education, though there may be very good reasons for in-service courses that hone the basic skills and deepen awareness of the theoretical underpinnings of educational practice. But that would come after the teacher has experienced the demands, frustrations and opportunities of real practice, not before. Being 'fully prepared', from this perspective, does not require courses of pre-service teacher education, though it does require a firm grounding in the subjects that the teacher will teach" (Sankey, 2003: 5).

One response to this position is simply to point out that mass education systems require such staggering numbers of school teachers that it is usually impossible to recruit solely or even mainly from the most promising in terms of initial qualifications and talents. This is especially true in resource-scarce countries

where education systems are not able to provide teachers with salaries and working conditions that are truly competitive with other occupations (as opposed to Japan and Taiwan, for example). According to statistics from international agencies (OECD, 2001), there were 59 million primary and secondary school teachers in the world in 1997, more than two thirds of whom were in developing countries. Bernard, Tiyab and Vianou (2004) point out that to put all the anticipated 180 million African children in school by 2015, the continent will need 4 million teachers in public schools. The most populated countries already have immense numbers of primary school teachers, including China (6.4 million full-time teachers), India (2.8 million), Indonesia (1.4 million), Brazil (0.8 million) and Nigeria (0.5 million), according to 2001 statistics from UNESCO, (2004: Table 13A).

Proponents of teacher preparation, i.e. those who make the second and third assumptions, would further argue that firm grounding in subject matter is a necessary but not sufficient condition for competent beginning teaching. They put forward the complexity of teaching, its professional and intellectual nature, its moral dimension and the fact that it is inherently concerned not just with the acquisition of knowledge and skills, but also with improvement of the human condition more generally. This analysis leads them to insist on extensive preparation – i.e. more than content knowledge – at the outset of one's career. While we agree with this largely ethical argument, there is no strong evidence that such capabilities are in fact better developed in extended pre-service programmes than in a well-designed, well-supported apprenticeship programme.

The debate about the value of formal teacher preparation is not limited to the USA and Britain, or to industrialized countries in general. The *Education for All (EFA) Global monitoring report 2005* drew the following conclusions: "Available data suggest that large proportions of primary-school teachers lack adequate academic qualifications, training and content knowledge, especially in developing countries. This suggests that much pre-service training may be ineffective" (UNESCO, 2004: 108). The report goes on to say that "the proportion of new primary-school teachers meeting national standards has actually been falling in several countries" (UNESCO, 2004: 109). A report on teachers' performance in relation

to teachers' occupational characteristics in nine French-speaking African countries framed this issue a little more cautiously, based on teacher data gathered between 1995 and 2001 by the *Programme d'analyse des systèmes éducatifs* of the conference of ministers of education of all French-speaking countries (PASEC). These PASEC cross-national evaluations were designed to measure and explain student learning gains in grades 2 and 5.

> "PASEC studies reached the conclusion that formal teacher preparation often has little effect. In cases where effects are documented, they are generally moderate and sometimes do not match expectations. In fact, in most cases, it was found that teachers without formal preparation helped students learn as much as students taught by teachers with formal preparation … Some people concluded somewhat hastily from this finding that formal teacher preparation is not a cost-effective investment and that one could therefore opt for very short preservice programmes and not spend important amounts of money in long programmes. To the contrary, we believe that these studies should instead raise questions that would lead to desired changes in teacher preparation practices. As a matter of fact, the question of the relevance of existing programmes should be posed to trigger analysis of training programmes (content, duration, etc.) in a large number of countries" (Bernard *et al*., 2004: 18).

Among the questions to be raised, the following serve as major starting points for discussion in this chapter of what sort of formal teacher preparation is needed, if any:

- What teaching positions and careers need to be filled?
- Can teaching attract the people it needs, and what would encourage the best available applicants to embrace teaching?
- How much should the learning of prospective or beginning teachers be fostered by highly structured, formal programmes as opposed to apprenticeship-like informal experiences?
- What can be done about the undesirable consequences of the 'apprenticeship of observation'?
- How much do the various forms of teacher preparation cost and which of these options are most cost-effective? What alternatives should be considered?

- Why is the evidence needed to address such issues not more readily available?

The rest of this chapter is devoted to these questions and issues.

What teaching positions and careers need to be filled?

The OECD (2005) report on recruiting, preparing and retaining teachers develops a useful distinction between two models of teacher employment: career-based employment; and position-based employment (while noting that no country is a pure case of either model). Career-based means that teachers are expected to remain in public service throughout their working life. In such a system, entry normally occurs at a young age, based on academic credentials and/or examination; promotion follows a well-defined path of seniority and other requirements; and assignments to teaching positions follow principles and procedures of bureaucratic deployment rather than being at the discretion of local school administrators.

The OECD (2005) report mentions France, Japan, the Republic of Korea and Spain as examples of the career-based system. Low-income countries that were formerly French colonies have typically attempted to maintain such a system. However, this has proved increasingly difficult as the systems grow towards universal primary education and widespread secondary school enrolment under increasingly difficult financial conditions.

Countries that can afford the costs of staffing with this career-based system generally do not have problems of supply of teachers. The cases cited by the OECD tend to have more applicants than openings. However, there are some questions about quality associated with this approach: According to the report, in such a system

> "teacher education is not well connected to school needs, the entry selection criteria do not always emphasize the competencies needed for effective teaching, teachers lack strong incentives to continue developing once tenure is obtained, and the strong emphasis on regulations limits the capacity and incentives for schools to respond to diverse local needs. There

> are also concerns that such systems lack appeal to those who are unsure whether they want to commit early to a lifetime teaching career or who have gained experience in other careers" (OECD, 2005: 11).

Position-based systems take a very different approach to teacher employment.

Teachers are hired not in the national civil service or even a separate national teacher service, but rather into particular teaching positions within an unpredictable career-long progression of assignments. Access therefore tends to be more open to applicants of various ages and career backgrounds. Movement in and out of the teaching career to raise children or pursue other opportunities is facilitated. Salary schedules tend to be flatter than in the career-based system, starting out higher, but then levelling off in the early years of the career. Selection for these positions is typically decentralized, with schools or local education authorities responsible for hiring teachers. The OECD report cites Canada, Sweden, Switzerland and the United Kingdom (UK) as examples of this system. One disadvantage of these systems is that they often have difficulty recruiting sufficient numbers of teachers, especially in areas like science and mathematics where there are attractive opportunities in other occupations. There can also be high turnover, especially in less advantaged areas, as well as difficulties in retaining highly experienced teachers. In such a system, it may not be worthwhile investing so much in specialized initial teacher preparation, since the systems may not realize the return on this investment if those who receive this preparation go on to choose other occupations and fill teaching positions only briefly.

In developing countries, the need to expand systems quickly with very limited resources has led to hybrid systems, in which some teachers have permanent appointments within a national service while others are hired by contract. In some cases, the contract teachers may be hired regionally or nationally, and in other cases by individual schools and communities. This situation is more and more common in, though not limited to, most French-speaking African countries. During the 1990s, large numbers of teachers with little or no pre-service teacher education were recruited in many of

these countries. In most cases, these teachers face uncertain career prospects as they were hired under short-term contracts. In several countries, such as Cameroon, Mali, Senegal and Niger, they now represent a significant part of the teaching force – up to 75 per cent in Mali, for instance (Dembélé, forthcoming). The teaching profession in these countries has become quite diverse, with different categories of teachers with varying levels of preparation working under different rules.

Can teaching attract the people it needs?

Whatever the structure of the teaching career, the pool of prospective teachers from which teacher education institutions are able to draw is often far from optimal, especially in developing countries. The status of teachers is said to be in decline throughout much of the world, even in high-income countries. In low-income countries the difficulties facing teachers are often much worse (see, for example, Lambert, 2004) and can combine to make the occupation unattractive except as a last resort. Though drafted by an advocate organization with limited qualitative data from Malawi, Papua New Guinea and Zambia, the VSO (Voluntary Services Overseas) report *What makes teachers tick?* is consistent with many other reports in generalizing about the situation as follows:

> "In many developing countries, the teaching force is demoralized and fractured. Teachers, especially in rural areas, are frequently paid little and late; their educational and training needs are neglected and they are mired in bureaucracies that support neither their effective performance nor their career progression in their jobs. Teachers, previously benefiting from considerable public respect and reasonable financial reward, feel that their status is in decline. As a result, the teaching profession in developing countries is characterized by high attrition rates, constant turnover, lack of confidence and varying levels of professional commitment. Teachers very often feel powerless either to create positive learning experiences and outcomes for their pupils or to improve their own situation" (VSO, 2002: 1).

A report from the Swedish International Development Cooperation Agency (Sida) gives a similarly gloomy picture, as can be seen from the subheadings in one of its chapters: "Deterioration

of salary levels (with three noted exceptions)", "Deterioration of the profile and social status of teachers", "Precarious working conditions", "Lower salaries, less time, less support and more tasks", "Escalating criticism of school and teachers", "Deterioration of teachers' morale and health", "De-professionalisation of, and flight from the teaching profession" (Sida, 2000: 13-15).

Thus, the factors influencing entry into teaching have to do not only with individual interests and dispositions, but also with the conditions and compensation offered to teacher education students and practising teachers in comparison with those of other occupations (Vegas, 2005). Those responsible for planning programmes of teacher education need to be accurately informed about this situation. In other words, they must have current data on the pool of potential entrants, including in particular their motivation to enter teaching and the knowledge they have attained from their prior education.

In some countries, applicants for teacher education are well-qualified in terms of their content knowledge and other educational achievements compared to entrants to other post-secondary programmes, and/or are highly motivated to teach. However, in most developing countries, as in some industrialized countries like the USA, this is not usually the case. The *EFA Global monitoring report 2005* (UNESCO, 2004) asserted that the subject matter knowledge of teachers was a problem in many developing countries. It noted that "a recent study in seven southern African countries finds that some primary school mathematics teachers possess only basic numeracy actually scoring less in tests than students" (Postlethwaite, 2004, cited in UNESCO, 2004). Given this situation, it is not surprising that student achievement in mathematics in these countries is low. The data to which Postlethwaite refers come from a remarkable set of studies, the Southern and Eastern Africa Consortium for Monitoring Educational Quality, known by the acronym SACMEQ. SACMEQ 2 was a performance assessment of national probability samples of sixth grade students and their teachers in literacy and mathematics in 15 countries in southern and eastern Africa. Both teachers and students took a mathematics test for this study (Duthilleul and Allen, 2005).

To what extent are apprenticeship models adequate alternatives to formal pre-service teacher education?

In general, all initial teacher education programmes have an on-the-job learning component, typically called 'field experience' or 'practicum'. But on-the-job learning can be the primary modality in some programmes. The latter follow what is called an 'apprenticeship model', whereby entrants begin teaching with very little advance formal preparation on what and how to teach. They are expected to learn virtually everything but subject matter on the job. When this happens without any mentoring or assistance from others, such as from more experienced teachers, it can be described as 'sink or swim' or 'unassisted' entry into teaching, or even 'learning by trial and error'. On-the-job learning is seen in this case as a natural, ongoing process that does not have to be structured or intentionally designed to promote effective teacher learning, the assumption being that knowledge for teaching other than content knowledge has itself no need to be taught.

Be it in developing or developed countries, even formal pre-service programmes may have practicum experiences that can be characterized as sink or swim. For example, in research on mentoring in a university-affiliated professional development school in the US, the experiences of two mentors and their two interns were compared. In one case, the mentor had a carefully worked out systematic strategy for gradually introducing the intern to the tasks of teaching, with much co-planning, observation and feedback (especially at the beginning). In the other case, the mentor advocated and practised an approach akin to sink or swim, believing that interns needed to be allowed to learn from their own mistakes and therefore should not even necessarily be warned of mistakes the mentor saw coming. It should be noted that both of these mentors were effective teachers themselves (Dembélé, 1995).

In Lesotho, a study of the teaching practicum for teachers' college students revealed that sink or swim was the norm: "Whatever they learn, [the students] seemed to have picked up mostly on their own. Less than half thought the school had given them enough help, and many complained about teachers' negative attitudes towards

them. Supervision by college tutors was uncoordinated, infrequent and rushed" (Lewin and Stuart, 2003: 89).

Sink or swim often occurs as an unintended by-product of systems trying to get by with field experience training on minimum resources. When the people responsible for teaching, guiding, assisting and/or supporting novices in learning to teach are not released at all from other full-time teaching duties, given any special compensation for this role, specially trained to be mentors, and held accountable in any way for their performance as mentors, 'sink or swim' is a nearly inevitable result.

In more industrialized countries, sink or swim can be a characteristic of so-called 'alternative routes'. These are special routes into teaching that differ from the conventional ones and are intended to compensate for the weaknesses of these latter. In the USA, Teach for America (TFA) is an example of a programme developed to recruit very bright young people with a first university degree and solid subject matter knowledge into teaching. They commit to two years and are made responsible for teaching in challenging urban classrooms after very limited pre-service training. In this programme, a five-week pre-service preparation course is ordinarily offered in the summer, but the mentoring and support offered to TFA teachers during their subsequent entry into teaching varies greatly. In many cases, TFA teachers have been required to enrol in certification programmes once they have started to teach. It is therefore difficult to make general statements about the nature and adequacy of this apprenticeship model, especially when TFA teachers are compared with other teachers for whom one lacks precise information on the nature of their initial and continuing opportunities to learn. A more definitive assessment of such alternative programmes must await methodologically-sound research with, in particular, good measures of the opportunity to learn actually experienced by all comparison groups (Zeichner and Conklin, 2005).

As the requirement in the case of many TFA teachers to enrol in certification programmes suggests, it is a mistake to think that the apprenticeship model is limited to sink or swim. One can conceive of well-designed practicum and induction programmes where one or more mentors are trained, given time, compensated and held

accountable for their performance as mentors. This approach may be built into ongoing professional development programmes for elementary school teachers who have already completed a long form of pre-service education, but it is also applicable to the so-called alternative routes. It seems especially suitable for practising teachers who were hired in times of teacher shortage, but did not meet national standards for being fully qualified. An apprenticeship model allows these teachers to continue to fill teaching positions instead of being pulled from classrooms (often without substitutes), as has been shown in some residential programmes for 'unqualified' practising teachers.

This approach appears to be a particularly powerful model when, as in China and Japan, teams of teachers work together on intensive professional development or in-service training and share responsibility for the induction and further professional development of beginning teachers (see *Chapter V*). In these countries, these models function as alternatives to more extensive practicum experiences in pre-service education. In both China and Japan, pre-service practica tend to be short and involve relatively little classroom teaching of pupils (Britton *et al*, 2003; Paine, 1990).

In rapidly expanding education systems, particularly in developing countries, emergency programmes designed to meet an urgent shortage of teachers at an acceptable cost are often organized in the sink-or-swim mode. Such programmes are not largely viewed as desirable new forms of teacher preparation, but rather as stopgap measures that are expected to be replaced when they are no longer needed to meet a temporary peak in the demand for teachers. This has been the case in most French-speaking African countries following commitments to achieve universal primary education by 2000 (and recently by 2015). Senegal, for instance, resorted to recruiting education 'volunteers' in the mid-1990s. They were initially provided with just three months of training (later increased to six months including field experience) before being assigned full responsibility for groups of students. Volunteerism has become the only route into teaching in this country since 2003. Niger also resorted to volunteers of education, beginning in 1998. Training before classroom assignment lasted about 45 days in this case. In both countries, pressure from volunteers led to policy

changes, namely the creation of the category of contract teachers with no or limited career ladders. More recently, Mali also resorted to contract teachers on a massive scale, so much so that, as we have seen, according to 2002/2003 data they represented three quarters of the primary and lower secondary teaching force. Up to 98 per cent of them had received only 45 days of training before assuming full responsibility for groups of students, whereas 80 per cent of their civil service colleagues had received two or four years of pre-service education (Dembélé, forthcoming).

It is worth mentioning here that many countries have yet another category of contract teachers known as 'community school teachers'. These teachers are hired and paid (partially in some cases) by parents, and the majority do not receive any professional preparation. Chad is probably the most extreme case in this respect, with community school teachers representing 63 per cent of the teaching force at primary level in 2001 (Bernard *et al*., 2004).

Widespread recruitment of contract teachers (with or without formal preparation) has undoubtedly helped increase access to primary education, as expressed in terms of gross enrolment in these countries. In Niger, for example, an estimated 270,000 additional children were able to attend school in 2002 as a result of the hiring of contractual teachers. This represents almost 50 per cent more children in school than would have been possible otherwise. In Mali, the corresponding figure was 230,000 children in 2003 (Bernard *et al*., 2004).

However, many stakeholders are raising questions about the consequences of such teacher recruitment policies on the quality of education and the dynamics of the teaching profession. Attrition is reportedly higher among contract teachers than among civil service teachers. This may lead to a situation where relative inexperience is a constant characteristic of the teaching force, with a lack of cumulative experience that limits the development of collective expertise. It becomes difficult in such a situation to envisage how novices can be well-mentored by more experienced colleagues, especially in a context where there is little to no support from mid-level staff in decentralized units (i.e. pedagogical advisers and inspectors) (Dembélé, forthcoming).

More generally, given these conditions, how well can school-based apprenticeship programmes be made to work in resource-scarce countries? Lewin and Stuart are sceptical. "An entirely school-based [programme], especially in low-income countries, is unlikely to provide enough academic content, intellectual challenge or professional vision for training good teachers. Our studies show that residential periods of training, especially after some field experience, are much valued by students" (Lewin and Stuart, 2003: 97).

For policy-makers and planners, this calls for very close monitoring of the evolution of the teaching corps, not just in their own country but in other similar countries, to see what improvements have proved feasible in the face of familiar difficulties and challenges.

What can be done about the undesirable consequences of the 'apprenticeship of observation'?

Even among people 'born to teach' – assuming such people exist – another factor must be taken into account if such people (or any person) are to teach or be prepared to teach in innovative, reform-minded ways that have not been widely practised in their education systems before. This is the 'apprenticeship of observation' – the beginning point of the continuum of teacher learning. Kennedy makes clear the consequences that ensue when reformers have no way of transforming or modifying the learning that takes place during the apprenticeship of observation:

> "If teachers must draw on their apprenticeship of observation in order to learn to teach, then most reform proposals are doomed. Reformers will not improve teachers' practices by changing the caliber of people who enter the profession, for teachers of all kinds bring the same apprenticeship to their work. Nor can they improve teaching practice by changing the number of course credits teachers are required to take in one subject or another, or by changing the rewards and sanctions that govern teachers. Reformers can change teaching practices only by changing the way teachers interpret particular situations and decide how to respond to them" (Kennedy, 1999: 56).

