TEACHER TRAINING IN GHANA – DOES IT COUNT?

Multi-Site Teacher Education Research Project (MUSTER)

Country Report One

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March 2003

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Abbreviations

BST	*Beginning Student Teacher*	JSS	*Junior Secondary School*
CA	*Continuous Assessment*	JUSSTEP	*Junior Secondary School Teacher Education Project*
CRIQPEG	*Centre for Research into Improving the Quality of Primary Education in Ghana*	MOE	*Ministry of Education*
		NQT	*Newly Qualified Teacher*
CRT	*Criterion Reference Test*	ODA	*Overseas Development Agency, UK (now DFID)*
DFID	*Department for International Development, UK (formerly ODA)*	PREP	*Primary Education Programme*
		PSDP	*Primary School Development Project*
ERP	*Education Reform Programme*		
ERRC	*Education Reform Review Committee*	PTR	*Pupil-Teacher Ratio*
		SSCE	*Senior Secondary Certificate Examination*
FCUBE	*Free Compulsory and Universal Basic Education*		
		SSS	*Senior Secondary School*
FST	*Final Student Teacher*	TED	*Teacher Education Directorate*
GER	*Gross Enrolment Rate*	TTC	*Teacher Training College*
GNAT	*Ghana National Association of Teachers*	UT	*Untrained Teachers*
		WAEC	*West African Examination Council*
GES	*Ghana Education Service*		
ITT	*Initial Teacher Training*		

Preface

The Multi-Site Teacher Education Research Project (MUSTER)

MUSTER has been a collaborative research project co-ordinated from the Centre for International Education at the University of Sussex Institute of Education. It was developed in partnership with:

- The Institute of Education, University of Cape Coast, Ghana.
- The Institute of Education, The National University of Lesotho.
- The Centre for Educational Research and Training, University of Malawi.
- The Faculty of Education, University of Durban-Westville, South Africa.
- The School of Education, The University of the West Indies, St. Augustine's Campus, Trinidad.

Financial support has been provided over four years by the United Kingdom Department for International Development (DFID).

The Multi-Site Teacher Education Research project (MUSTER) has explored initial teacher education in five countries – Ghana, Lesotho, Malawi, South Africa, and Trinidad and Tobago. National research teams have collected and analysed data on key dimensions of the training process including the characteristics of those selected for training, the curriculum processes they experience, the perspectives and working practices of those who train teachers, the outcomes of training, the reflections of newly trained teachers in schools, analysis of supply and demand for new teachers, and projections of the resource and cost implications of meeting national targets to universalise primary schooling.

MUSTER has been designed to provide opportunities to build national research and evaluation capacity in teacher education through active engagement with the research process from design, through data collection, to analysis and joint publication. Principal researchers have led teams in each country and have been supported by Sussex faculty and graduate researchers.

This volume is one of a series of Country Reports summarising the findings from each country. The more detailed studies on which these are based have been published in a series of 35 Discussion Papers, which are listed at the end of the report.

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Introduction

The MUSTER project offered a window of opportunity to examine the issue of teacher quality in Ghana by exploring pre-service initial teacher training for changes that might be needed to improve the quality and supply of teachers for basic schools. Generally, the findings of the MUSTER studies point to the need for bold changes to institutional structures, and for a review of traditional conceptions and practices of learning to teach. Also, it offers policy makers and agencies concerned with improving initial teacher training in Ghana, analytic insights into the factors which shape the identity, commitment and competence of primary and junior secondary school teachers. Furthermore it offers concrete suggestions and recommendations as to how the enterprise of training teachers in Ghana can be made more effective and efficient.

Research Methods and Instruments

In order to understand the strengths and constraints of teacher training in Ghana, it was necessary to adopt a research design that would provide various kinds of information, at different stages in becoming a teacher. This consideration led to a three-stage research framework: *inputs* – examining the characteristics of those who enter teacher training, *process* – what they experience in training and its value to them, and *outputs* – what appears to be the quality of training outcomes. Samples for the studies were drawn from four training institutions located mainly in the southern parts of the country.

Questionnaires were administered to all three teacher groups – entering and exiting college, NQTs - and different parts analysed to address different questions posed by the research. Interviews were also conducted to explore particular perceptions, values and attitudes to issues about teacher training. Short autobiographies were written by beginning student teachers to give some understanding of their earlier experiences with schooling and teachers. Classroom observation in training colleges was undertaken, and college tutors interviewed for their perspectives on what went on during their lessons.