Although the concept of apprenticeship of observation is less used in developing countries, Lewin and Stuart nonetheless identify the same phenomenon in their data on four countries, noting that teacher "trainees are ready to model themselves on memories of their own teachers, without being able to analyze clearly what made their methods successful" (Lewin and Stuart, 2003: 38).

Even when the entrants to teacher education programmes have prior teaching experience as not fully qualified teachers, this experience is not always taken into account in programmes designed to bring them to full qualification. In the case of the Malawi Integrated In-Service Teacher Education Programme (MIITEP), for example, the accelerated school-based programme failed to connect tightly with the prior experience of its students. As Kunje says, "except for its condensed nature, the [MIITEP] curriculum differs very little from previous courses taught to school-leavers with no teaching experience, yet MIITEP students have all taught for between one and three years. The curriculum makes very little use of this experience, and tutors often seem to be treating students as empty vessels into which knowledge must be poured" (Kunje, 2002: 311). Such treatment of students can reinforce their belief in the transmission mode of instruction and otherwise limit the effects of teacher preparation.

Given the importance of changing how prospective teachers think about teaching, a key issue for evaluating teacher education and professional development programmes is to assess the understanding of people entering these programmes and to document how much their views and knowledge change during the course of the programmes. This calls for longitudinal research designs.

How much do formal teacher preparation and effective professional development cost? What alternatives should be considered?

Critics who charge that much formal pre-service teacher preparation is ineffective also emphasize the high costs of this preparation and the fact that the funds could be better spent in some other way, for example by strengthening in-service training programmes. Whether the critics are right about the ineffectiveness

of initial teacher education or not, they are surely right about the importance of costs. Any full-time residential programme of occupational preparation is expensive and teacher education is no exception (e.g. Chapman and Miric, 2005).

In their discussion of these issues in developing countries, Lewin and Stuart made this problem especially clear: "Traditional teacher education programmes are heavily 'front-loaded' with most investment at the beginning of a teaching career. Their unit costs can exceed those of university education and may be 50 or more times the annual cost of a primary school place" (Lewin and Stuart, 2003: ix). On the basis of their study of such costs in four countries, Lewin (2002) reaches the bleak conclusion that, in many countries, targets for universal enrolments and reasonable student-teacher ratios cannot be achieved with conventional, full-time pre-service education of two to three years. Oliveira and Farrell framed the issue more generally as follows to cover non-monetary as well as monetary costs: "Regardless of one's preference, there are costs and benefits associated with each [teacher preparation] strategy. Specialized institutions also mean earlier career decisions, and in some countries, students cannot switch courses or change their careers once they have made a decision. In this case, individual costs of a wrong decision are high. Social costs can also be high since it is unlikely that an unmotivated teacher will perform well" (Oliveira and Farrell, 1993: 14).

In fact, in some countries attempting to maintain a career-based system, teacher education is especially expensive to the government since students may be automatically entitled to financial support because they are already considered to have entered the national civil or teaching service, and therefore are entitled to a beginning salary while still in full-time training. Lewin and Stuart (2003), for instance, found that up to about 75 per cent of the direct costs of teachers' colleges lie in expenditure on student teachers' stipends in the countries covered by the Multi-Site Teacher Education Research (MUSTER) project. Faculty salaries take up about 20 per cent. One finds a more or less similar level of expenditure in other countries. For example, a case study of primary teacher education and management in Burkina Faso indicated that student teachers' pre-salaries represented on average 51.4 per cent of the operating

budget of three teacher training colleges between 1998/1999 and 2002/2003 (Paré-Kaboré, Ilboudo and Barro, 2004). These costs limit the possibility of making cost savings and increasing non-salary expenses. However, such entitlements create their own constituencies that usually strongly resist change, regardless of whether the programme is effective or not, or even whether or not the graduates are able to find and willing to accept teaching positions. In such cases, it has turned out to be extremely difficult to deprive students of financial support to which they believe themselves entitled. There tends to be strong resistance even to limiting the financial support to students with demonstrated financial need. We do not support such entitlements unless they have demonstrable benefits in terms of increasing the representation of underrepresented groups (such as women in some settings, nomads and scheduled castes). However, in spite of the obvious financial problems that entitlements create, at present we do not have enough evidence to entirely discredit the idea that this financial support has benefits in increasing the supply of future teachers or in raising the qualifications of those in this pool because of the financial inducements offered.

Internal inefficiencies in teacher education are also common. The MUSTER project, for example, found evidence that resources could be used more efficiently in Ghana, Lesotho and Malawi. These countries use budgeting systems with no close link to enrolment or output: enrolment is often limited by lack of boarding facilities; and the small size of teachers' colleges results in diseconomies of scale, whereby student-staff ratios are small yet class sizes can be large (Lewin and Stuart, 2003: 133). "The problem of efficient utilization of staff revolves around the relatively small size of colleges, the number of subjects in the curriculum and the willingness and ability of tutors to teach two or more subject areas" (Lewin and Stuart, 2003: 140-141). The result is that some staff members are relatively heavily loaded, whereas others have fewer periods with small groups; and "some departments are understaffed and overburdened whilst others are overstaffed and under-utilized" (Lewin and Stuart, 2003: 140). A related problem in Ghana is the fact that the actual number of teaching weeks is about 24, whereas in principle 33 weeks are available each year for teaching. "As much as one-third of teaching time is used for other activities, notably substantial amounts of time allocated to assessment. Fully, 9 weeks out of 33 are being used in

years 2 and 3 for examination preparation and sitting" (Lewin and Stuart, 2003: 139). Lewin and Stuart also argue that the average failure rate of 20 per cent across colleges "increase[s] unit costs per trained teacher … and represent[s] wastage, especially if failure is not retrieved by successful re-sitting" (Lewin and Stuart, 2003: 139).

In reviewing and assessing the costs of teacher education, it is essential to include its private as well as public costs. Private costs are those borne by individuals. They include direct or visible costs such as tuition fees, living expenses, books, school supplies and transportation, as well as indirect or invisible costs defined as the earnings foregone due to the time spent as a student in the programme. If the private costs of formal education are overlooked, this leads to underestimates of the resources involved and neglect of the burden upon the private individuals who assume such costs (Tsang, 1995).

Searching for less expensive and more or equally effective forms of teacher education has not only led to apprenticeship models. It has also resulted in various forms of distance education for teachers – generally teachers who are already assigned to teaching positions, but may not be fully qualified (however 'fully qualified' is defined by the system) and may in fact have very serious deficiencies in academic or pedagogical knowledge, or both.

Work in developing countries has contributed a substantial body of experience and literature on distance education for teachers. For example, in comparing distance education programmes in Indonesia and Sri Lanka, Nielsen and Tatto came to the following unexpected conclusion about distance education for teachers: "Contrary to popular notions about distance education, opportunity costs are a significant cost factor for those who study during their 'spare time'. Individual study time is often in direct competition with time spent earning extra income. Overlooking opportunity costs for distance education students will result in a serious underestimation of their private costs" (Nielsen and Tatto, 1991: 3). More generally, Nielsen and Tatto note that although the distance education programmes in these two countries were considerably less expensive than their conventional counterparts, the proportion of total costs borne by the

trainees (as opposed to the government budget) was considerably higher.

By and large, distance education has been designed as an in-service or professional development strategy for practising teachers with some years of experience (e.g. MIITEP in Malawi as described in Craig *et al*., 1998 and Lewin and Stuart, 2003; the Advanced Certificate in Education (ACE) in Mauritius, discussed in Rumajogee, Jeeroburkhan, Mohadeb and Mooneesamy, 2003; and the Teacher Development and Management System (TDMS) in Uganda, discussed in Eilor, 2003). However, if we are to consider alternatives to pre-service teacher education, in which students attend classes in one location on a full-time basis, distance education needs to be evaluated for its advantages and disadvantages, benefits and costs as far as beginning teachers are concerned.

Perraton (1993) arrives at the following conclusion in an especially valuable work on *Distance education for teacher training* (later extended and updated in Perraton and Potashnik, 1997):

> "Distance education can be cost-effective, enrolling and teaching students or producing graduates at a lower cost than that of conventional education… [But] there is no a priori or simple answer to the question, 'Is distance education a cheap alternative?' The answer is likely to depend on the number of students enrolled, the sophistication of the media used, the amount of face-to-face support provided, and the range of courses offered to students. And the answer may depend on a decision about whose costs are to be included in the equation. While techniques to examine and compare costs have been developed ... only a small number of cost studies have been undertaken. Even where cost-effectiveness analysis has been carried out, the results are often difficult to interpret" (Perraton, 1993: 381-382).

Perraton also noted that although the costs for distance education for teachers have been lower than the alternative in a substantial number of cases, costing between one and two thirds of conventional programmes, there are still sharp limits to such cost savings, especially in those programmes aiming to increase classroom skills as opposed to focusing solely on subject matter knowledge. "Where

extensive support was provided to students, or arrangements made for thorough supervision of their teaching practice, the variable cost of programmes was relatively high" (Perraton, 1993: 388). Distance education programmes vary greatly not only in the use of face-to-face methods to supplement distance methods, but also in content and in the relative emphasis on subject matter, pedagogy and knowledge of education in general. Effectiveness can also vary from one subject matter to another. In Indonesia and Sri Lanka, students in face-to-face programmes did better in mathematics but worse in language than their counterparts in distance education programmes (Nielsen and Tatto, 1991). Methodologically, comparison of effectiveness is complicated by the fact that the clientele of distance education programmes is rarely the same as that of face-to-face programmes, so that modality (i.e. distance versus face-to-face approach) is confounded with the background characteristics of the students.

The Sri Lanka study, which compares two in-service and one pre-service programme, demonstrates that these questions about costs need to be raised for both continuing professional development and pre-service programmes. Continuing professional development programmes may not be as expensive as full-time teacher preparation programmes. However, if they are not sufficiently effective, the cost is still questionable. "Some high-quality professional development programs have been shown to improve teacher effectiveness; however, we do not know whether investment in these programs is more beneficial than equal investment in other school resources" (Loeb and Reininger, 2004: 3). To reduce this ignorance on the part of policy-makers and planners, data on the costs of teacher education and professional development programmes (including private costs) need to be collected on a more routine and systematic basis.

Why is the evidence needed to address these issues not more readily available?

Much work remains to be done to provide evidence of the impact of certain opportunities for teacher learning in comparison with others. Little good evidence of this sort exists, inasmuch as teacher education is complex and analysis of its impact requires

sophisticated research designs that make adequate allowance for the multiple outcomes of teacher education, the longitudinal nature of teacher learning, the tendency for programmes to be implemented partially or other than as intended, and the various selection and contextual effects that need to be taken into account. Indeed, in the USA, for example, recent publications reach different conclusions about the effectiveness of pre-service teacher education programmes in terms of their impact on teachers' learning, classroom practice, and pupil achievement (e.g. Abell Foundation, 2001*a*, *b*, *c*; Allen, 2003; Cochran-Smith and Fries, 2001; Darling-Hammond and Youngs, 2002; Shulman, 2005; Wilson and Floden, 2003). The latest review of empirical evidence about teacher preparation in the USA suggests that "the body of teacher education research that directly addresses desirable pupil and other outcomes and the conditions and contexts within which these outcomes are likely to occur is relatively small and inconclusive" (Cochran-Smith and Zeichner, 2005: 5). This excellent review is organized around a comprehensive set of major research topics, including:

- the demographic profile of teachers;
- indicators of teacher quality;
- the effects of coursework in the arts and sciences and in the foundations of education;
- methods courses and field experiences;
- pedagogical approaches in teacher education;
- preparation of teachers for diverse populations;
- preparation of teachers to work with students with disabilities;
- accountability processes in teacher education; and
- teacher education programmes.

Research on each of these topics has so far produced conflicting findings or thin empirical evidence. The review revealed, for instance, that "the evidence about the effects of arts and sciences courses and educational foundations courses on teachers' knowledge is extremely thin, with the exception of studies about the connections between secondary-school pupils' achievement and the amount of college mathematics taken by those pupils' teachers" (Cochran-Smith and Zeichner, 2005: 13). Research comparing the effectiveness of various forms of teacher preparation (traditional versus alternative programmes) has also yielded conflicting findings

(Cochran-Smith and Zeichner, 2005: 29). The review attributes this in part to methodological weaknesses (Cochran-Smith and Zeichner, 2005: 4). The main challenge, according to Cochran-Smith and Zeichner, is that research on the impact of teacher preparation

> "depends on a chain of causal evidence with several critical links: empirical evidence demonstrating the link between teacher preparation programs or structures and teacher candidates' learning ... empirical evidence demonstrating the link between teacher candidates' learning and their practices in actual classrooms; and empirical evidence demonstrating the link between the practices of graduates of teacher preparation programs and what their pupils learn. Individually, each of these links is complex and challenging to estimate. When they are combined, the challenges are multiplied" (Cochran-Smith and Zeichner, 2005: 3).

In short, questions of what makes a difference in teacher education need to be approached with a good deal of scepticism, not only because the findings are mixed and often contradictory, but also because many studies have been done with methods that are problematic (Cochran-Smith and Zeichner, 2005; Kennedy, 1999; and Tatto, 2000, discuss the methodological problems associated with the most common approaches to research on teacher education). The PASEC studies discussed above, for example, can be criticized for not using probability samples or providing defensible estimates of standard errors.

From a methodological point of view, the study of the cost-effectiveness of three teacher education programmes in Sri Lanka by Tatto *et al*. (1991 and 1993) remains a rare exemplary exception and benchmark for other research. The three programmes included a residential pre-service programme in colleges of education; a residential, campus-based in-service programme at teachers' colleges; and a distance education programme. The complex, quasi-longitudinal study gathered data from subjects at the beginning, end and after the conclusion of training. It analyzed multiple outcomes, including what teachers knew at the end of training, what they did in the classroom after training and how well their pupils performed. It was able to provide empirical measures

of the teachers' knowledge, skills and attitudes at three points in time. The measures of what the teachers did in their classrooms were based not on self-report, but rather on ratings given by trained observers. Care was taken to collect data on the characteristics of the programme as well as the characteristics of the trainees and graduates of the programme. The programme effects were calculated, while controlling for potentially confounding variables such as school type and pupils' and teachers' backgrounds. The research included measures of cost, so that cost-effectiveness indices could be calculated. The results indicated that the distance education programme was the most cost-effective of the three programmes in improving the knowledge, skills and attitudes of their trainees. It should be noted, however, that the distance education programme included face-to-face components and that it was more effective in learning to teach language than in learning to teach mathematics.

Similarly, the SACMEQ studies in Southern and Eastern Africa have methodological features that are rarely found in the literature on teaching and teacher education in developing countries. As stated above, the data collected in the 15 countries were based on probability samples designed to provide 95 per cent confidence intervals of plus or minus 5 per cent at national levels. In the data collected, what makes these studies most exceptional was the testing of all teachers in the sample in literacy and mathematics. Since it is politically unacceptable to test teachers in many countries, this alone made the SACMEQ studies worthy of special consideration when these teacher knowledge variables were entered into sophisticated multilevel, multivariate analyses, taking into account both contextual and a variety of school or teacher characteristics, including the amount of teacher education. Analysis of the Namibian data indicated, for example, that "there was little gain [in pupil achievement] to be made from having higher competency teachers [i.e. teachers with higher test scores] if they had received little [pre-service] teacher training. There was also little gain to be made in training teachers who have continued to have low maths competency [again as measured by their test scores]. The substantial gains in expected pupil achievement resulted from the combination of having maths teachers with high competency who had also completed the three years teacher training programme" (Duthilleul and Allen, 2005: 19). Nevertheless, as the

authors readily admit, many qualifications and caveats reduce these findings to more of a hypothesis than a conclusion. For example, the data on classroom practice were based on self-report by the teachers, not on observation by trained observers. The authors stated that this "allowed teachers to claim they were using all methods in their classroom" (Duthilleul and Allen, 2005: 21).

While the most advanced features of such studies have rarely been replicated, less rigorous methods, when used cautiously and carefully, can also yield insight. For example, self-report can be misleading. However, a survey in Ghana, Lesotho, Malawi, and Trinidad and Tobago indicated that new teachers "rely heavily on their college materials – notes, books, teaching aids – when they go into schools" (Lewin and Stuart, 2003: 104). This sort of self-report is a little more plausible than is the case in the many studies where teachers are simply asked if they feel well prepared to teach. Fortunately, the literature on the effectiveness of continuing professional development (as opposed to pre-service education) has been better able to demonstrate what characteristics of professional development contribute most to teacher learning and the application of this learning in classrooms, while also identifying types of professional development that are largely a waste of time and money (see *Chapter V*).

Conclusion

Powerful groups often criticize pre-service teacher education as ineffective because it 1) does not emphasize what is most important for teachers to learn, 2) fails to graduate students who are sufficiently qualified and prepared to teach, and 3) discourages the people best suited for teaching. When faced with such criticisms, what are policy-makers, planners and the designers of teacher education programmes to do? This chapter does not provide a definitive answer to this question. However, it does indicate that formal programmes need evidence to show that they are sufficiently effective in enhancing teacher capabilities to justify whatever increased cost they incur compared to the alternatives.

Criticism of teacher education programmes can be beneficial, increasing the pressure on teacher education institutions to be held

accountable and show that what they do has value in preparing for the inevitable influx of people who initially are not ideally suited to teaching, whether for lack of general knowledge of subject matter, lack of professional knowledge and skills to help students, or lack of the dispositions needed to teach and teach well. This is generally the situation in resource-scarce countries. Recruitment and preparation of new teachers can be effective only if policy-makers and planners tailor practices and institutions to the characteristics of those who are more or less available and willing to become teachers. Tailoring in this sense does not mean abandoning rigour, but it does mean coming to terms with the strengths and weaknesses of an existing pool of potential applicants.

We hope both advocates for and critics of existing formal programmes of initial preparation and continuing professional development might agree on the following corollaries of the above recommendation for continuous evaluation. First, the advocates must recognize that some of what has been done either has been shown to be ineffective or is likely to be proven ineffective when put to the test. Second, there needs to be continued assessment of all aspects of teacher education, addressing the questions and components discussed in *Chapters III*, *IV* and *V* below. Part of this assessment should take place at the individual student level so that institutions have evidence that all their graduates meet the standards they have set. But evaluation is also needed at the institutional level, to provide aggregate evidence not only that the student body as a whole is meeting standards and that quality is increasing over time, but also that the standards themselves can be justified in comparison with existing research and what is known about teacher learning and exemplary practice. Finally, with respect to the characteristics of entering teacher education students, this assessment needs to show that students have come to terms with their apprenticeship of observation, building on it where the learning was consistent with what their programme expects and overcoming it where it runs contrary to current standards. Until all this is done on a more regular, systematic and methodologically sound basis, we have no choice but to be tentative in making judgments about many of the issues discussed in the following chapters.

III. Initial formal teacher preparation: policies, institutions and practices

Addressing the challenge to initial or pre-service teacher education, as discussed in the previous chapter, requires clarity on what can or cannot be done to improve this system. In this chapter, we therefore examine the main policy and practice options for the initial professional preparation of teachers, that is to say all professional preparation before individuals take full responsibility for teaching one or more classes of pupils (we consider preparation after this point as induction, as discussed in *Chapter IV* below). Since international consensus is lacking on many of these points, these options are discussed in the form of questions and attempts to answer them.

As the concept of the continuum of teacher learning implies, teachers are not necessarily considered fully qualified to teach after this point. In fact, most experts and scholars think it impossible for a pre-service programme to produce a fully qualified teacher. Pre-service programme development therefore involves a restrictive choice of what is most desirable and feasible for future teachers to learn before they enter the world of practising teachers. In such cases, stakeholders are asked to accept, willingly or not, the fact that beginning teachers start their jobs without all the capabilities they need, trusting that these capabilities will be acquired during the early course of their careers as classroom teachers. In some education systems, therefore, to be certified or licensed as fully qualified, one must complete an initial period of on-the-job probation or even formal induction in addition to a pre-service programme.

Some similarities, but much variation

In examining the choices made in organizing pre-service teacher education around the world, it can be seen that teacher preparation everywhere is similar in some important respects. Future teachers either have had or will be offered opportunities to learn the *subject matter(s)* they are expected to teach. In order to be considered fully qualified, they must typically also have some formal study devoted to specialties within the field of education, both in *educational*

foundations (or *general pedagogy*, which is the corresponding term in many countries) such as the philosophy of education, learning theory, child development and curriculum theory, and in *pedagogy* tailored to the teaching of their subject(s). Finally, there is generally an attempt to give future teachers at least some opportunity for *practical learning* in school settings. Thus, initial teacher education across the world is usually a mix of theoretical and practical learning, although it seems that the theoretical has become dominant in many institutions. We can also assume that, in all cases, future teachers bring to their formal preparation many assumptions about how to teach and what it means to teach that they have gained from their apprenticeship of observation (as discussed above in *Chapter II*).

The Eurydice (2002) studies of teacher preparation in the countries of the European Union (and candidate countries) set out six models (or routes) that have survived the evolution of teacher education:

1. Two concurrent models
   a. combination of general education and professional education without a final on-the-job training (OJT) phase; and
   b. combination of general education and professional training with a final OJT phase.
2. Four consecutive models
   c. general education only (i.e. no professional training);
   d. general education, plus required final OJT phase;
   e. general education followed by professional training, but no required final OJT phase; and
   f. general education followed by both professional training and required final OJT phase.

These models can be used to characterize the organizational structure of teacher preparation in most countries around the world. That said, variation across the world within each of these models or routes is enormous. For example, the opportunities for future teachers to learn subject matter content vary greatly between countries as a function of the organization and curriculum of the whole education system. Much of this variation results not from teacher education itself, but rather from the curriculum of elementary and secondary

school through which future teachers have passed. For example, in certain East Asian countries, successful completion of secondary school ensures a level of mathematics and science that is very high relative to, say, the level of high school graduates in the USA. In the Republic of Korea, for instance, all secondary school graduates have completed basic calculus. Since all elementary school teachers are drawn from this pool, they all share this level of exposure to mathematics. In such a case, the subject matter knowledge gained in elementary and secondary school may be further enhanced in the teacher training institution itself. In other countries, initial teacher preparation programmes are forced to teach mathematics that could have been learnt in secondary school.

Variation of this sort is not limited to subject matter knowledge. There is also great variation in the study of pedagogy, foundations, practical experience and programme duration. In addition to the variation between countries, there may also be important variation among institutions within countries. This variation in teacher education policy, practices and institutions across countries raises many issues.

Unresolved questions raised by this variation

(i) Can agreement be reached on the vision of good teaching to be embodied in teacher education programmes?

Some teacher education programmes are organized to reinforce and strengthen traditional notions of good teaching – 'traditional' meaning practices that are already widespread within the education system and that are upheld and advocated by successful teachers with a reputation for excellence. Other programmes are more influenced by agendas for educational reform and advocate innovative approaches to teaching not widely practised in schools. In either case, there is no guarantee that instructors in the corresponding programme will be consistent in modelling and teaching its advocated approach. Many critics have pointed out inconsistencies such as professors lecturing about the virtues of active learning and student-centred pedagogy. For example, in their study of teacher education in four developing countries, Lewin and Stuart found that teachers' college "tutors everywhere are aware of the recommended shift to

'learner-centered' teaching ... They pay lip service to this, in that they teach their students about participatory and active learning methods. But very few of them appeared to be able to put these into practice in the college classrooms ... Most of the tutors observed were following a transmission style" (Lewin and Stuart, 2003: 127). Likewise, Dembélé (forthcoming) reports that in Burkina Faso, Niger and Senegal, lecturing is the most common practice in teacher preparation, although most teacher educators in these countries embrace the idea of active teaching methods. According to Craig *et al*., at primary teacher training colleges in Botswana, "teacher educators still rely on lectures but there is often a lot of group work. Although teacher educators in general have an understanding of learner-centered educational theories, there is less of an understanding and skill regarding their implementation into teaching methods" (1998: 32; see also Schiefelbein, 1992). Besides lack of skill, such inconsistencies may also have to do with teaching and learning conditions, such as class size and availability of materials, etc. At any rate, they point to a need for the professional development of teacher educators as discussed in question *xii* below.

In short, confusion, ambivalence and conflict concerning the vision of good teaching to be pursued in a teacher education programme offer policy-makers and planners the opportunity to make a difference simply by bringing to the table those who are in a position to clarify this vision, resolve or alleviate differences, and help teachers and teacher educators understand and act on the implications for their institutions and practices.

(ii) How much differentiation should there be between the preparation of elementary school teachers and secondary school teachers? More generally, what are the communities of practice into which future teachers are being inducted?

Countries offer different programmes to elementary and secondary school teachers. However, the nature and extent of these differences vary greatly. In some countries, elementary and secondary school teachers are prepared in the same university faculties of education or in special-purpose post-secondary institutions, but in many countries they are not. Primary school teachers in most sub-Saharan African countries are still trained

in special types of secondary schools. In some countries, future elementary and secondary school teachers take at least some teacher education classes together, but in most countries this is not the case. In some countries, future elementary and secondary school teachers are taught by instructors with the same level of formal education (if not of experience), but in other countries they are not. In some countries, only elementary school teachers are provided with some form of formal initial teacher preparation, whereas a general university degree is sufficient to become a secondary school teacher.

Within secondary education, and to some extent within elementary education, there is further differentiation and specialization. Upper secondary school teachers are ordinarily subject matter specialists, while lower secondary school teachers may teach two subjects but rarely more. It is said that in Germany secondary school teachers are prepared to think of themselves as 'mathematicians', i.e. as people who do mathematics, and do not identify themselves as teachers different from 'real' mathematicians (personal communication, Sigrid Bloemeke, 2004). Subject matter specialization exists formally or informally in a minority of countries at elementary school level. Some countries also have a category of special education teachers at the elementary level, but most countries do not have such a category. In many countries, secondary school teachers are further subdivided into general education teachers versus vocational or technical education teachers.

The variation briefly outlined above reveals implicit or explicit assumptions about the *communities of practice* (if any) for which future teachers are being prepared, as well as about whether or not various communities are mutually intelligible. The importance of a community of practice in learning has been put forward by several scholars, drawing on Vygotsky's work (e.g. Lave, 1991; Lave and Wenger, 1991; Van Huizen, Van Oers and Wubbles, 2005; Wenger, 1998). From this perspective, entry into a community of practice entails learning the discourse of that community, and the professional norms and ethics associated with practices deemed desirable by its members. The term 'community of practice' is not generally used to describe preparation for the specializations noted above. However, we think that this term is appropriate when discussing to what extent students in initial teacher preparation are indeed learning

the discourse, norms and practices of the specialty for which their programme is intended. Such an analysis would no doubt reveal that, to some extent, the novices are acquiring these capabilities and values, but that in other respects they are not, either because this is not possible before becoming a practising teacher or because the programme does not do as much as it might in this respect. When viewed from this perspective, the notion of community of practice could also incorporate the vision of good teaching discussed earlier. Thus, some programmes are preparing their graduates to become practising teachers who share a reform agenda. Others are preparing good teachers in a more traditional mode, while still others are no doubt incoherent and offer mixed and contradictory messages in this regard.

Here again, for policy-makers and planners cross-national research is needed to understand the consequences of more or less specialization at the elementary and secondary levels. In our view, for example, the preparation of mathematics specialists at the elementary school level is a policy option that has received less consideration than it deserves in many countries, whereas it could be carefully studied and assessed in the countries in which this specialization exists. Subsequently, when policies on specialization are adopted or modified, their implementation needs to be carefully monitored in a rigorous, empirical way to identify, for example, points of incoherence or discontinuity in the continuum of teacher learning.

(iii) Should teacher preparation be located within institutions, like a university, with a comprehensive educational mission involving many occupations in addition to teaching, or is teacher preparation best done in special purpose institutions?

Historically, many secondary school teachers were prepared at university or other post-secondary institutions, while elementary school teachers were not. But as the twentieth century progressed, more and more teacher preparation for elementary school teachers was moved into universities, especially in industrialized countries. A comparative book on the relationship of teacher education to universities in England, France and the USA spells out the importance of this issue as follows:

> "An exploration of the frontier between the university and the training of school teachers is itself an integral part of a broader analysis of the relationships among higher education, national conceptions of the university, the authority of the state, the pattern of public schooling, the structure of society, and the role within it assigned to teachers" (Judge, Lemosse, Paine and Sedlak, 1994: 241).

This perspective makes clear the challenge facing any reformer who would change the institutional nature of teacher education in such fundamental ways. The above-cited book concludes that "the survival of the school of education in the university remains contentious and problematical" (Judge, Lemosse, Paine and Sedlak, 1994: 253). France is an excellent case in point. As Marcel (2004) noted, the creation of university institutes for teacher education (*Institut universitaire de formation des maîtres* [IUFM] in French) in 1990 marked a radical shift away from the 'Normal School' tradition, particularly as far as primary school teachers are concerned. Historically in France, Normal Schools had nothing to do with universities. However, the implementation of the 1990 change in the institutional nature of teacher education was difficult. "Paradoxically", writes Marcel, "IUFMs are isolated from both universities and the educational system, for various reasons, but mainly because of unresolved issues of institutional power" (Marcel, 2004: 42). IUFMs have been sitting uncomfortably between universities and inspectorate offices, and their fate remains uncertain.

Unfortunately, there is little evidence available to judge whether universities, specialized Normal Schools or on-the-job apprenticeship programmes do a better job of preparing future teachers and whether different forms should be used for elementary and secondary school teachers. In their analysis of teacher education in Latin America, Navarro and Verdisco (2000) remain sceptical of putting all of teacher education into universities. Lewin and Stuart provide a good summary of the potential and limitations of the various structural options. "College-based systems", they argue, "may have advantages in terms of local location linked to communities or clusters of schools: a focus on a single profession and a responsiveness to educational needs, a role in pre-service and

in-service education, and lower costs than tertiary level institutions" (Lewin and Stuart, 2003: 190). The advantages of university-based training include "inputs from staff with high levels of disciplinary expertise, connection to insights of research relevant to learning and teaching, multi-disciplinary perspectives, and superior teaching resources associated with large-scale institutions" (Lewin and Stuart, 2003: 191). As for school-based training, its advantages include "direct links with practical problems, advice from successful teachers, and socialisation into professional norms and standards" (Lewin and Stuart, 2003: 191). But all three structural options have important shortcomings. Lewin and Stuart found that the potential advantages of college-based systems "are not necessarily converted into realities. They 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" (Lewin and Stuart, 2003: 190). The main criticisms levelled against university-based training include the following: often being far removed from the issues of practice in schools; the overall irrelevance of high levels of academic knowledge; and the likely dependence of instructors' career advancement "more on research recognition than training competence" (Lewin and Stuart, 2003: 191).

We agree with this assessment. It provides a guide for policy-makers and planners to evaluate the implementation of whichever of these options has been chosen, so that the advantages of a particular option can be realized and its shortcomings minimized.

(iv) What level of preparation is best suited to meet the demand for elementary and/or secondary school teachers? A combination of secondary and post-secondary? A post-secondary diploma that has no university status? A university degree? A second (i.e. post-graduate) university degree or diploma?

The answers to these questions are partially given by the answer to the previous question about whether teacher education should be located within universities. However, even within universities, differing levels of teacher education are possible; they may even

co-exist in the same institution. Some individuals may enter teaching with a first university subject matter degree plus an additional diploma or degree that focuses more exclusively on preparation for teaching (known as a *consecutive* model in the classification of the Eurydice project). Others receive a single first degree that represents what is considered sufficient subject matter mastery as well as the knowledge and skills needed to begin teaching (known as a *concurrent* model). The answer given to these questions is important not only in setting up the hurdles that must be overcome to enter teaching, but also in influencing subsequent careers. In many countries, primary school teachers receive diplomas that have no university standing and do not allow them to proceed on to more advanced university studies. This is a characteristic of the secondary or post-secondary Normal Schools that played such a major role in the expansion of mass primary education throughout the world. However, although Normal Schools and the like continue to exist, especially in Africa, the number of countries that rely on these schools to prepare primary school teachers is diminishing (Avalos, 2000).

In other countries, where post-secondary education has more penetrable boundaries, primary school teachers may go on to initial and advanced university degrees, not only in educational studies but also in other fields. Lewin and Stuart report that in Ghana

> "the MOE [Ministry of Education]'s policy is to allow college-trained teachers to apply, after three years[']service, for a fully-funded degree course. So those who failed to enter university their first time around can use teacher training as a 'stepping stone' to better paid and more prestigious jobs, rather than as induction into a career as a basic school teacher. Virtually all the newly qualified teachers hoped in five years' time to have moved on" (Lewin and Stuart, 2003: 113).

In contrast, in Lesotho, where alternative possibilities for employment are less available, the teachers surveyed in the MUSTER project were more satisfied with their career, even though they hoped for further study. Thus, offering prospective or current primary school teachers the opportunity to acquire a university degree may have both positive and negative consequences. It provides increased motivation for students to enter teaching, but it may also

increase attrition through loss of many of the same individuals at a later point when their talents are even more developed. Sow, Kane, Ndiaye and Mbaye (2004) report on the same issue in Senegal, but for a somewhat different reason. In that country, the professional aspirations of many primary school teachers with a high school diploma or university degree are predictive of a short career in the classroom. Over 70 per cent of respondents to a questionnaire expressed the desire to stay in education, but to move into a job with higher status, namely an administrative or pedagogical leadership position.

In order to recruit the best possible teachers from the pool of likely candidates, policy-makers and planners must adjust to this desire for social mobility while recognizing that credentials in the form of diplomas or degrees provide very little by way of assurance of quality teaching on the part of the holders of these credentials. Thus, some external assessment or evaluation of what graduates have actually learnt is essential (even if – or especially if – succeeding on such an assessment is not required to obtain the credential).

(v) What should be the duration of initial teacher preparation?

Variation in the duration of initial teacher preparation programmes is quite striking across countries, ranging from a few months to eight years (Dembélé, forthcoming; Lewin and Stuart, 2003; OECD, 2005). There is also within-country variation in terms of primary versus secondary school teachers. Programme duration depends on a set of interrelated conditions, raising in turn a number of important issues. The conditions include: economic constraints; the relation of demand to supply of teachers; the recruitment level; and, related to this latter, the amount and quality of teacher candidates' content knowledge. The literature suggests that programmes of less than a year's duration tend to be most prevalent in developing countries, whereas longer programmes are more widespread in industrialized countries. The shorter duration of programmes in developing countries is primarily a consequence of the difficult drive towards universal primary education, especially since the 1990 Jomtien conference, in a context of teacher shortages and economic hardship. This drive has led many countries to drastically reduce the duration of their teacher preparation programmes, or even to do

away with them altogether, as in Benin and Cameroon during the 1990s. There is no completely satisfactory solution in sight.

In short, programme duration raises a basic dilemma: the longer, the more expensive; and the shorter, the more difficult to do anything worthwhile. Managing this dilemma requires paying attention to all the questions raised throughout this chapter. As Lewin and Stuart put it, balancing the time and money spent on teacher preparation and continuing professional development

> "is a critical policy question. If most investment is front-loaded (i.e. at the beginning of a teacher's career), if teacher attrition is high and rising, if 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 [newly qualified teachers] 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" (Lewin and Stuart, 2003: xii).

But the question is: How short can teacher preparation be and still be worthwhile? There is no general answer to this question. It depends on the strengths and weaknesses of people entering formal teacher preparation as well as the quality and intensity of the induction programme which follows (see *Chapter IV*).

(vi) Should subject matter content be learnt in courses tailored for future teachers, or should they take courses that are also designed for other university/postsecondary students?

Here again, the answer is partially dictated by the institutional context: If all students within an institution are considered future teachers, the programme will be designed for them and not other students. But in more comprehensive universities or other post-secondary institutions, students may take subject matter courses with students preparing for other occupations. The answer might seem obvious: Future teachers should benefit most from courses designed to meet their particular needs. However, practice in the USA, for example, suggests that courses designed for teachers, especially

elementary school teachers, can be watered-down versions of the subject matters taught in courses for other students. They therefore do not respond to those reformers who advocate deeper, more thorough conceptual understanding of subject matter on the part of teachers (such as Ma, 1999, found among Chinese elementary school teachers). The lack of comparative data on what prospective teachers versus arts and science students learn about subject matter makes it difficult to address this question with confidence. In consecutive programmes, the problem is compounded by the fact that it is hard, if not impossible, to single out students who will embrace teaching as a career after completing their arts and science programme. As a result, sorting out what they learn about subject matter as arts and science students versus teacher education students is quite a challenge. As Cochran-Smith and Zeichner noted, "some earlier reports about the low academic quality of teachers were the result of misleading research that compared ability and achievement of high school students who intended to teach with those who intended to go into other fields. These high school students are not the same population of students who actually prepare to teach" (Cochran-Smith and Zeichner, 2005: 10). These issues are so important that they deserve a true longitudinal study permitting comparison of the value added in knowledge and other capabilities at each phase in the programme.

(vii) Should subject matter preparation be focused as much as possible on in-depth understanding of the curriculum taught in elementary and/or secondary school, or should it emphasize more advanced subject matter content not taught in elementary or secondary school, but which is thought to provide a useful context for the teaching of the subjects in question?