In 1999, foundation academic courses, in the first year only, were introduced to improve the subject knowledge competence of trainees before they embarked on professional training in the remaining two years of training. MUSTER examined how much impact this change was likely to make on student teachers' competence in mathematics. Analysis was carried out on statistical data related to the costs and financing of teacher education, teacher supply and demand, etc.

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Key MUSTER questions

The key questions MUSTER sought to address were:

1. Who becomes a basic schoolteacher in Ghana? In other words, what characteristics and experiences appear to define beginning student teachers' identity?
2. What do trainees experience in training, and how do they feel about its value in terms of enabling them perform effectively in the classroom?
3. What insights about the efficacy of teacher training can be gained from attitudes and dispositions that appear to change in becoming a teacher, and from changes in the academic knowledge of student teachers? In effect, is there evidence of significant positive shifts in becoming a teacher that might be attributable to the influence of training?
4. What does it cost to train a teacher and is the cost justifiable, given what we can deduce about the effectiveness and efficiency of the training system?
5. Is the current system of teacher training capable of meeting the future demand for teachers in Ghana? If not, what alternatives might be considered to ensure that sufficient numbers of teachers are trained to keep up with demand?

Key Emerging Issues

The following outlines the salient issues that emerged from the various MUSTER studies.

1. Those who chose teaching enter at a relatively young age. However, not many trainees enter teacher training straight after their secondary education. The reasons are not easy to detect from our data. A tentative explanation could be that many do not qualify after completing secondary education and have to re-sit some examination subjects to meet academic entry requirements. In fact, our studies show that the majority barely meet the qualifying grades in English and Mathematics and that the standards are falling. Less than 30% who qualify possess grades in the top pass category of A, B or C in English. In Mathematics, the situation is slightly better. The important message about the qualifying grades of beginning student teachers is that teacher training in Ghana is unable to attract better academically qualified candidates. This has implications for prospective teachers' confidence in teaching, especially their capacity to help pupils develop deep conceptual understanding of school subjects.

   Most student teachers and newly qualified teachers in the study are from the "Akan" tribe. This is not surprising since all the four colleges used by MUSTER for its studies were located in southern Ghana, which is predominantly Akan. However, it suggests that teacher training colleges mainly attract candidates from the regions in which they are located.

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In general, between 70 – 80 % of teacher training candidates had no formal experience of teaching in a primary or junior secondary school before entering training college. This means that most do not come with sufficient professional capital that could be relied upon in planning a reflective curriculum of teaching based upon prior formal teaching experience. Also, most prospective teachers (over 60%) had their own early formal schooling experience in urban areas, with implications for appreciating the challenges of professional life in rural communities.

The selected background characteristics of the parents of prospective teachers suggest a sizeable proportion to be in primary sector employment. Most parents of teachers are either self-employed (especially mothers) or are teachers themselves. It is possible that those whose parents are teachers may come with first-hand insights into the socio-economic implications of their decision to become a teacher, and that this will affect their values, attitudes and commitment to teaching. If that image is a poor one, then this is likely to impact negatively on their long-term commitment to teaching. In fact, most trainees did not expect to remain in primary teaching in the long term. They preferred a higher status job outside teaching, or a high status position in the education or teaching profession.

2. Both student teachers and newly qualified teachers stressed that the most commonly used instructional approach in college was "lectures with tutors dictating notes". Rarely, it appears, were opportunities created for more interactive "small group" work or discussions that would place much of the responsibility for developing personalized understanding of teaching on trainees.

Most rated teaching practice and pedagogic subject matter knowledge as requiring the most emphasis in training. There were also complaints that colleges lacked sufficient instructional materials, such as textbooks and instructional aids.

Views regarding the experience of teaching practice suggested that it had created deeper awareness of a disjunction between the prescriptive teaching methodologies presented at college, and the real demands of teaching encountered in schools. College tutors seem more interested in ensuring that trainees applied prescriptive teaching strategies, or demonstrated specific teaching behaviour taught in college, without raising equally the value of adaptive behaviour in teaching. There appears to be a tension between what college training espouses as constituting effective teaching and what real teaching situations demand. This was reflected in newly qualified teachers' explanations about effective lessons; mostly their explanations reflected assumptions about the effects of prescribed teaching techniques, rather than about monitoring the effects achieved. According to some Head teachers, newly trained teachers seemed less successful in using what they had learned effectively to promote pupil understanding.