This question is closely related to, though not the same as, the previous question. If courses are designed for future teachers, frequently these courses have a focus on the subject matter taught in elementary or secondary school. But there is no inherent reason for this to be the case. Such courses could also focus on more advanced content knowledge that is thought necessary for teachers to teach well. This advanced content may not be the same as the advanced content required for other occupations, such as mathematics for engineers or genetics for aspiring biotechnologists. Our impression is that more emphasis on the content of the elementary and secondary curriculum

could be of value in teacher education systems that currently do not give this much emphasis. However, the lack of evidence and need for more research on the role of subject matter knowledge in teacher preparation prevent us from drawing any definitive conclusions (Floden and Meniketti, 2005).

(viii) How much and what type of formal pedagogical preparation and educational foundations knowledge are needed?

Although, as was said above, formal teacher preparation programmes all tend to give some attention to these domains, this question remains contentious and susceptible to very different answers (Munby, Russell and Martin, 2001). Some critics assert that formal and relatively theoretical study of these domains is of no use in preparing future teachers and that any consideration of these areas should be left to apprenticeship and/or continuing professional development. The teacher educators responsible for these domains, as might be expected, remain convinced of the value of their offerings. There is relatively little good evidence to judge between these positions, in part because the parties in contention would not agree on the criteria needed to evaluate these offerings. Critics tend to be convinced that the performance in classrooms of practising teachers and their pupils is a sufficient test of their preparation. On the other hand, defenders of the current arrangements argue that although foundations and pedagogy contribute to better teaching performance in some respects, these requirements are also of value for other reasons. For example, they are purportedly needed to give teachers a more sophisticated background understanding of the context of the schools in which they work, including their purposes; their fundamental values; their contributions to the public good; their conceptual foundations in the cognitive, behavioural and social sciences; their history; their manifest and hidden structures; and, not least, their continuing struggle with issues of social justice. Teachers are also said to need a research-based knowledge of child and adolescent development. In addition, some programmes pay a good deal of attention to the personal development of the prospective teacher on the grounds that development of strength of character and a mature personality are key to long-term success in and satisfaction with teaching.

As far as pedagogy is concerned, some teacher educators emphasize content-specific pedagogy and are unconvinced that courses dealing with pedagogical issues more generically have any value in improving preparation to teach. Others feel that such courses are needed if students are to gain a good understanding of both the issues raised by teaching relatively large classes of diverse and differentially motivated students, and how the demands of such teaching differ from the demands of mastering subject matter alone.

An exhaustive review of literature in the USA makes clear the inability of existing research to resolve such issues. Clift and Brady did not find any published answer to the question "do general methods have more impact than do content specific methods?" (Clift and Brady, 2005: 330). Likewise, according to Floden and Meniketti, "[t]he research on the impact of foundations courses on teachers' knowledge is scant" (Floden and Meniketti, 2005: 284). On the basis of what we know about other countries, we have no reason to believe that their base of research knowledge is different in this respect. Lewin and Stuart note that in the four countries covered by the MUSTER project, all teacher training colleges "have difficulties in striking an appropriate balance between upgrading content skills in subjects (and in the medium of instruction) and developing pedagogic and professional skills. Most attempt both simultaneously with more or less successful integration" (Lewin and Stuart, 2003: xxx-xxxi). More research is needed before a better balance and integration of content knowledge and pedagogical or foundational knowledge can be achieved.

(ix) How much practicum experience, and of what types, should be required?

Practicum experiences are a major source of cross-national variation in teachers' opportunities to learn. They vary in many respects, including 1) total duration over the course of the programme; 2) the number and duration of the segments of field experience that may take place throughout the programme or be concentrated in a single intensive experience; 3) when each of these segments takes place; 4) where (described in terms of the constraints and options for selection of sites); 5) how and by whom

these segments are monitored and supervised; and finally 6) how and by whom they are assessed. In addition, the responsibilities given to the future teachers during these practica also vary, ranging from being assigned to classes solely for observation of the teachers and pupils, to tutoring and other assistance given to the teachers in working with small numbers of students or other support tasks, to being the lead teacher (in the sense of being temporarily in charge of the class). Even the explicit or informally understood purposes of field experience may vary, ranging from a 'trial by fire' to see if the student teacher has suitable values and the personal characteristics to be a teacher, to an elaborately planned sequence of experiences designed to teach specific skills and capabilities. The degree to which these experiences are planned and scripted varies greatly, as does the extent to which the mentor or supervisor is trained explicitly for this responsibility. Finally, experience and research suggest that many of the prescriptions and requirements for practica exist mainly on paper, without being implemented as intended. "Although researchers report that methods courses and field experiences have an impact on prospective teachers' beliefs about content, learning, and teaching, it is difficult to predict what impact a specific course or experience may have; the impact is often different from what instructors or student teaching supervisors may imagine or wish" (Clift and Brady, 2005: 331). Thus, without much more research data than are now available, it is not possible to characterize all of this variation accurately, much less to say what combination of characteristics is best suited to the preparation of teachers. However, there are smaller-scale studies of practica as experienced by future teachers. These offer many insights into the importance of this component and how it might be improved on a wider scale.

One of the most remarkable discoveries in the literature has challenged the notion that practica are occasions of immersion in classroom life for the duration of the segment. Lynn Paine's research on teacher education in China illuminates a very different conception of the practicum. The Chinese future teachers she studied had practicum experiences of a duration not unlike that of many other countries, but she found that very little of that time was spent in classrooms. The rest of the time was spent in preparation for a very short period of teaching in such a classroom. These future teachers

studied, planned and rehearsed lessons until their lessons were ever more polished and refined. These lessons were tried out on peers and supervisors in practice sessions and dress rehearsed before a performance could be given to the audience of pupils for whom they were ultimately intended (Paine, 1990).

In the synthesis report of the MUSTER project, Lewin and Stuart (2003) paint quite a different portrait of the practicum. Three of the four countries covered by the study (Ghana, Lesotho, and Trinidad and Tobago) had what they called 'traditional teaching practice' – students going out from college to schools for one or more blocks of practice teaching, which were in principle organized, controlled and supervised by the college. In none of these settings was this process satisfactory. The authors point out, for example, that in Trinidad and Tobago,

> "there are contradictory assumptions operating. The college curriculum is premised on the idea that after acquiring a corpus of knowledge, trainees will be able to apply this to their teaching. Yet supervising tutors talk about practice and experience, and implicitly suggest the need for personal theories developed over time which can use and apply situated knowledge. This suggests an altogether different model of learning to teach" (Lewin and Stuart, 2003: 87).

In Ghana, although there was much preparation and follow-up in the college for teaching practice, students still felt very unprepared for the classroom. They found that what they had been taught did not work, and yet, in their eyes, they were judged by college supervisors on their ability to implement college doctrine. In Lesotho, the students were left mostly on their own during practice teaching.

In England, as mentioned in *Chapter II*, there was a movement to abolish faculties of education altogether, privileging school experience as the exclusive basis for teacher education. This change never entirely took place. However, as Furlong points out, the results have nevertheless been dramatic:

> "Although the English deregulation [advocates] never achieved their ideal of a free market, it is hard to underestimate their influence in changing the landscape of teacher education in

> England. Throughout the 1980s and early 1990s, many reforms were made, many of which were inspired by this line of thought. As a result, student teachers now spend far more time in schools during their initial teacher preparation programs than they did a decade ago (66 percent for prospective high school teachers). And as a consequence, schools' responsibilities in training programs ... have been substantially increased" (Furlong, 2002: 23).

In Malawi, a study by Stuart and Lewin provides another case of school-based training (MIITEP) in which 80 per cent of the time is spent in schools – basically an apprenticeship model with support required from college tutors as well as local school personnel. The authors provide a balanced view of this large-scale effort to greatly increase the number of trained teachers, documenting its shortcomings but also stressing its potential strengths (Stuart and Lewin, 2003: 90-94). One of the lessons learnt from the Malawi experience, they claim, is that it is "extremely difficult to train new teachers in school conditions where so many basic resources, both human and material, are lacking" (Stuart and Lewin, 2003: 93). This applies to most of the developing world, especially sub-Saharan Africa. Indeed, in another study covering Burkina Faso, Mali, Niger and Senegal (Dembélé, forthcoming), it was found that the weight and organization of field experiences, and whether or not they actually take place, vary across countries; and that in all four countries field experiences are reported to be difficult to organize due to material and financial constraints. In addition, field experiences are prone to being reduced or dropped by provider institutions in order to reduce overall programme duration.

The case of Guinea's primary teacher preparation reform programme, reported by Bah *et al*. (2004), raises a well-known issue worth mentioning here. The programme promoted a kind of teaching that was not widely practised in schools. As a result, finding appropriate mentors, both in terms of quantity and quality, turned out to be a problem.

More generally, the lack of success in designing and implementing the opportunities to learn practica remains something of a mystery. How can a component claimed to be essential to

teacher preparation be left so much to chance, and why is 'sink or swim' so widely practised when research shows it to be problematic? What can be said is that the failure of policy-makers and planners to allocate resources directly to the improvement of practica has largely contributed to, if not created, this problem.

(x) What degree of responsibility should future teachers assume for their own learning?

Four major ideas have converged to create a widespread sense that future teachers should not be spoon fed in a knowledge transmission mode of teaching. Rather, they should take more responsibility for their own learning. One of these ideas is the as-yet-unrealized vision of teaching as a profession in which teachers operate more autonomously, establishing their own norms, governing themselves and enforcing these norms themselves (Villegas-Reimers, 2003). According to this vision, in order to be prepared for this role, future teachers must begin to experience some of this autonomy for themselves. The second related idea is that good teaching requires reflection, the habit of mind of examining one's practice critically and in depth, and thinking about how it might be improved (Feiman-Nemser, 2001; Zeichner and Liston, 1987). According to Zeichner and Tabachnik (in Soler, Craft and Burgess, 2001), there are four traditions of reflective teaching (academic, social efficiency, developmentalist and social reconstructionist). However, all of them view teaching as more than a set of techniques to be transmitted and mastered. Thirdly, in emphasizing that all learners construct their own knowledge, the movement for constructivism in teaching and learning calls for future teachers to experience learning in this way and to accept this responsibility to construct knowledge, as preparation for dealing with their future pupils in a similar fashion (Richardson, 1997, makes it clear that this is not a straightforward process). Finally, the study of adult learning has emphasized that adults, even more than children, learn best when they have a larger role in deciding for themselves what and how to learn (Brockett and Hiemstra, 1991; Knowles, Holton and Swanson, 2005). Since teacher education students in most cultures have reached a sufficient level of maturity to be treated as adults, future teachers, according to this idea, should be taught as adults. However, all the above ideas, although powerful in principle, encounter stiff resistance in the

context of institutions where hierarchies are firm and notions of fixed truth remain virtually unchallenged (MacKinnon and Scarff-Seatter, 1997; Richardson, 1997). So far, in fact, relatively little progress has been made in giving the recipients of teacher education and professional development more responsibility for their own learning. Perhaps the sense of what *needs* to be done ought to be brought more into line with what *can* be done.

(xi) How should teacher education institutions be held accountable for the quality of their graduates? With a national curriculum? By external examinations? By other means, such as accreditation? Who sets the requirements for becoming fully qualified through certification, licensure, etc?

All countries have set requirements for becoming fully qualified to teach. However, the nature of these requirements and how they are administered varies widely. For example, US universities have traditionally enjoyed substantial autonomy to set requirements for teacher education and to officially certify students for teaching, responding only to relatively few and often general requirements set by the state for the nature and content of their programmes. More recently, external examinations and other mandated means of accountability have begun to play a larger role, although evidence in favour of these measures remains weak (Wilson and Youngs, 2005).

Comparing the US with seven other countries, Wang, Coleman, Coley and Phelps (2003) applied the useful notion of 'filters' to the question of how quality control mechanisms work in teacher education. The filters they examined were ones that regulated 1) entry to teacher education programmes; 2) evaluation of practical experience requirements; 3) exit from teacher education programmes; 4) certification procedures; 5) hiring practices; 6) evaluation of the induction period; 7) evaluation of professional development; and 8) evaluation of the probationary period for permanent appointment. Their analysis illustrated how different countries selectively used different filters. Some are high stakes and some are minimal requirements or even voluntary. "Some countries make entry into teacher education programs very difficult, while some make it relatively easy. Some countries make exit from teacher education

programs very difficult, while some make it relatively easy" (Wang *et al*., 2003: 41). The same is true of later phases in the continuum of teacher learning. Of the countries studied, the Republic of Korea is notable for high-stakes filters by tightly regulating entry to teacher education programmes, exit from teacher education programmes, hiring practices and evaluation of professional development. The US, according to this study, has only one high-stakes filter, namely certification, and two medium-stakes filters (entry to and exit from teacher education programmes) while all other filters are low stakes. The authors point out that they do not take into account the possibility that any one filter could be so rigorous as to outweigh any number of the other filters. Although they assert that the eight countries include no such case, France (not included in the study) might be considered to be one since it relies chiefly on an enormously competitive and selective examination of subject matter (the *Certificat d'aptitude au professorat de l'enseignement du second degré* [CAPES]) to select new secondary school teachers.

Tightening up such filters in the USA and other countries has offered an appealing, apparently simple and straightforward means of reform as well as a way for various stakeholders in the education system to exert influence over the teacher education institutions. It remains to be seen whether this strategy is one that under some conditions is as effective as hoped, or whether the unintended consequences and the subterfuges that can be brought to bear undermine effectiveness (Tatto, 2006).

(xii) Who should teach or mentor teacher education students in their subject matter, pedagogical and foundations coursework, and in their practical experience in elementary and secondary schools? What qualifications are advisable for these positions (i.e. possession of a university degree of a certain level, such as a masters or doctorate; and/or experience teaching pupils at the level for which teachers are being prepared)?

Very little systematic data exist on the characteristics of the teachers of teachers (Villegas-Reimers, 2003; for the USA, this is also noted in Cochran-Smith and Zeichner, 2005; Labaree, 2004, summarizes what is available). And yet many questions are raised about their qualifications when teacher education comes under

scrutiny. What is their vision of good teaching and the good teacher? How well do these people understand the content of what they are expected to help future teachers learn? How much experience have they themselves had in teaching at the levels and under the conditions for which they are preparing teachers? Are they sufficiently prepared and experienced to model the reforms they are asked to promote among future teachers? Do their qualifications give them credibility and legitimacy in the eyes of, on the one hand, university scholars, whatever their discipline and, on the other hand, the administrators and teachers who have to cope with the challenges of elementary and secondary schools? What can be done if they are lacking in one or more of these respects? As Avalos says, "at the upper end of the scale, there are university professors who seldom set foot in a school. At the other end, in the current and former normal schools, there are teachers who have little more than a primary teaching qualification or a qualification unrelated to the demands of new curricula and teaching approaches" (Avalos, 2000: 470). The qualifications of these teacher educators may be regulated or unregulated by the government. Brazil, for example, passed legislation requiring teacher educators in primary teacher training to have undertaken courses at a higher education institute (Avalos, 2000).

The MUSTER project has pioneered addressing these issues with comparative research in four countries (although, unfortunately, without national probability samples such as are planned for the TEDS-M study): Ghana, Lesotho, Malawi, and Trinidad and Tobago (Lewin and Stuart, 2003). In studying primary teachers' colleges in these countries, they found no clearly defined career path for the college tutors. Moreover, very few tutors had received specific training for this role. None of the colleges had formal induction or professional development policies for their teaching staff. "In general, tutors trained as they had themselves been trained" (Lewin and Stuart, 2003: 117). These teacher educators lacked a clear conceptual framework of what it means to learn to teach.

To our knowledge, across the developing world there are very few exceptions to the situation found in these four countries. Namibia is one such exception. As reported by Craig *et al*., as part of the Teacher Education Reform Project (TERP) in that country, "an ambitious program of staff development for ... teacher educators,

administrators, and some support teachers was initiated ... in 1993", parallel to the introduction of the new Basic Education Teacher Diploma (BETD). This programme began with a B-level course leading to a higher diploma course and then to a Masters-level course. According to Craig *et al*., this represented "a major shift in the sense of professionalism among teacher educators, who only a few years ago were classified (and thought of themselves) as high school teachers" (Craig *et al*., 1998: 41).

Guinea is another exception. It is probably the only French-speaking African country that has a cadre of personnel especially trained to become primary teacher educators (*professeurs d'école normale*). In most other sub-Saharan African countries, especially those aligned with the French tradition, primary school teacher educators are drawn primarily from the ranks of primary school inspectors and pedagogical advisors as well as from the ranks of secondary school teachers (Dembélé, forthcoming). Secondary teacher educators, meanwhile, have in the majority attained the status of university professors. There is thus an explicit hierarchy among teacher educators in these countries, and the two categories of teacher educators seldom interact professionally, serving in two very different types of institutions, i.e. lower Normal Schools versus advanced Normal Schools (*écoles normales supérieures*) or universities.

Such a hierarchy is by no means limited to French-speaking sub-Saharan African countries. In the French IUFM, there is, according to Marcel, "an implicit 'hierarchization' of teacher educators" (Marcel, 2004: 40). The so-called *maîtres-formateurs* (primary school teachers with a professional trainer diploma) have no teaching responsibility at the IUFM, cannot supervise professional theses required of prospective teachers, and have no representatives on the IUFM's board. Their participation in courses is limited to instances where they are 'invited' by the 'regular' teacher educators, the latter being in the majority certified secondary school teachers and a smaller number of university professors.

What emerges from the foregoing is that teacher educators are diverse. However, whatever their background, they often do without formal preparation for their teacher educator role. Available

data do not permit drawing definitive conclusions about what qualifications and preparation are most appropriate. More explicit and evidence-based attention to various policy options for their recruitment, preparation and retention is therefore sorely needed in ongoing policy debates about teacher preparation. In particular, the kind of research that has been and is being conducted on teachers is also called for in the case of teacher educators.

(xiii) What are the incentives and disincentives for administrators and instructors in teacher education and the mentors of future teachers in field experiences to do a good job?

No one can be expected to do well without a favourable organizational context in which incentives outweigh disincentives. Although educators are to a large extent intrinsically motivated, we do not believe that intrinsic incentives are by themselves sufficient for most people to confront the difficult conditions that exist in many developing education systems. However, research on the relationship between these two types of incentives is complex and much debated (e.g. Sansone and Harackiewicz, 2000 vs. Cameron and Pierce, 2002). Within teacher education institutions, the state of incentives therefore needs to be assessed: What are the incentives to do well? What are the disincentives? Are people recruited with strong intrinsic motivation to succeed as teacher educators and to produce the best possible teachers for the system? Are these people given the complementary extrinsic incentives (such as salaries and working conditions) they need if they are to remain committed to the work of teacher education? This is a neglected area as far as teacher education research is concerned. Although Seldin (1990) deals directly with these issues, the frame of reference of his book is limited to the American context. Moreover, it deals more generally with higher education, not just teacher education. The implicit assumption that we can get along without considering incentives and disincentives for staff in teacher education and professional development will probably remain widespread as long as there is so little research to highlight this problem.

(xiv) Should teacher education institutions be largely autonomous of government control, under the control of a national ministry of higher education, a national ministry of elementary/secondary education, or some sort of authority at the intermediate regional level – to mention only a few of the possibilities?

Decentralization is a worldwide movement in education. However, many education systems are not yet ready to surrender the features of centralized control over elementary and secondary schools. In contrast, in many of the long established and high status universities of the western world there are strong traditions of faculty autonomy, such that too much prescription of what to teach future teachers would be strongly resisted. But is any of this the optimal arrangement for teacher preparation? Is it responsive to the needs of the education system? Could colleges of teacher education benefit from less individual faculty autonomy and more of a shared understanding of what is required to prepare teachers to be more effective? Avalos (2000) documented the diversity in the control of teacher education institutions in Latin America. She noted that when primary teacher education was carried out in non-university institutions, much decision-making typically rested with the ministry of education in such areas as curriculum, staffing and salaries. She contrasted this with other countries where central, regional and local authorities had little control over teacher education other than to set up the requirements for entering the teaching profession. In Chile, for example, universities are autonomous in teacher education without direct control by state agencies.

In any case, the development or reform of teacher education programmes is never under the complete control of any one institution. Teacher education enjoys some decentralization either in theory or in practice, or both. As Eraut says: "The whole process [of re-design of a teacher education programme] may resemble the negotiation of an international treaty more than the design of a simple course by those preparing to teach it" (Eraut, 2000: 454). Rather than placing too many hopes in idealized reform plans, policy-makers and planners must be better prepared for this process of negotiation, compromise and incremental change. Further research on the consequences of autonomy would help them plan for this.

(xv) Should elementary/secondary educators be involved in the governance of teacher education institutions?

Once teacher education is installed in universities, a consequence is that faculties of education can become increasingly disengaged and less involved in elementary and secondary schools. This can be judged undesirable in preparing teachers. In the 1980s, Harry Judge, then Head of Educational Studies at the University of Oxford, prepared a classic analysis of this situation in the USA (Judge, 1982). He asserted that the most prestigious schools of education were attempting to model themselves on the faculties of arts and sciences, mainly concerned with research and publication. Their inclination was to have as little involvement in elementary and secondary schools as possible, and even their research was often not linked closely to schools and their needs. On the other hand, most other US schools of education at that time were heavily involved in schools through teacher education, textbook writing and other projects, but were doing little in the way of serious, reputable research. As a result, they had little credibility in their universities and higher education more generally. Since that time, a countermovement has developed to link elementary and secondary schools more closely to schools of education, even in research. Elementary and secondary school teachers and administrators are invited to consult and participate in many aspects of the life of schools of education, including all sorts of needs assessments, advisory panels, collaborative projects and the like. The intent is that they be treated more and more as equal partners. This breaking down of the barriers between higher education and elementary-secondary education has progressed to varying degrees in the USA and other countries. In many nations, however, it has yet to become a major influence. One notable exception is Cuba. "Cuba has placed a very strong emphasis on links between schools and teacher education programs in the curriculum it has approved for the new primary teacher licensure program. Throughout the program of training, schools and teacher preparation institutions share tasks of planning, orienting, and managing the practical activities of students" (Avalos, 2000: 469). Where such involvement has been tried, it can be assessed for its effects on teacher education and the responsiveness of teacher education to the actual challenges faced in schools. In particular, we can find out to what extent it reduces

the widespread perception in many settings that future teachers are cut off from the realities of teaching until they reach the stage of beginning teachers.

How does all of this fit together?

An overarching question is how this fits together. Research on teacher education is in large part a matter of making sense of connections. We discuss two of them below: the connection between subject matter content and studies of pedagogy/education, and the theory-practice connection.

(i) The connection between subject matter content and pedagogical or education content in teacher education programmes

Traditionally, these two lines of preparation have often been separated from each other, with different instructors assigned to different departments or sections of institutions, or even to different institutions. Under this arrangement, teachers of subject matter content were not responsible for the pedagogical aspects of how this content should be taught. Moreover, teachers of educational coursework were at most marginally responsible for the acquisition of the subject matter content itself.

This separation has been contested at various points in the history of teacher education. The greatest of these can be found in the literature on pedagogical content knowledge and other aspects of knowledge for teaching that have become more salient in the years since Shulman (1986, 1987) first introduced the term *pedagogical content knowledge* (PCK). This term refers to a special kind of knowledge that distinguishes teachers from other experts in the same subject matter domain. PCK includes "for the most regularly taught topics in one's subject areas, the most useful forms of representations of those ideas, the most powerful analogies, illustrations, examples, explanations and demonstrations – in a word, ways of representing and formulating the subject that make it comprehensible to others" (Shulman, 1986: 9). It allows teachers to build bridges between their sophisticated understanding of the subject matter and the students' developing understanding, and to adapt instruction to the variations in ability and background presented by the students. While later developments have elaborated on this concept and changed it in

some ways (Ball, Lubienski and Mewborn, 2001; Gess-Newsome and Lederman, 1999), there is agreement that developing some form of PCK (however it is construed) is an important task in learning to teach, whether in formal programmes or informally through practice (Grossman and Schoenfeld, 2005; and the particularly illuminating example of Even, 1993). Its development depends on both subject matter knowledge and knowledge of learners, of learning and of the intended curriculum. Just how to do this remains a matter of uncertainty.

Reform in this respect is difficult, because the separation of content and pedagogy is institutionalized. This separation has taken a particularly strong form in the programmes known in Eurydice (2002) as *consecutive*. For example, in systems that developed in close association with Britain, one option for teacher preparation has been to take a subject matter degree first and then a graduate diploma in education. This option has been most used for preparation of secondary teachers. Preparation of elementary school teachers who have to teach all or nearly all subjects has more typically been done in an integrated or *concurrent* form, deriving from the Normal Schools that first took on responsibility for the training of such teachers as part of the movement toward universal primary education in the nineteenth century. But while such programmes may appear structurally concurrent, one cannot say that the programmes function in a truly concurrent fashion without empirical analyses of how content and pedagogy are linked or fused together in what is taught and, in the end, whether and how this linked knowledge is acquired by future teachers. So far, little of this knowledge is readily available to policy-makers and planners.

(ii) The theory-practice connection or disconnection

The introduction of an extensive theoretical basis for the practitioner's work has been a major aspect of the professionalization process in many professions (Korthagen and Kessels, 1999). In education, this theoretical knowledge has been produced by research in sociology, psychology, linguistics and other contributing disciplines throughout the twentieth century. While such knowledge can be useful to the practitioner, the way teacher education institutions have attempted to make it available to future teachers has been problematical. The dominant conception of teacher education

as application of theory has resulted in disconnecting this theoretical knowledge from practice. There has therefore been an artificial opposition between what teachers need to know (*not* just be able to do) and what they actually do, daily, in real classrooms with real children and adolescents. Indeed, just as with content knowledge and pedagogical knowledge, separation has been the rule in many institutions. In the tradition of university teaching more generally, specialists in the various theoretical domains of education each teach their specialty to prospective teachers. Educational psychologists teach the psychology of learning and instruction, historians teach the history of education, sociologists teach the sociology of education, etc. And even when institutions of teacher education hire former teachers, these foundational subjects are often taught without a great deal of attention to how they are expected to shape or influence a future teacher's practice.

Even what might be considered the more practice-oriented specialties of curriculum and pedagogy can be taught from a theoretical stance. This is evidenced in the European conception of *didactique* (e.g. Brousseau, 1997) and *didaktik* (e.g. Westbury, Hopmann and Riquarts, 2000), and its difference with North American analysis of pedagogy and the teaching of methods courses.

Practice at the extreme is a completely separate experience in a separate institution – the elementary or secondary school – with very modest connections to what is happening at the university. This is so because the teachers whose classrooms are sites for such experience typically know very little about their student teachers' coursework and are not involved in the preparation for or follow-up to the field experience.

While many of these disconnections can still be seen in teacher education institutions around the world, in recent decades there have also been many experiments that have changed these arrangements and connections. Space does not permit much discussion of these experiments. Interested readers should refer to Cochran-Smith and Zeichner (2005), Darling-Hammond (2000), Feiman-Nemser (2001), and Korthagen and Kessels (1999).

Conclusion

By comparison with what we know from the literature about the desirable characteristics of teacher preparation, teacher education institutions in many countries around the world, both industrialized and developing, are dysfunctional in various respects. For the immediate future there are no solutions to the issue of teacher preparation in developing countries that are both optimal and feasible (the same is true, but to a lesser extent, for countries fortunate enough to have more resources.)

As already noted, the drive toward universal primary education has led many developing countries to drastically reduce the duration of their teacher preparation programmes, in some cases to just a few months or weeks. This in turn has implications for other aspects of pre-service teacher education, such as entry requirements, the level of preparation, the balance between subject matter knowledge and pedagogical/educational knowledge, and the amount and type of field experience. In most cases, the tendency has been to give priority to pedagogical knowledge, with the assumption that teacher candidates have sufficient subject matter or content knowledge. This assumption, however, is problematic given what is reported about the generally low quality of general secondary education in many of these countries, and especially in cases where entry level requirements have been kept low or even lowered to recruit more new teachers and at the same time contain teacher salary costs.

School-based teacher education, an increasingly popular strategy in rich countries, is also being put forward as a viable alternative in developing countries. However, as Lewin and Stuart point out, "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" (Lewin and Stuart, 2003: xx). Recent experience in Guinea, though promising, is illustrative in this respect (see Bah *et al*., 2005). Thus,

the role and involvement of practising teachers in teacher education remains a challenging issue, especially when existing hierarchies reinforce their low status.

As stated at the outset, international consensus is lacking on many of the teacher preparation policy and practice options discussed in this chapter. In the main, attempts to answer the questions posed are based more on tradition, practical considerations or reasoned argument than on research evidence. But in spite of the absence of such evidence as well as the challenges and difficulties we have discussed, policy-makers and planners must still try to foresee and assess the long-term consequences of the compromises or decisions they make. We concur with others that substance should take precedence over structure in thinking about teacher preparation. It follows that questions regarding a vision of good teaching and programme content (questions *i*, *v*-*x* above) are more critical than and deserve priority over questions regarding actors and governance (questions *xi*-*xv*), or location and structural alternatives (questions *ii*-*iv*).

IV. Induction of beginning teachers

Induction is the process by which beginning practising teachers adapt to and learn about their roles as teachers. It has only recently begun to receive the attention it deserves as a phase in the continuum of teacher learning (e.g. Bartell, 2005). This change is due in part to criticisms levelled against initial teacher preparation, coupled with the emergence of alternate routes into teaching in which teachers are given teaching responsibilities with very little, if any, prior preparation. Induction may be supported by formal programmes intended to support and enhance the learning of beginning teachers. Some industrialized countries have well established systems of induction support. In most developing countries, however, little has yet been done in this regard.

When there is no formal programme, induction still occurs as an informal process of on-the-job learning from practice and from the cultures and norms of school settings. This informal process is usually a matter of chance, leading perhaps to positive, but more often to negative consequences as far as acquiring desired expertise as teachers or remaining in teaching is concerned.

To illuminate the induction phase, we draw on research on different ways in which systems link pre-service and in-service training in organizing the learning of beginning teachers. The contrasting induction systems of different countries raise many questions which must be answered in considering how to improve the induction of beginning teachers in developing countries.

Again, some similarities, but much variation

Variation

Of the 25 countries included in the OECD study *Teachers matter* (OECD, 2005), 10 have mandatory induction programmes (Australia [certain states], England and Wales, France, Greece, Israel, Italy, Japan, the Republic of Korea, Switzerland, and Northern Ireland). In six of these countries schools can elect to offer induction programmes. In Scotland, individual teachers make this choice, while in eight of the countries there are no formal induction programmes

at all. Usually these programmes are offered by schools. However, in four countries (Israel, Japan, Switzerland and Northern Ireland), induction programmes are provided jointly by teacher education institutions and schools.

While the OECD (2005) report provides some basic data on induction, Britton *et al*. (2003) is the richest international source of insights into induction that we have found. This work consists of case studies of induction in five countries that all have major and well-established national programmes of induction, but that nonetheless vary dramatically in their goals, purposes, structures and logic. The countries are China (Shanghai region), France, Japan, New Zealand and Switzerland (three cantons). Across these and other countries, there is no consensus, for example, on the duration of induction. In the OECD (2005) study, the length of the programmes varied from seven months in the Republic of Korea to two years in Quebec, Switzerland and some US programmes. In fact, education systems are not even consistent in what they consider a beginning teacher to be, much less on the duration of this stage.

Since understanding such differences is crucial to understanding induction, it is worthwhile introducing the Britton *et al*. (2003) cases in a little more depth. The five systems differ not only in the focus of their programmes, but also in scope: in how narrowly or broadly they cast their net and in how tightly this net is woven together. For example, induction in lower secondary schools in France is exceptionally subject matter specific (in each of the five countries in the Britton *et al*. study, the focus was on researching teachers' opportunities to learn to teach mathematics in lower secondary school). Induction in France is designed to mould beginners into the identity of specialized mathematics teachers. Since these novice teachers already possess extremely high levels of subject matter knowledge, mathematics pedagogy is considered central to their induction learning.

In contrast to France, induction as portrayed in the Japanese case study has as its main goal to move the teacher beyond the narrow subject matter focus of pre-service education. In the Shanghai area of China studied, induction owes its distinctive nature to its very systematic ways of organizing very diverse activities and services

to introduce new teachers to a special language of teaching, ways of thinking and norms of practice. In fact, induction in Shanghai is the most comprehensive, extensive and systematic of the programmes studied, as well as the one with the most nearly unique features. In contrast to China, the New Zealand process is far more loosely and eclectically organized, providing advice and guidance of many kinds, from many sources and in various locations.

Finally, induction in Switzerland has the broadest mandate of all. It is about developing the whole person, with extensive opportunities for collegial counselling, co-operation and reflective practice. Induction in the three cantons studied is also distinctive in the extent to which it gives beginning teachers a strong voice in determining what they will do and what they will learn during induction. Induction features in this setting include "formal and informal practice groups, individual and group counselling, classroom observations and follow-on discussions, review of personal and professional status and progress, specially designed courses and help booklets" (Britton *et al*. 2003: 136). In this system, induction responsibilities are shared by the schools, the pre-service institutions and cantonal centres for professional development. It is interesting to note that induction systems with a variety of features may, as in Switzerland, offer beginning teachers choice and discretion in deciding what they want for induction. Or, as in the case of China, they may not offer teachers a great deal of choice.

Commonalities

While each of these countries organizes what Britton *et al*. call a "unique dance between theory and practice", the five countries share important commonalities: 1) the belief that induction is important even though little hard evidence exists to support this belief; 2) an emphasis on improving the quality of teaching (including, among other things, managing classroom instruction and working with pupils, and developing relationships outside the classroom to support this instruction) and on personal development as the main foci to which the goals of induction are attached; 3) the assumption that all formal subject matter preparation has already occurred before teachers are given a teaching position; 4) designing induction programmes as a complex mixture of diverse activities and multiple

providers; 5) a 'curriculum' of induction that includes "effective subject matter teaching, understanding and meeting pupils' needs, assessing pupil work and learning, reflective and inquiry-oriented practice, dealing with parents, understanding school organization and participating in the school community, [and] understanding self and current status in one's career" (Britton *et al*., 2003: 319).

Unresolved questions raised by variation in induction

The variation in induction programmes raises many unresolved questions and issues that are discussed below. Many of these unresolved questions parallel the questions raised in *Chapter III* for pre-service teacher education.

(i) How much beginning teacher time can be invested exclusively in teacher learning during this phase?

The cases of France, Japan and China indicate that one of the major policy issues for induction is how much beginning teacher time can be invested in teacher learning, in the sense of being deducted from their teaching load, i.e. the time that they might spend teaching pupils. Of course, teacher learning will take place in the natural course of events as beginning teachers plan lessons, carry out lessons and assess student learning. However, devoting time exclusively to this teacher learning through a reduced teaching load potentially adds a great deal to what can be accomplished during the induction phase.

It is also one of the most expensive aspects of induction arrangements, since the salaries of teachers – even parts of these salaries – can easily outweigh the cost of other inputs for induction support. In France, the teaching load of beginning teachers is reduced by a third so they can spend this time in teacher education institutions; nevertheless, they receive the full pay and status of first-year teachers. Likewise, beginning teachers in Japan and Shanghai spend a half-day a week on coursework for their own learning, while their counterparts in New Zealand are supposed to spend a fifth of their time for the year in school-based professional development programmes. In Japan, out-of-school induction alone requires 90 days from beginning teachers – 25 per cent of the calendar year. All of these teachers also receive full pay. While the

OECD (2005) report singles out reductions in teaching load as a feature of induction, it points out that this is not the case in most of this relatively affluent group of countries. Even when it is the case, the reduction may be minimal (10 per cent or less of the normal load).

(ii) How should the training and work of mentors be organized?

The role of *mentor* is considered crucial in most induction programmes. 'Mentor' is a general term for an experienced teacher or other educator who provides one-to-one guidance to more junior teachers, with the purpose of helping them become more effective and successful teachers. In some settings, mentors are invariably senior teachers. In other settings, they could also be inspectors, principals, mid-level ministry personnel or university instructors. Curiously, what might be thought of as the key ingredient of the mentors' role – their preparation – is often neglected. For example, only a few of the countries in the OECD (2005) study require training of mentors. And while some programmes give mentors reduced teaching loads as an additional inducement (indeed, there are full-time mentors in some US programmes), many do not. There is also much variability in whether and to what extent mentors are compensated financially. Finally, as the following questions and sections indicate, there is no widely shared understanding of exactly what mentors should do and how they should do it. In short, as far as mentoring is concerned, many programmes may still be emerging from the informal state, in the sense that they are largely informal in their approach, relying mostly on the wisdom of practice of experienced educators and the time they can squeeze from their other duties. However, we know that being a good teacher (however defined) is a necessary but not sufficient condition for being a thoughtful mentor (Dembélé, 1995). This suggests that special training, as well as teaching experience, could be crucial for this role.

(iii) Should induction programmes focus directly on teaching the novice to teach better?