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Trainees felt that a longer immersion in the real professional world of teaching during their training would be useful. However, the evidence showed that what is most needed is a model of training that emphasizes the importance of teachers' appropriate representation of teaching, based upon a situated understanding of teaching that reflected real classroom conditions and needs. Teacher training appeared to lack focus on the practical demands of actual teaching, and its implications for practice.

3. It appears that most trainees' academic knowledge backgrounds are so weak that much more remedial teaching time than the one year prescribed will be required to raise their competence to satisfactory levels. Using the Institute of Education's[1] minimum exam pass cut-off score of 35%, the majority (84%) of beginning trainees with weak entry grades (classified as D, E, 5, 6) failed the specially designed mathematics achievement pre-test. Only 2% of the weak graders achieved a score above 60%. About 21% of those with stronger grades (i.e. A, B, 1, 2, 3) passed and 34% achieved a score above 60%. Post-test score analysis showed that about 58% of weak graders failed the test and only 4% achieved scores above 60%. However, about 97% of first year trainees with stronger grades passed the post-test. Raising the academic entry qualification may seem like the appropriate action to improve this situation, but this could also threaten supply. This remains one of the biggest challenges facing pre-service teacher training in Ghana, as generally the profession appears unable to attract the best academically qualified candidates.

Initial teacher training does not seem capable of altering beliefs and developing new attitudes and dispositions in teaching. Education planners need to become clearer about what pre-service teacher training is reasonably capable of achieving, so that the investments in it can be justified. As it stands, it is difficult to pinpoint clear demonstrable evidence of its impact, although further studies may be required to draw firmer conclusions on this issue.

Rather sadly, there is a total lack of commitment by the education establishment to the early years of the beginning teachers' professional life. Three years spent in formal training does not produce the kind of changes expected or necessary for effective teaching. It is clear from the evidence MUSTER gathered that most beginning teachers find the early years of teaching quite difficult, mostly because of inadequate professional and social support to make the adjustment smooth e.g. the late payment of salaries, accommodation needs and lack of proper induction into teaching. Newly qualified teachers often find themselves in a "sink or swim" situation that could further deepen disappointment with teaching, especially primary teaching in rural areas. Similarly, the training curriculum does not expose trainees sufficiently to the realities of teaching in ways that could help them to maintain high levels of motivation.

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[1] The Institute of Education at the University of Cape Coast is the examining body for post-secondary teacher training institutions in Ghana. The pass mark is actually 40%, but 35% is accepted under some conditions.

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4. Trend analysis suggests that the cost of training a teacher is only exceeded by the cost of training a university student, and that the cost keeps rising. The average college costs for training a teacher were about US$2,100 over three years (based on data from 12 colleges). Analysis of financing of education in Ghana shows that teacher training has enjoyed substantial investment as compared to other sectors of the education system. The data also indicates that over 90% of the recurrent expenditure allocated to the training colleges is spent on personal emoluments. "Other expenditure" items that have potential to impact positively on efficiency and effectiveness of training colleges comprise less than 10% of the total recurrent budget allocated to them. This undoubtedly has implications for the quality of training since the very low budget allocation means inadequate and poorly maintained infrastructure and an insufficient supply of instructional resources for training.

    The structure of initial teacher training costs needs reviewing so that funds can be more efficiently utilized. MUSTER estimates suggest that typically across the college sector about 75% of direct costs are in student stipends, from which about 40% is deducted at college to run the colleges, 20% in college salaries split between teaching and non-teaching staff about 60/40, and about 5% in non-salary expenses. This situation needs to change, and approaches found which will ensure that more teachers are trained at costs that can be sustained. This may require a re-evaluation of traditional routes to becoming a teacher towards shorter periods spent in colleges training, more emphasis placed on distance teacher training activity, and increased financial support for intensive programmes focusing on classroom practice.