To some, the answer to this question may seem obvious. However, early research on induction and mentoring by Feiman-Nemser, Paine and colleagues was a surprise. Their studies suggested that, in the USA, the emphasis was on providing emotional support for the

stresses of beginning teachers and on helping each teacher find his or her own style of, or approach to, teaching. As a result, very little direct teaching of how to teach took place. In China, on the contrary, the mentors of novice teachers were more likely to assume the role of master teacher and coach, providing more direct guidance to novices on what they needed to know and do in order to teach well. Wang and his associates, for instance, found that mentor-novice talk was more limited in the US sites compared to China. Chinese mentors therefore had the opportunity to develop their vision in more depth, not only on subject matter and curriculum issues, but also in developing pedagogical thoughtfulness and skill (Wang, 2001; Wang and Paine, 2001; and Wang, Strong and Odell, 2004, provide detailed analyses of these differences). In our view, such differences in interactions and focus are virtually certain to lead to different teacher learning outcomes. However, there is very little direct evidence of these outcome differences.

(iv) How much should induction be expected to transform teaching in innovative ways as opposed to improving the quality of the status quo*?*

Tickle draws attention to this dilemma of innovation versus *status quo* as follows:

> "Exposure to scrutiny of performance in traditional practices in which some people are deemed to have failed, or in new measures which have yet to be tried and tested, leaves new teachers vulnerable in their work ... From these tensions arises a central paradox faced by new professionals – of being inducted into old practices, traditions, and circumstances, in which behaviours are prescribed and performances assessed, while expecting and being expected to participate as reformers in search of solutions to endemic educational problems" (Tickle, 2000: 7).

Thompson and Zeuli discuss five requirements for transformative professional development. These requirements imply that the nature of induction (which in effect is professional development for beginning teachers) would be very different when the goal is transformative as compared with induction, which does not go against the grain of what is already considered good practice

within the system. According to these authors, transformative professional development requires: 1) "a sufficiently high level of cognitive dissonance to disturb in some fundamental way the equilibrium between teachers' existing beliefs and practices on the one hand and their experience with subject matter, students' learning, and teaching on the other"; 2) sufficient time, adequate resources and appropriate contexts "to work at resolving the dissonance through discussion, reading, writing, and other activities that essentially amount to the crystallization, internalization, criticism, and revision of their thinking"; 3) steps to "ensure that the dissonance-creating and dissonance-resolving activities are connected to the teacher's own students and context, or something like them"; 4) provision for teachers "to develop a repertoire for practice that is consistent with the new understanding that teachers are building"; 5) availability of continuing help in the cycle of surfacing and learning from new issues and translating this learning into teaching performance (Thompson and Zeuli, 1999: 355-357).

(v) How can differentiated attention to both theory and practice be maintained when novice teachers are often overwhelmed by the complexities and challenges of their early practice?

Although there is a tendency to regard pre-service programmes as a period of theoretical learning and induction as a phase of practical learning, Britton *et al*. (2003) consider this dichotomy misleading. Mentors must manage a continuing tension between giving the novice the assistance needed to resolve immediate problems of teaching, and at the same time helping the novice take a longer and deeper view of teaching (e.g. Feiman-Nemser and Parker, 1993; Stanulis, Burrill, Ames and O'Brien, 2005; Wang and Schwille, forthcoming). Britton and colleagues (2003) therefore argue that induction "must be grounded in practice, yet it requires (so say its advocates in [the sites studied]) the perspective of research away from immediate practice, which allows formulation and discussion of general principles, theories and abstractions ... These activities involve not only experienced teachers in schools, but those in universities, colleges, district offices, special institutions and elsewhere who can offer a different perspective. They are in a position to share knowledge and facilitate conversation and insights that might not otherwise occur,

given the press of teaching, the 'clamor of immediacy' ..., especially in the beginning years" (Britton *et al*., 2003: 326).

The need for such a comprehensive and balanced approach may help explain the great variety of activities in certain induction programmes. For example, in the Shanghai case reported by Britton *et al*. (2003), induction includes school-based and district-based activities. At the school level, formal contract-like agreements set goals and lay out work for novices and their mentors. These agreements include school-based mentoring in subject matter teaching; school-based mentoring in working with students; visiting students' homes in the company of experienced teachers; and a summer orientation for teachers who may come from one or various schools in the same vicinity. District-based activities in the Shanghai region consist of workshops and courses for new teachers; district-provided mentoring; teaching competitions for new teachers; and a district hotline for subject matter specialists who answer phoned-in questions from new teachers. Finally, there are activities at both district and school levels, often offered in a co-ordinated fashion: peer observation by the mentor and novice and of other teachers in the same school and other schools; open, public lessons observed by the novice or a group of novices (as well as others), usually with a public debriefing and discussion of the lesson afterwards; 'report' lessons in which the new teacher is first observed and provides commentary on the lesson, followed by criticism and suggestions from others; 'talk' lessons in which novices and experienced teachers talk through a lesson, without actually teaching it, and then provide justification for what has been presented; action research projects by new teachers with support from others at school or district level; and use of a handbook developed by the school or district for new teachers and their mentors. It is worth adding that one of the unique features of the Shanghai system turns talk lessons into competitions:

> "The event [that one successful competitor] participated in, typical of these competitions, had three elements: a 'talk' lesson in which teachers have ten minutes to talk through how and why they would teach a topic they have chosen; a multimedia section, with five minutes for contestants to use and describe how they would use technology to help pupil thinking; finally, a five

minute section demonstrating 'blackboard skills', something this teacher (as well as many others we interviewed) stressed as very important" (Britton *et al*., 2003: 42).

Each talk lesson is then evaluated by a jury in terms of reasons for choosing the lesson, how the topic is organized, appropriateness of the approach, and effectiveness of the language used and the teacher's demeanour.

This variety in possible induction activities, excluding the kind of competitions described above, is also evident in a study of induction programmes in six school districts in the US state of Georgia. In this study, a survey asked participants (140 beginning teachers in 2003 and 222 in 2004; 40 and 70 per cent return rates, respectively) to rate different kinds of induction support, indicating which ones they found to be of most value − whether or not they had experienced the strategy in question (subsequent analysis found little difference in these ratings between those who had experienced certain strategies and those who had not). The most valued strategies were: 1) giving new teachers the opportunity to observe other teachers; 2) assigning mentors to new teachers; 3) providing new teachers with feedback based on classroom observation; and 4) providing new teachers with co-planning time. The least valued strategies were: 1) holding a special orientation session before the start of the year; 2) providing special guidebooks and other publications; 3) holding special professional development sessions during the year; 4) [surprisingly] reducing non-teaching duties; 5) holding informal meetings of new teachers; and 6) offering field trips for new teachers to learn about the school district and its resources. According to the authors, these results indicate that the new teachers surveyed "place a high value on collaborative professional activity. At the same time, they resented having planning time taken up with meetings or paperwork" (Gilbert, 2005: 1 and Table 1). It should be added that, according to Wang and Schwille's forthcoming review, there is as yet little evidence that what beginning teachers value actually improves their performance and the learning of their pupils. More generally, teacher induction is faced with the same lack of research evidence facing initial teacher preparation regarding its effectiveness.

(vi) To what extent does induction take sufficiently into account what beginning teachers have and have not already learnt?

Induction programmes, as one might logically expect, tend to be designed for what beginning teachers lack. Some pre-service programmes provide extensive and repeated field experience in elementary or secondary schools as well as instruction in pedagogy or didactics. Others provide extremely little time in the field and concentrate on the learning of subject matter, not how it is taught. Induction support therefore needs to complement what comes before, building on the practicum and professional training that novice teachers have already had and providing more for those novices who have not had this experience. The following provides four examples of how this articulation differs from country to country:

> "In France, where pre-recruitment education focuses almost entirely on subject-matter learning, beginning teachers have little knowledge of the structure of mathematics teaching and, therefore, of what instructional strategies to use with pupils. Thus, roughly one-third of their first teaching year is devoted to professional development, dealing with both subject-matter-specific didactics and general pedagogic and foundational knowledge" (Britton *et al*., 2003: 304-305).

Similarly, in Japan in the 1960s, when Japanese educators began developing special in-service programmes for beginning teachers, the latter were considered well prepared in terms of content knowledge. However, they were not deemed ready to deal with their students or with demands on the school from parents or society at large. More generally, their prior education was viewed as too theoretical with very little practical experience.

In other cases, instead of simply filling gaps left by pre-service education, some sort of continuity or direct linkage between pre-service and induction was built in. In the Shanghai region of China, for example, even though pre-service teacher education allows for very little field experience, there is a strong connection between pre-service and induction in the sense that pre-service students concentrate more on studying the school curriculum they will teach than is the case in various other countries. These students also develop an analytical lens to use on this curriculum that they will

continue to use as practising teachers. "Central to their work as future teachers is their developing understanding of what are called the 'important' points (*zhonglian)*, 'difficult' points (*nandian*) and 'hinges' or 'hinge' points (*guanjian*) of teaching particular content" (Britton *et al*., 2003: 35).

The Swiss case, also studied by Britton *et al*. (2003), illustrates two organizational links between pre-service and induction. In the canton of Zurich, at primary school level, the same institutions (the *seminars*) have been responsible for pre-service and induction. In Lucerne, at *gymnasium* level, the mentors for practice teaching are also likely to be mentors for induction.

(vii) To what extent can teacher collegiality be mobilized in support of beginning teacher learning?

Countries differ dramatically in the extent to which teaching is a private, individualistic as opposed to a collective and collegial practice. The literature suggests that collegiality is a resource that can be built upon to support and reinforce the learning of novice teachers (Paine and Ma, 1993; Schwille, 1993). Thus, in developing induction policy and in planning induction programmes and practice, it is important to ask to what extent collegiality is present, how much is possible, whether it will develop naturally or artificially (be 'contrived' in the sense of Hargreaves and Dawe, 1990) and what can be done as a result. For example, can teachers in a school be expected to work together to coach and mentor novice teachers? How much time do they actually have, and are they willing to do this? Is teaching an open and public activity, as in China and Japan, where experienced teachers and novices alike expect to be observed by peers, mentors and other novices, and where the criticisms and suggestions of other teachers are freely offered and non-defensively received after such observations? In France, New Zealand and Switzerland, Britton *et al*. found significant restrictions on the extent to which teaching is public. In contrast:

> "new teachers [in Shanghai], in being asked to teach a 'public' lesson, are being asked something that any teacher would be expected to do ... That others get to see your practice is, thus, not a marker of novice status, a marker of still becoming – on the contrary, it is a mark of being a teacher. While the specifics

> are tailored to meet the needs and possibilities of the beginner, the assumption that all teaching is public – and can and should be shared and discussed – is widely held in schools. In fact, the 'public' lesson is not solely for the benefit of the individual beginning teacher who is teaching it, but can support the learning of others as well – especially other young teachers" (Britton *et al*., 2003: 312).

The implication for policy-makers and planners, at least in our reading of the literature, is that efforts to make teaching a generally more collegial, collaborative and public activity rank among the most promising avenues for improving teacher learning.

(viii) Should evaluation be separate from induction support for beginning teachers?

Another way in which the countries studied by Britton *et al*. differ is in the extent to which evaluation of beginning teachers is independent of the induction support and mentoring they receive. At one extreme, Switzerland emphasizes this separation, while at the other end New Zealand has no such separation. This principle is also widely honoured in US induction practice (Huling-Austin, 1990). According to Feiman-Nemser, this need not be the case: "The sharp dichotomy between assistance and assessment", she argues, "seems short-sighted if we think of induction in terms of a broad continuum of learning opportunities for teachers. New teachers and those responsible for their learning need a defensible basis for deciding what to work toward and some means of determining how they are doing. This is the role of formative assessment. The biggest danger in linking induction and high stakes assessment is the possibility that states and districts will adopt new assessments and licensing standards without providing adequate resources to help new teachers learn to meet those standards in practice" (Feiman-Nemser, 2001: 1032-1033). In other words, both assessment and continued support for teacher learning are necessary in induction programmes. This presupposes the existence of clear goals and a plan for when to assess.

(ix) How much choice should novice teachers have in what their induction opportunities to learn should be?

In a particular country, what are the advantages of offering novice teachers a choice of induction activities? Does the country have the resources to offer either a mandated programme to all novices or a variety of activities from which all novices can make a choice? The five countries studied by Britton *et al*. all offer induction experiences with a variety of activities. However, this does not imply that they all give beginning teachers the same degree of choice. Much of the variation in France, for example, is embedded in requirements for induction experiences that all beginning teachers undergo. In other countries, there may be more variation among districts and schools in induction offerings. Yet this is not the same as variation in the activities from which beginning teachers choose. In Switzerland, however, "in all three cantons [studied], beginning teachers have considerable influence on the substance of the help available to them. While certain structures are in place – individual counseling, practice groups, group counseling, classroom observation and subsequent discussion by colleagues or counselor/mentor, individual mentoring, obligatory or voluntary courses, auxiliary help booklets – the problems and concerns actually taken up are largely shaped by the beginning teachers" (Britton *et al*., 2003: 111). In some cases, a group of beginning teachers make this choice together, as when they express their preferences to influence the content of an induction course. But the cantons studied also give beginning teachers the right to choose – or not – individual counselling, and to negotiate the focus of this counselling. In Zurich, where beginning teachers are entitled to 32 hours of counselling, teachers generally choose their own counsellor. In Bern, the research shows even more clearly the individual nature of this process: "At the first session, the teacher and counselor discuss the ostensible problem. They then negotiate a written contract that spells out what will happen, including diagnosis of problem and possible referrals. Counselors encourage beginning teachers to ask themselves probing questions. What do I need to develop at this point in my teaching? How can I go about doing this?" (Britton *et al*., 2003: 122).

Conclusion

If we take seriously the insights that can be gained from studies like that of Britton *et al*., what can be learnt that might be useful in thinking about induction in developing countries? At first, the prospects seem daunting. As noted in the case of pre-service programmes, well-designed and developed induction programmes tend to be expensive. The extensive programmes in China, France, New Zealand and Switzerland require very substantial amounts of organizational capability and financial resources. This is true whether the programmes are organized very formally and bureaucratically, or whether they are put together in a less formal manner, with more reliance on naturally occurring events in the life of schools.

If a system is extremely hard-pressed for adequate staffing and resources, then beginning teachers may not find either the time or the psychological distance to step back and learn from natural events. If induction events themselves are starved for resources, they may not offer much for teachers to learn from. A central question is therefore how much countries with fewer resources can afford to do. However, analysis of certain programmes of professional development in *Chapter V* below suggests that it is possible to do a great deal more in resource-scarce countries than is commonly done or thought possible, especially when one considers the resources that could be made available from the international donor community. For example, in Guinea, a World Bank-funded small grants programme mobilized and trained a large number of Ministry personnel across the country to provide regular school-based support for the professional development of experienced teachers. Novice teachers were folded into teacher teams formed to participate in this programme, and thereby benefited from collective professional development activities. Similar efforts can be organized to support the learning of novice teachers in other countries.

V. The continuing professional development of classroom teachers[1]

This chapter focuses on the learning opportunities for practising teachers after induction. It therefore covers a teacher's longest period of service. The logical environment for this period is the school and the classroom, increasingly recognized as the most appropriate, indeed the only entirely suitable context for teachers' professional development. Organizing and facilitating teacher learning on a large scale within this context, however, remains extremely difficult and generally not entirely successful.

Continuing professional development for teachers has multiple purposes, including: 1) learning to facilitate implementation of policy or educational reforms; 2) preparation of educators for new functions; 3) school-based learning to meet school needs and further school development; and 4) personal professional development chosen by individuals for their enrichment (OECD, 2005: 122). Since no one activity can do justice to all these purposes, this multiplicity of purpose partly accounts for the diversity of teachers' professional development. Not all forms of teacher development are equally effective, however, either in terms of accomplishing their objectives or in enhancing pupil learning.

The need and prospects for change

(i) Why is a new paradigm for in-service teacher education needed?

Just as in initial teacher preparation, the dominant forms of continuing teacher professional development have been criticized as ineffective in improving instructional quality. A brief examination of these forms shows why they have been minimally or not at all effective.

A commonly used approach to in-service teacher education is the one-time workshop or seminar, typically construed as a dissemination activity whereby "outside experts give inspirational

1. This chapter was co-authored with Jane Schubert.

lectures, report the latest research findings, and introduce new techniques and strategies" (Feiman-Nemser, 2001: 1041). Providing isolated training events to teachers may serve a limited purpose, such as the introduction of a new textbook, raising awareness of gender disparities, learning a new pedagogical skill or orientation to standards-based teaching. However, there are many reasons why changed behaviour resulting in improved delivery of instruction is unlikely to occur after these events. Indeed, research indicates that this is an ineffective, inefficient and costly investment of human and fiscal resources. When the workshop is used in isolation, long-term improvement in the quality of teaching does not happen (Feiman-Nemser, 2001; Lieberman and Miller, 1991; NCRTL, 1993). As Feiman-Nemser puts it, "teachers have little say about the content of [such] sessions. There are limited opportunities for meaningful interaction and follow-up. Teachers may go home with a new idea, but the design of these sessions makes it unlikely that teachers' practice will change in any significant way" (Feiman-Nemser, 2001: 1041).

Guskey's theory of attitude and perceptual change in teachers helps explain why. According to this theory, "changes in attitudes and beliefs generally follow, rather than precede, changes in behavior" (Guskey in Elmore, 2002: 18). In other words, "practice changes attitudes rather than *vice-versa*". Indeed, "experienced teachers have very strong ideas about which students can master high academic standards and which can't. They also have very strong ideas about which kinds of practices will work for their students and which won't. These ideas are formed from experience, personal values and knowledge of pedagogy and content" (Elmore, 2002: 18). It is virtually impossible for one-shot, isolated workshops to change these strongly held ideas. It follows that working with teachers directly on instruction and over an extended period of time "is probably the most potent form of professional development available to schools" (Elmore, 2002: 18-19). Doing so *in situ* can only enhance this potential.

Another popular form of teacher training is the cascade model, particularly when reform efforts and donor agencies call for reaching many participants in a short time. This familiar approach, implemented in a variety of ways, begins at the top with the ideal of

what is to be learnt. This ideal is introduced to trainers. As the model is implemented with additional trainees, a select group of the newly trained are also expected to transmit the ideal (or model). Usually, however, adaptation by new users leaves much to be desired. Boyle *et al*., cited in Leu (2004) identify the shortcomings of this model as follows:

> "(i) [The workshops] reach only a small percentage of teachers, (ii) they rely on those who attend the workshops to pass new information on to their colleagues through the cascade or multiplier mechanism; (iii) there is rarely a mechanism in place for the cascade or multiplier to work; (iv) workshops or courses are 'expert-driven' in that a desk-bound specialist typically transmits abstract information to teachers; (v) workshops or courses are often based on a series of presentations or lectures and therefore, provide negative models of passive learning; (vi) they tend to be *ad hoc* in content and rarely provide a comprehensive learning programme for teachers; (vii) they lead to little change in teachers' classroom approaches, in part because they depend on exhortation rather than modeling, process, and structured practice in which teachers play an active role" (Leu, 2004: 2).

As Leu points out, these weaknesses are particularly detrimental in those challenging innovations that emphasize student-centred, active learning, critical thinking and/or problem solving.

(ii) What else is lacking in the most-used approaches to date?

Dissatisfaction with the continuing professional development of teachers is widespread. The country background reports prepared for the OECD "reveal that professional development is often fragmented, unrelated to teaching practice, and lacking in intensity and follow-up" (OECD, 2005: 122). In industrialized countries, the most common requirement is only five days per year. The situation in developing countries is, if anything, worse due to restricted resources and the demotivating and difficult conditions under which teachers work.

In general, whether the country is rich or poor, there is a lack of sufficient system support and infrastructure to ensure continuity, follow-up and feedback for all professional development activities and interventions. Having completed a workshop, seminar or other

event designed to enhance teacher quality, teachers too often return to their school and classroom with no opportunity for feedback on the application, no resource person or material to whom or to which they may turn with queries about the use of the new material, and no willing collaborators in adapting the innovation to the context in question.

As already stated above, the natural environment for enhancing a teacher's skills and knowledge is the classroom itself, and not the less authentic meeting or conference room in which in-service education has more traditionally taken place. Adler (2000, cited by Borko, 2004) advocates a situative perspective, whereby professional development occurs through a participatory process that relies on and increases skills and knowledge within a given context. Thus, part of what is missing from the dominant in-service paradigm is the acknowledgement and use of a wide range of informal, on-the-job resources for teachers – classrooms, schools, communities, even casual encounters that result in discussions of teaching practice; in a nutshell, the whole social system in which a teacher lives and functions (Putnam and Borko, 2000). In the absence of this perspective, contexts that could facilitate teacher learning instead often become obstacles that reinforce ineffective teaching. The difficulties of teacher learning are poignantly and cogently illustrated in a case study of the voluminous journals of reflection and other data from one thoughtful and motivated teacher who struggled for seven years to transform her practice in ways recommended by current reforms (Schwille, 1998).

Without discussions that support critical examination of teaching in the teacher's own classroom, the norms that sustain and enhance teacher learning are absent in many training events (Borko, 2004). Time spent in lengthy discussion and reflection may be judged too costly. Although opportunities for discussion are included in most teacher training activities, it seems that rigorous and critical examination of teaching practice is too often missing. Nevertheless, Feiman-Nemser put forward serious talk as the key to professional development. She claims that:

> "talk is the central vehicle for sharing and analyzing ideas, values and practices. Through critical and thoughtful

conversations, teachers develop and refine ways to study teaching and learning. The kind of conversation that promotes teacher learning differs from usual modes of teacher talk which feature personal anecdotes and opinions and are governed by norms of politeness and consensus. Professional discourse involves rich descriptions of practice, attention to evidence, examination of alternative interpretations and possibilities. As teachers learn to talk about teaching in specific and disciplined ways and to ask hard questions of themselves and others, they create new understandings and build a new professional culture. Over time, they develop a stronger sense of themselves as practical intellectuals, contributing members of the profession, and participants in the improvement of teaching and learning" (Feiman-Nemser, 2001: 1042-1043).

(iii) What, then, is effective teacher development, if not workshops and cascade training?

Behind national policies and the renewed interest in focusing on the teacher as the key to reform, lie some specific research findings that demand attention from those reformers committed to overhauling the policy and practice of teachers' professional development. This research is characterized by studies of individual projects, reviews of national education sector strategies, case studies of activities, meta-analyses of clusters of studies, and reviews of reviews. The key lessons and dilemmas from the past three decades, as reported in the literature reviews, are briefly summarized below.

In sharp contrast to the one-shot workshop or top-down cascade training, by 1990 the literature already offered an alternative approach, notably in a monograph on models of staff development by Sparks and Loucks-Horsley (1990). Based primarily on major studies in the English-speaking industrialized world during the 1970s and 1980s, this review revealed much about the characteristics of effective professional development. These characteristics include:

- programmes conducted in school settings and linked to school-wide efforts;
- teachers participating as helpers to each other and as planners, with administrators, of in-service activities;

- emphasis on self-instruction with differentiated training opportunities;
- teachers in active roles, choosing goals and activities for themselves;
- emphasis on demonstration, supervised trials, and feedback;
- training that is concrete and ongoing over time; and
- ongoing assistance and support available upon request.

More recent literature has continued to refine and elaborate this view of effective professional development (Villegas-Reimers, 2003). For example, the results of an extensive and relatively rigorous evaluation of the effectiveness of a large-scale, US-based professional development programme focusing especially on mathematics and science (the Eisenhower programme) were recently published in a leading journal (Garet, Porter, Desimone, Birman, Yoon, 2001; and Porter, Birman, Garet, Desimone, Yoon, 2004). Several studies using national probability samples were conducted during this evaluation. This latter encompassed interviews in 363 school districts, a mail survey of about 1,000 teachers, as well as data collection from a smaller sample of about 300 science and mathematics teachers at three points in time. Sixteen case studies in five states were also carried out, documenting diversity in professional development.

Briefly stated, the study posited two key dimensions of effective professional development: core features and structural features. The three core features include:

- *focus on content*: the degree to which the activity focuses on improving and deepening teachers' content knowledge (e.g. mathematics or science) instead of focusing on generic methods of teaching;
- *active learning*: opportunities for teachers to engage in a meaningful analysis of teaching and learning (e.g. to observe and be observed, practice delivery, lead discussion); and
- *coherence*: continued professional communication among teachers, incorporating experiences consistent with teachers' goals and aligned with system-level curriculum standards and assessments (Porter *et al*., 2004: 133).

The three structural features are:

- *duration*: the number of hours participants spend in the activity and over what span of time the activity takes place (longer duration activities typically provide for the desired content-specific focus, active learning, and more connection to teachers' other experiences);
- *form*: the use of activities structured to support reform (special interventions such as mentoring, networking, study group, resource centre) as opposed to a more traditional workshop or conference (even though traditional approaches typically do not provide the time, activities and content necessary to bring about meaningful change, they can be meaningful if they have the other characteristics already mentioned); and
- *participation*: groups of teachers from the same professional culture (e.g. school or grade level) participating as a group, as opposed to teachers from other locations participating individually (a common worksite provides a closer link with teachers' experiences and facilitates collegial discussion) (Porter *et al*., 2004: 133).

All this, and many other similar analyses, have resulted in what Elmore (2002) calls the *consensus view* in the USA of what constitutes good professional development. Hawley and Valli (1999) and Lieberman and Miller (2001) offer variations on this theme, mainly for US audiences. Ingvarson (1998) brings a similar message (but with emphasis on standards-based professional development) to a more international audience. Internationally, among a broader range of countries, this is also reflected in the OECD report that concludes that "the most effective forms of professional development seem to be those that focus on clearly articulated priorities, providing ongoing school-based support to classroom teachers, deal with subject matter content as well as suitable instructional strategies and classroom management techniques and create opportunities for teachers to observe, experience and try new teaching methods" (OECD, 2005: 128). This report cites, for example, an Israeli study that found "that focused teacher development provides a more cost-effective strategy for increasing student performance than reducing class size or increasing school hours" (OECD, 2005: 128).

However, Elmore also points out the tensions and contradictions embodied in this consensus view and the incapacity of the US school

system to implement it as intended. These tensions are (1) between the *content and/or pedagogy* to be learnt and the *processes* needed to learn it; (2) between involving *targeted educators in decisions* about their professional development and keeping all *professional development targeted on system-wide improvement*; and (3) confusion between educators learning for *personal professional growth* and learning that contributes to *organizational performance*. In regard to the latter, the country background reports for the OECD indicate that "school-based professional development activities involving the entire staff or significant groups of teachers are becoming more common, and teacher-initiated personal development probably less so" (OECD, 2005: 122).

Although some scholars put emphasis on principal- (or head teacher) led groups, in our view this is a desirable, but not an essential, aspect of school-based professional development. It is important that principals support teams of teachers who are engaged in this sort of professional development (or join the teams if they have classroom teaching responsibilities, as is the case in many developing countries). However, it is much less important that they actually lead the group.

Basically, Elmore (2002) argues that schools in the US (and no doubt elsewhere) are not organized to make good use of continuing professional development. For professional development to be effective, he asserts that what he calls 'a practice of improvement' is necessary. However, he claims that in the US, existing norms in schools (especially norms concerning the nature of expertise and knowledge) as well as the career structure and the design of work in schools all undermine efforts to improve. To change this, fundamental changes in values and beliefs must be made with regard to what is possible and desirable in the organizational conditions under which work is done, and in the ways educators learn to do this work.

Knowing what to do but not how to do it

Given that the IIEP volume by Villegas-Reimers (2003) provides a very comprehensive literature review of professional development in both industrialized and developing countries, the rest of this chapter will do something quite different, namely focus on a few

informative examples. Since we agree with MacNeil (2004), who focuses on developing countries, and Elmore (2002), who writes mainly about the USA, that "there is less disagreement about what constitutes a good professional development programme than there is about *how to actually implement one*" (MacNeil, 2004: 4, italics in the original), we are not looking for complete successes. By and large there are none. However, we believe that by looking at examples from the current generation of the most ambitious attempts, we will learn something about the strengths and weaknesses of what has been done, in the hope that the next generation of innovations will be better. In choosing illustrations, we have privileged some of the most extensive and well-documented efforts to put a new paradigm of effective professional development into practice. We start with what we are learning from Japan and China, taking advantage of research that has appeared in English since the early 1990s.

(i) What is distinctive and far-reaching about professional development in Japan and China?

When thinking about the principles of professional development and the research findings discussed above, the region of the world that seems to have done most to put these principles into widespread practice over a long period of time is East Asia. Recent research on professional development in Japan and China has added to our understanding of what makes professional development effective. It has given us confidence that, in some cultural and educational contexts at least, this understanding can be implemented in practice. Moreover, this research does not only discuss features long advocated in the West, but also some features unfamiliar to educators from other parts of the world. In Japan, these practices are known by the label *jugyokenkyu* or 'lesson study'. Lesson study is a major part of *konaikenshu,* that is "in-service professional development that brings together the entire teaching staff of a school to work in a sustained and focused manner on a school wide goal that all teachers have agreed is of critical importance to them". This definition is from Fernandez and Yoshida (2004: 10), which was the most extensive in-depth introduction to lesson study found in English in the writing of this booklet. The authors describe in great detail the lesson study process as conducted in one Japanese primary school during the course of one year. There are also a number of

web sites, listserves and videos, as well as some excellent books and short articles that help English speakers understand this movement (e.g. Fernandez, 2002; Lewis, 2002; Lewis, Perry and Murata, 2006; Bass, Usiskin and Burrill, 2002; see also www.lessonresearch.net; www.tc.columbia.edu/lessonstudy).

In China, such practices are featured prominently in research on Chinese teaching and teacher education. This is especially true insofar as it deals with teacher research groups (*jiaoyanzu*), which are a common feature of school organization in that country (Ma, 1999; Paine, 1990; Paine and Ma, 1993).

The most important features of Japanese lesson study and Chinese teachers' research groups include:

- *using the teachers' own classrooms as laboratories for professional development.* A basic idea of lesson study is that practising teachers learn most from working with and studying their own classrooms;
- *the public nature of teaching.* Teachers in China and Japan are accustomed to being observed by peers and other outsiders to their classrooms, with subsequent opportunities for the outsiders to discuss the strengths and weaknesses of what they have observed;
- *the importance of teachers working together.* Western literature has repeatedly emphasized the isolated nature of teaching (e.g. Tickle, 2000) in spite of critiques that showed that this is not universally the case (e.g. Schwille, 1993). Research on China and Japan indicates that teachers in those countries are accustomed to working together. Lesson study in Japan is work by teams of teachers, while in China teachers are assigned to a number of school-based working groups that contribute to their professional development;
- *the 'bifocal' nature of lesson study*.[2] On the surface, lesson study may appear to be a very limited curriculum development activity, focusing on a narrow slice of target lessons. In fact, Japanese teachers use these lessons to discuss and investigate the long-term, central goals of schooling, such as interest in and

2. For this use of 'bifocal', we are indebted to Clea Fernandez.

love of science, the quality of interpersonal relationships among pupils, and general problem-solving abilities;

- *action research as a means of professional development.* Moreover, lesson study is not just curriculum development and lesson planning; it is also research – in fact, the term used in Japanese means 'lesson research' as much as or more than just 'lesson study'. Teachers plan together an experimental intervention, make hypotheses or conjectures about how it will work, and collect data to see if it has in fact worked as hypothesized;
- *emphasis on understanding student thinking.* Emphasis on analysis of student thinking, including the prediction of mistakes or misconceptions that teachers can expect from students, has been noted as an important aspect of Japanese elementary school teaching in general and is emphasized in lesson plans (e.g. Stigler, Fernandez and Yoshida, 1998). Thus, it is not surprising that one of the main foci of lesson study is the discussion by teams of teachers of what they have learnt or are likely to learn about student thinking;
- *cumulative impact through writing and dissemination of reports.* One of the most remarkable aspects of lesson study, especially for Westerners accustomed to difficulty in getting practising teachers to write good project reports, is the importance of written reports in lesson study. The writing of reports by lesson study teams seems to be one of the main reasons for its presumed cumulative impact. The reason is that when starting new lesson study projects, the teams consult the reports of other teams who have already done closely related projects. These reports are even published and sold in ordinary bookstores (Richardson, 2001); and
- *balance between teacher initiative and outsider advice and guidance.* While the process of lesson study is bottom-up in relying primarily on teachers' initiative and leadership, outsiders do provide advice. University scholars, school administrators and other educational leaders are invited to participate in lesson study deliberations at certain points in order to contribute this outside perspective.

(ii) How does Japanese lesson study compare with a similar programme in Guinea?

Initial experiments with lesson study in the US suggest that this Japanese approach is difficult to implement on a widespread basis in a different context with the positive results observed in Japan (Fernandez, Cannon and Chokshi, 2003; Fernandez, Chokshi, Cannon and Yoshida, 2001). However, in the West African country of Guinea, a programme with many of the features of Japanese and Chinese practice was developed and brought to national scale. This experience was built around a small grants programme to provide organizational support and incentives for teams of primary school teachers to carry out their own school improvement and professional development projects. In just six years, the programme grew from a pilot in one region to a nation-wide effort reaching isolated rural as well as urban areas. Nearly all elementary school teachers in the country (an estimated 89 per cent of the teaching force) were involved in the writing of small grant proposals. About 6,000 teachers (or 35 per cent of the teaching force) were able to participate in one of the 1,200 funded projects between 1996 and 2002 (Association for the Development of Education in Africa /ADEA, 2001; Diallo, Camara, Schwille, Dembélé, Bah, 2001; Schwille, Dembélé, Diallo, 2001). The rationale and underlying philosophy of this programme are described as follows by Dembélé and Miaro II:

> "The program is premised on the assumption that for teachers to pursue effective professional development, they need to be engaged. A starting point for engaging teachers is to involve them in a genuine way in determining the content and organization of that professional development ... It entails allowing teachers to make decisions and initiate actions that will naturally respond to their felt needs ... Doing so provides an important intrinsic incentive in that it acknowledges teachers' importance as key actors in the improvement of teaching and learning. In practice, in Guinea this has meant (i) designing an organizational support system that consists of a set of extrinsic and intrinsic incentives, and assistance from a specially qualified support personnel; (ii) balancing such a support system with teacher autonomy and self-direction; and (iii) having a system to ensure transparency and accountability in terms of (a) student and teacher learning,

and (b) use of financial resources" (Dembélé and Miaro II, 2003: 37).

Providing the organizational support for this effort was mainly the responsibility of about 300 facilitators and evaluators, selected from mid-level Ministry of Education personnel and offered initial training as well as continuing professional development and supervision for these roles.

Schwille, Dembélé, Bah, Abotevi, Bah (2002) discuss similarities and differences between this Guinea programme and lesson study in Japan. Many of the similarities are features that have already been discussed earlier in this chapter as characteristic of the emerging consensus on good practice in professional development. Similarities include the following:

- In both the Japanese and Guinean cases, professional development "focuses on direct improvement of teaching in context [i.e. at school level]" (Stigler and Hiebert, 1999: 122);
- Both are based on the felt needs of teachers;
- Both require extensive and continuing collaboration among teachers;
- Both attempt to improve a sequence of lessons at a particular grade level on specific topics in basic subject matters;
- Both provide for practice, feedback, and formative evaluation;
- In both cases, observation of and feedback from observation by other teachers play a key role;
- Both attempt to maintain a constant focus on student learning and the analysis of student work;
- Teams in both countries are expected to write up the results to share with other teachers;
- Both are a type of action research requiring problem identification, student assessment, experimentation and evaluation of outcomes; and
- Both provide access to external expertise.

However, since the Guinean programme was initiated in a country where there was no significant prior experience with this approach, and where primary school teachers have more limited formal education, there are also important differences between the two approaches:

- The Japanese approach is more likely to transcend individual lessons and deal explicitly with overall goals of schooling, such as interest in science or ability to collaborate effectively with others (i.e. using the 'bifocal lens');
- The Guinean approach is more bureaucratically organized, while Japanese lesson study developed initially as an informal movement over a long period of time, with the Japanese Ministry of Education intervening later to reinforce its already demonstrated strengths;
- The two movements use different processes of planning and preparing projects, inasmuch as Guinean teachers must prepare proposals for a formal competition in which deadlines, proposal formats and evaluation criteria are all prescribed;
- The Guinean approach makes more use of supplemental resources for materials and support services, with each team of teachers being able to prepare a budget to buy materials and services if their project is funded;
- In Japan, where schools are already relatively well-resourced, such a provision is not so needed;
- We speculate that peer criticism is considerably more elaborated and accepted in Japan than in Guinea, although there is no data at present to substantiate this comparison;
- The established curriculum in Japan encourages more thorough learning by teachers, because it is limited to fewer topics taught to more depth;
- The Japanese place more emphasis on analysis and prediction of student thinking, although this is also a goal of the Guinea programme.

The two cases give teachers access to external expertise at different points and to a different extent. For example, being new, the Guinean programme makes extensive use of facilitators from the Ministry of Education to make regular visits to schools in the programme to assist first in the preparation of proposals, and second with the implementation of funded projects. Formative evaluation in Guinea is provided by evaluators who make three visits per year to each funded team and many formal conferences and workshops serve to train teachers, facilitators, evaluators, regional co-ordinators and jury members for roles in the programme. In Japan, on the other

hand, the involvement of people other than teachers is based on a selection of persons who already have the capabilities desired. When in-service training for teachers takes place, it is not tied specifically to the needs of lesson study. Finally, in Japan there is reportedly more opportunity for individual schools and teachers to become well-known for lesson study accomplishments, although in Guinea the use of competition to obtain grants and the dissemination conferences held to discuss results has ensured that individual schools receive some recognition for their success.