5. The demand for new teachers, and training to reduce the backlog of untrained teachers is more than double the current output from training colleges (currently 41 colleges – 38 public and 3 private). The prognosis appears more challenging if government's free and compulsory universal basic education (FCUBE) reform initiative is to achieve its objectives. If a conservative target is chosen (i.e. the achievement of 100% GER by 2010 for primary and JSS, representing the condition where there are enough school places for all children of school age) additional teachers are needed over and above estimates which assume that GERs remain constant. Our estimates suggests that the total additional number of teachers needed rises from about 24,000 to 39,000 at primary and from 28,000 to 44,000 at JSS over the period from 1998 to 2010. Translated into annual additional demand, something like 7000 more new teachers would be needed each year to achieve 100% GER at primary and JSS, over and above those needed to maintain current GERs. This implies a total annual demand of 22,000 to 29,000 teachers depending on the attrition rate chosen.

    The magnitude of the increases needed appears substantial – between two and three times current output will be needed to maintain the existing GERs, and to cover

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demand generated by population growth, attrition and reduced drop out. What perhaps is more disturbing is that the levels of demand could not easily be met by expansion of the current system. The analysis suggests that policy makers may need to consider radical measures to increase the supply of teachers, but without compromising on the quality of their training. This is an urgent matter. MUSTER has proposed a number of options: introduce more than one route to train as a teacher e.g. introduce a modular route to teacher training, explore the possibility of training colleges providing INSET for "untrained teachers" rather than removing them, introduce incentives that would encourage more secondary leaving students to consider a teaching career, even if it is for a shorter term.

Conclusion

An important objective of recent education reforms in Ghana has been to improve access and participation in basic school education, and enhance the quality of teaching and learning outcomes (MOE, 1994). Both have implications for teacher training: improving access and participation means more teachers have to be trained; enhancing quality of teaching and learning means improving teacher quality through more effective training. The evidence produced by the MUSTER studies suggest that Ghana needs to rethink seriously its teacher training policies if the projected goals of basic education quality are to be met. Traditional practices are grossly insufficient to meet the challenges of producing the quantity and quality of teachers needed to deal with the changes expected in basic schooling in 21st century Ghana. Cumulatively, the evidence gathered by the MUSTER studies point to the need to take a serious view of the methods of teacher recruitment, incentives to make teaching attractive especially at the primary level, and greater emphasis on continuing professional development programmes provided through structured institutionalised INSET and a mandatory internship programme for beginning teachers.

Chapter One   1 Background and Context

1.1   Educational reforms: expectations and impact

Teacher Education in Ghana has until recently not attracted much attention by way of intense structural and curriculum reform. Changes began rapidly after the advent of the general education reforms of pre-tertiary education in 1987. The initial emphasis of the Education Reform Programme (ERP) in 1987 was on increasing access, improving educational inputs, and restructuring the education system[2]. This had become necessary because inputs in education had deteriorated considerably as a result of a declining economic climate evidenced by the real value of government financing for education falling sharply from 6.4% of GDP in 1976 to 1.4% by 1983. Thus, from 1987 a great deal of resources were channelled into providing textbooks, instructional materials, building new schools etc. to fulfil the vision of expanding educational access and providing the basic materials that schools needed to improve teaching and learning.

In 1994 an Education Reform Review Committee (ERRC) was set up to evaluate the achievements of the 1987 reforms. It found that although the ERP had achieved increases in enrolments and improvements in school facilities, teaching and learning outcomes remained significantly poor.

The overarching message of the 1994 ERRC was that the expansion of access to basic education and increases in physical inputs could not be sustained unless accompanied by improvements in teaching and learning in schools. In response, the Government of Ghana initiated the "Free, Compulsory and Universal Basic Education" (FCUBE) Programme. FCUBE3 was launched in 1996 and was designed to address the weaknesses of the 1987 ERP in two five-year phases from 1996 to 2005. It had three main goals:

- improved access to, and participation in, basic education with a specific focus on girls and the poor;
- enhanced quality of teaching and learning outcomes;
- improved efficiency in the allocation, management and utilisation of fiscal, material and human resources in the education system (Ministry of Education (MOE), 1994).

Key elements of FCUBE included improvements to access through the rehabilitation and construction of school facilities, the fostering of full-scale community ownership and management of schools, and measures to increase education participation by girls and disadvantaged children. To improve quality in teaching and learning, pre-service and in-service teacher training programmes were targeted for reform to ensure well-qualified teachers. The management efficiency component of FCUBE involved decentralisation and district capacity building, more effective monitoring, supervision and evaluation of

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[2] Before 1987, education in Ghana consisted of a six-year primary, four-year middle; a seven-year secondary and a three or four-year tertiary.