Such an ambitious attempt to implement a new paradigm in Guinea would be seen as misguided by those who, like Verspoor and Wu (as cited and discussed in Johnson, Monk and Hodges, 2000), believe that this model is unsuited to education systems whose teachers generally have little education or training. This point of view calls for systems to move more gradually through a series of steps, from a more traditional transmission model (for a largely unqualified teaching force) to models that give teachers more responsibility for their own professional development.

Other attempts to implement a new paradigm in Asian and African contexts

Many other examples could be chosen to shed light on issues of professional development. The choice of discussion cases below is very selective, focusing on a few of the most ambitious attempts to implement a new paradigm of continuing professional development. Other examples can be found in earlier reviews of the literature, including Craig *et al*. (1998), Dembélé and Miaro (2003), MacNeil (2004), Shaeffer (1990) and Villegas-Reimers (2003).

(i) A new paradigm in Ethiopia

The case of Ethiopia is similar in many respects to that of Guinea, since it too represents a large-scale attempt to give practising teachers more responsibility for their professional development. A 1996 survey in Tigrai indicated that Ethiopian teachers in that province had previously had an average of one to two days of in-service training every 10 years. Most teachers had never attended any in-service training (Leu, 2004). In contrast, the

USAID-funded Basic Education System Overhaul (BESO) was able to provide extensive in-service training through large areas of the country, based on clusters of schools. Initially, according to USAID documentation, "decentralized school- or cluster-based teacher professional development was not favored by either the Ministry or the regional state education bureaus because they had a long tradition of centralized, expert-driven teacher development programs and did not believe that teachers themselves could, with supporting materials, facilitate their own professional development" (EQUIP, 2002: see www.equip123.net/docs/e1TPD_Ethiopiaprofile.pdf).

After a year of discussion, two models were created: one for Tigrai and one for the Southern Nations, Nationalities, and People's Region (SNNPR). When the Tigrai programme was extended to all schools in the region in 2003, clusters of schools brought their teachers together every six weeks or so for two-day sessions. The teachers were not paid for this (so that the programme would be more sustainable). Nevertheless, the website profile states that these workshops were highly popular. Although project staff and education bureau staff helped lead the initial workshops, gradually the teachers themselves took over the facilitation of the workshops, supported by facilitation guides. Skilled teachers from each cluster had further training-of-trainer sessions in the summer break. Between workshops, teachers were encouraged and expected to try out the content and ideas discussed. In addition, some schools held additional short meetings to discuss the ideas and content further. Based on limited data gathered in the course of implementation, the website profile claims a number of benefits for this programme: more frequent use of active learning approaches; more collaboration among teachers within schools; livelier student engagement; and some tendency towards improved pupil learning. The profile concludes:

> "Comparison between the costs and benefits of the centralized 'cascade' model that reaches only a few teachers and the decentralized school- or cluster-based model that includes all teachers is difficult and has not been done, although there is no doubt that a program that reaches all teachers such as the cluster model will be more expensive. Per-teacher unit costs will be very low in the cluster model as opposed to the cascade model, but since the cluster model includes all teachers, overall

costs will be higher. Any cost-benefit analysis of programs will have to examine very carefully the benefits, which, without follow-up mechanisms, are minimal with the cascade model" (EQUIP, 2002).

(ii) A new paradigm in Namibia

Of the sub-Saharan African countries, Namibia has had a particularly long experience in developing a more school-based, teacher-responsive approach to professional development. It is also better documented than other programmes considered in this booklet (Dahlstrom, 2000; Swarts, 2003; Van Graan, 2005; Zeichner and Dahlstrom, 1999). This approach emphasized a shared vision of reflective, learner-centred teaching, not as an end in itself but as part of the overall effort to achieve more social justice in schooling and society (Zeichner in Zeichner and Dahlstrom, 1999: 40). Although supported by Swedish and other donor agencies, with collaboration from such well-known scholars of teacher education as Dahlstrom, Elliott and Zeichner, the work in Namibia took care to encourage and foster a distinctive Namibian approach and to avoid uncritical imposition of outside models. A new organization, the National Institute for Educational Development (NIED), was created to provide leadership for such efforts.

To complement a new pre-service programme, an in-service programme was introduced in 1994. Supported by the universities of Manchester and East Anglia in the United Kingdom, this programme aimed to upgrade the qualifications of practising primary and lower secondary school teachers. It was centred on a practice-based inquiry (PBI) approach – a variant of action research (for three chapters based on such projects, refer to Zeichner and Dahlstrom, 1999.) Both face-to-face and distance education components were included. Face-to-face sessions were held three times a year during school holidays at six centres throughout the country. During these sessions, tutors assisted teachers in studying guides to programme modules and gave teachers feedback on their assignments.

In addition, a special professional development programme for teacher educators in the country was organized in collaboration with the University of Umea in Sweden. Such systematic attention to the professional development needs of teacher educators has been

rare. In this case, too, a variant of action research was the vehicle for professional development (for five chapters reporting on such projects, refer to Zeichner and Dahlstrom, 1999).

According to a recent case study prepared for the 2003 biennial meeting of African ministers of education and international development agencies, this approach ran into difficulties. For example, the teachers had difficulties making the expected connections between the theory found in the reading materials and practice as represented by the inquiry activities. It was concluded that this inquiry-based practice model is so demanding that it requires slow, small-scale inception and intense facilitation. Acquiring the advanced skills of reflection takes more time than was provided (Van Graan, 2005).

Nevertheless, the Namibia effort remains exceptional and important as a very serious attempt to draw together a commitment to social justice, an innovative vision of teaching, a willingness to experiment with new ways of learning to teach, and organizational changes of national scope. The limited success observed must therefore be seen within the context of a long-term effort to achieve ambitious goals.

(iii) Sustained leadership from the Aga Khan Foundation to change professional development paradigms in East Africa and South Asia

Beginning in the early 1980s, the Aga Khan Development Network, founded by the Aga Khan, leader of the Ismaili branch of Islam, has been a consistent, innovative leader in efforts to improve the professional development of teachers in developing countries. As in other attempts to implement a new paradigm of professional development, this work has been inspired by a new vision of child-centred teaching and active learning. In this case, however, the approach has been tried out more selectively, with sufficient and concentrated resources for sustained technical assistance, monitoring and evaluation. An excellent discussion of work in East Africa is now available in Anderson (2002). It reports that the Aga Khan Foundation (AKF)'s first school improvement programme started at an Aga Khan school in Dar-es-Salaam in 1984. Already sceptical of cascade training, the Foundation in this project focused on training

teachers in their own schools and working with them to develop locally relevant curriculum materials.

That same year, the Field-Based Teachers Development Programme (FBTDP) was inaugurated at the Aga Khan Education Services in the Northern Areas of Pakistan. "At each [Northern] site, ten unqualified teachers were given charge, in pairs of the five primary grades. Two master trainers, one of whom doubled as head teacher, were posted to each school". Throughout the school year, the master trainers mentored the trainees, using project manuals. At the end of the year, the trainees took the government Primary Teachers Certificate examination as private students. This programme still exists and has been improved on the basis of three external evaluations (Greenland, 2002: 22).

At about the same time, AKF began to take an interest in the strengths and limitations of teacher resource centres. The limitations led the Foundation to see the need for a whole school approach, instead of serving teachers on an individual basis, and to ask schools that had begun to improve to assist other nearby government and private schools. However, again according to Greenland, the initial efforts to do this in East Africa had only limited success for a number of reasons, including: "little attention in the program design to securing ownership and commitment from the head teachers of either the 'home' or the 'outreach' schools, logistical difficulties in getting mentors to these schools ... no formal accreditation of teachers after training; low levels of mentors' mastery of subject-content knowledge and methodology, even after intensive training at the original program school" (Greenland in Anderson, 2002: 24). More steps were needed to address these weaknesses.

The most important step occurred at the beginning of the 1990s when, in collaboration with the AKF, the Aga Khan University (AKU) – the first private university in Pakistan – began to work in elementary and secondary education. Up to that point, the recently created AKU, although intended by the Aga Khan to become a world-class university in a developing country, was exclusively devoted to medical education and research. Given this history, it is not surprising that the new Institute for Educational Development (AKU-IED) was designed to be different from the traditional

faculty of education. With an initial focus on in-service training for teachers, it built its facilities not on a university campus, but rather in a complex of Aga Khan elementary and secondary schools. It then developed a special masters of education (MEd) degree for experienced teachers – most had at least five years' experience. These MEd graduates were prepared for three overlapping roles: teaching eight-week in-service courses at the AKU-IED; continuing to teach in pre-university classrooms as exemplary teachers with reduced loads; and mentoring other teachers in their home school (Ali, 1996). In Halai (2001), one of these clinical professors describes her work. By the early 2000s, the AKU-IED's Professional Development Center was working with 35 neighbouring schools (Greenland, 2002). Additional professional development centres were created in other locations. In short, this university unit, although it also had a research and evaluation capability, was built around school-based professional development under the leadership of practising teachers who were given the training, time, resources and credentials to fill this role.

As can be seen, like Japanese lesson study the AKU-IED shares many of the attributes of effective school-based professional development. However, in spite of the sustained, multifaceted effort carried out in collaboration with noted experts, knowledgeable participants in the effort have never claimed complete success and have identified significant weaknesses, especially in the early years of the various endeavours. In many instances, they have addressed these weaknesses in new ways. In a dissertation that focuses on the mentoring carried out by the MEd graduates of AKU-IED, Ali (1996) analyzes how in the very first years of the programme these graduates in mentoring other teachers "tried to teach their mentees what they had learned in the [AKU-IED] program ... [and] assumed expertise they did not have ..." (Ali, 1996, abstract; see also Ashraf, Khaki, Shamatov, Tajik and Vazir, 2005). In a re-analysis of the East Africa work, Hopkins (2002) makes a number of other criticisms.

But despite these criticisms, AKF's work in East Africa and South Asia remains exemplary. As Hopkins himself put it:

> "When the [AKF] initiative was being conceived in the mid-1980s ... it represented 'cutting edge' thinking ... The main

strength of the initiative is that it focuses on the crucial lacuna in curriculum reform initiatives, the lack of attention to capacity building. The Aga Khan Foundation initiative recognized that most 'performance-based reforms' currently are not sustained over time without an investment in the learning and development of teachers and their schools. In this respect, the AKF initiative was well ahead of its time and provides a powerful example of tackling head on the formidable challenges of systemic change" (Hopkins, 2002: 293).

Conclusion

As yet, no one has been able to implement the new paradigm to satisfaction on a widespread, national basis, except perhaps the Japanese. And even they are facing difficult new professional development challenges in their integrated studies reforms, which require teachers to exercise more autonomy in curriculum development and to develop multidisciplinary, thematic units with little external guidance of the sort they have relied upon in the past (Hooghart, 2005).

But although professional development remains problematic throughout most of the industrialized and developing world, it is also true that the work in Pakistan, Guinea, Ethiopia, Kenya, Tanzania, Namibia and other places is impressive and a cause for cautious optimism. We know now much more about what it takes to put a new paradigm into practice. The pessimism of Elmore (2002) concerning what professional development can do in the absence of profound improvements in the organization and culture of schools is perhaps overdrawn. We can learn much from what it was possible to do and what it was not possible to do in these efforts. The next generation of efforts may not be fully successful either, but surely they will be better (and hopefully also better documented).

VI. General conclusion

It seems to us that participants, observers and analysts of teacher education tend to err in one of two opposing directions. One group stresses the ineffectiveness of existing arrangements, often giving the impression that there is no hope for formal pre-service teacher education as it exists today. That is, that there are no notable exceptions to the rule of ineffectiveness and no known ways to improve without dismantling the institutions that provide so much of pre-service and/or in-service teacher education. For such people, most of the funds spent on formal teacher education are a waste of money and could be better spent in other ways of improving the education system. This group puts its hope largely in selecting talented individuals to undertake a teaching career, giving these individuals a solid understanding of the subject matter(s) they will teach – without any intervention on the part of education professors – and relying on apprenticeship models to help these individuals learn to teach.

While interested in examples of best practice, the other group nonetheless tends to be cautious and slow to change existing arrangements, even when they are dysfunctional. Much of the existing education coursework requirements are accepted on faith, given that evidence that they make a difference is scant. In too many of the institutions for which people in this group are responsible, the mechanisms of quality control in the form of programme evaluation, student assessment and follow-up of graduates are weak or absent.

There are scholars and experts in teacher education who do not fit into either of these two opposing camps. Very conscious of the weaknesses of the current system, they have devoted much study and research to how to improve the system. Their work is cited throughout this booklet. But we see little indication that, as a group, they have as much influence on policy and practice throughout the world as the other two groups. We hope that our review will give more influence to this third group and more support for their work.

Our analysis suggests a middle course, consisting of rigorous intolerance for the dysfunctional and wasteful aspects of teacher education, accompanied by optimism and advocacy based on

knowledge of how teacher education could be improved. We agree with the critics who say that merely studying texts of educational psychology and the like and answering questions about their content is unacceptable. Close examination of current practices in many institutions will no doubt reveal other unacceptable practices as well. One can also deplore the fact that too many future teachers are not held to any substantial standards of competence and understanding before being endorsed as ready to teach. But it is equally unacceptable, as a general practice (i.e. absent special circumstances or urgent shortages), for students to become practising teachers without a well-organized programme of preparation based on principles and practices that have proved their worth in research and/or exemplary programmes.

In our view, there are no recipes or prescriptions that can be validly given in the absence of information about the challenges of specific situations and the capabilities that can be built on in these situations. Therefore, keeping in mind the three contending groups discussed above, policy-makers and planners are urged to foster the improvement of teacher education in other ways, as follows:

1. Address questions of importance to each of the three groups through continuous empirical evaluation of programmes of initial teacher preparation, induction and continuing professional development, giving special attention to the following:
   a. Is there a vision of good teaching embodied in national and institutional policy documents, and if so, how well is it being implemented?
   b. What are the aptitudes and prior capabilities of the most likely entrants into teaching? How many of these people already have abilities and personal qualities that will be needed in teaching? What sort of change might be desirable and feasible in this pool of potential recruits?
   c. Does the mix of career teachers and contract teachers need to be changed to improve the recruitment of teachers within the constraints of available resources?
   d. What can be done to improve the recruitment, preparation, performance and retention of teacher educators?
   e. What are the incentives and disincentives for administrators and instructors to do a good job in initial teacher education,

induction and continuing professional development? Are existing incentives and disincentives for this group to perform well susceptible to improvement?

f. Are the examinations used to assess the learning of future teachers in teacher education programmes adequate measures of what they are expected to learn and, in particular, of the capabilities they require to begin teaching?
g. Do students, instructors and institutions exercise the degree of autonomy to which they are in principle entitled by policy at national, regional or institutional levels?
h. How can experienced and beginning teachers be helped to work together effectively in groups in programmes of induction and continuing professional development?
i. Do beginning teachers have sufficient time in the form of reduced teaching loads to learn what they need to learn during induction? If not, what can be done about it?
j. How much does mentoring during induction focus directly on improvement of teaching as opposed to other matters, such as providing emotional support to counter the stress faced by beginning teachers? Is this the most desirable approach, or should the focus of mentoring be changed to some degree?
k. Do beginning teachers have sufficient opportunities to address both theoretical and practical issues in their teaching? If not, what readjustment of this mix is needed?
l. To what extent does continuing professional development give adequate attention to i) understanding content issues in teaching; ii) active learning; iii) the coherence of professional development initiatives; iv) the amount of time spent; v) the use of the teachers' own classrooms as laboratories for professional development; vi) making teaching public so that colleagues can learn from each other; vii) bringing teachers from the same school or nearby schools together to work on issues of common concern and to give one another constructive feedback; viii) simultaneous consideration of long-term and short-term goals in teaching; ix) use of action research for teacher learning; x) understanding of student thinking and analysis of student work; xi) adding to the cumulative knowledge base for teaching; xii) balancing

external expertise and teacher self-direction; xiii) provision of adequate resources to support teacher learning?

m. What are the costs of teacher preparation, induction and professional development?

n. What versions of formal teacher preparation are most cost-effective in particular settings? What would make them still more cost-effective?

2. Invest in empirical research to address a variety of special issues and problems that constitute key obstacles to improvement of teacher learning, such as the following:

   a. To what extent can the undesirable consequences of the apprenticeship of observation be avoided?

   b. Should a model centred on school-based apprenticeship be tested in comparison with existing programmes in colleges or universities? How much and what kind of mentoring and other support is required to make such a model effective in the particular setting for which it is designed?

   c. What would happen to teacher capabilities if the credentials required for teaching were raised or lowered, if the duration of formal teacher preparation were increased or decreased, if the content knowledge required were increased or decreased, if more or less pedagogy training were required, and finally if more or less (or differently organized) field experience were tried out?

   d. What are cost-effective ways to recruit, train, organize and deploy mentors for induction programmes?

   e. What are the implications for the learning of beginning teachers when these teachers are part of a reform to change teaching – often one that embodies a new vision of good teaching?

3. Promote cross-national research to answer questions of the following sort, which are difficult to address within a single country:

   a. What can we learn about different visions of good teaching when attempts are made to implement them on a widespread basis in education systems?

   b. What are the consequences for teaching, learning and teacher education of different degrees of specialization in teaching and associated communities of practice?

c. What are the advantages and disadvantages of learning to teach in institutions in which all teachers are treated as aspiring teachers and in which most of the content instruction focuses on the elementary or secondary curriculum they will be expected to teach?
d. How do beginning teachers differ in what they have and have not already learnt, and what are the implications for the feasibility and effectiveness of the induction support they need?
e. What are the consequences of separating the evaluation of beginning teachers from other aspects of induction support?
f. What are the consequences of giving beginning teachers more choice in what they want to do in their induction programmes?

The foregoing is an ambitious agenda for policy debate and research, and countries are at different places in terms of the need and capacity to address the questions posed. For developing countries faced with the challenge of rapidly increasing their basic education teaching force, among the most important questions are those related to 1) cost-effectiveness; 2) the mix of career and contract teachers; 3) the mentoring and other support necessary to make school-based apprenticeship models work; and 4) the competence of teacher educators. Whether teacher preparation is university-, college- or school-based, teacher educators have a critical role to play. They can also provide leadership for teachers' continuing professional development. Improving their recruitment, preparation, performance and retention is therefore a priority.

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