[3] "FCUBE" became "fCUBE" when the Government sanctioned the charging of schools fees for certain items (e.g. school books) in 1993.

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education sector programmes and activities, and more efficient financial and personnel management.

Until the FCUBE initiatives, the 1987 ERP activities appeared to suggest that by increasing educational inputs and restructuring the curriculum of pre-tertiary education, particularly primary and junior secondary, quality in education would emerge. However, evidence from assessment of student learning and achievement carried out after five years of ERP initiatives indicated that much more was required if significant gains in student learning outcomes were to be achieved.

Evidence emerging from small to large-scale evaluation studies of pupil performance suggested that perhaps teacher quality in terms of effective teaching was lacking. For example, research conducted by CRIQPEG (the Centre for Research into Improving the Quality of Primary Education in Ghana), at the University of Cape Coast showed that despite the reform efforts, pupils' achievement had not made any significant gains, and were in fact embarrassingly poor. The CRIQPEG studies revealed that even at grade 5, 40-50% of children tested could not decode typical passages from the 2nd, 3rd, 4th and 5th English grade books. Only about one-sixth of grade 4 children and one-third of grade 5 children could decode a reading passage with at least 70% accuracy (CRIQPEG Report, 1995).

From 1992 yearly criterion-referenced tests (CRTs) were initiated by the Primary Education Programme (PREP) of the Ministry of Education to monitor progress in pupil achievement. The 1992 CRT scores, reported as the percentage of students reaching a score of 60% in English and 55% in mathematics, revealed only 2.0% of pupils achieved the criterion pass score in English and only 1.1% in mathematics. In 1996, the CRT results showed that only 5.5% and 1.8% of pupils had achieved criterion pass scores in English and Mathematics respectively. It was becoming clear that any progress being made was disappointingly slow.

The CRT results also showed pupils at private primary schools achieving significantly superior test results, with a mean score of 61% in English and 47% in Mathematics, compared with mean scores of 33% and 28.8%, respectively, in public schools (MOE/PREP, 1996). The CRT results raised a number of questions. But perhaps the most pressing was why public schools staffed with predominantly trained teachers performed at significantly lower levels than private institutions with staff who were mostly untrained? Was teacher education failing to prepare effective teachers or was the problem one of ineffective school management? School information data collected as part of the MOE/PREP CRT administration suggested that private schools had certain advantages over public schools that might explain the differences. These were:

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- Greater control and supervision of teachers
- Effective School Management Board
- Interest of parents in what their children learn
- Open days which bring teachers, parents and children together
- Availability of proportionately more instructional materials

(MOE/PREP 1996:28)

Thus, it seemed that effective school management systems, community participation in school development and increased instructional materials in schools were key factors in explaining the differences in performance between public and private schools. If that were so, it raises some fundamental questions. Should more resources be invested into in-service training, supply of instructional materials, school management and community participation, rather than increasing investment in pre-service training of teachers? Or should pre-service training focus more on school-based training? Unfortunately, the empirical basis for deciding which strategies to adopt has been missing.

The MOE, in trying to understand the reasons for low achievements among pupils in public schools, suggested the following factors as among the key causes:

(i)   Lack of learning materials, and teachers' failure to make use of textbooks, equipment and other learning materials;

(ii)   High levels of pupil and teacher absenteeism;

(iii)   Inadequate funding by Government on non-salary recurrent expenses;

(iv)   Insufficient use of teacher – pupil instructional contact hours;

(v)   Unmotivated teachers owing to unattractive incentives, ineffective sanctions and poor social appreciation of the roles of teachers;

(vi)   An overly ambitious curriculum burdensome to both teachers and pupils;

(vii)   Ineffective pre-service teacher training and inadequate in-service teacher training to introduce teachers to the new curriculum;

(viii) Non-interactive mode of teaching;

(ix)   Weak supervision, both in school and by district/circuit supervisors and inspectors;

(x)   For the Junior Secondary School, a lack of workshops and equipment and qualified technical teachers.

(Ministry of Education 1995: Brief on FCUBE to Cabinet).

This list is suggestive of four main areas to which poor pupil learning outcomes may be linked. These are

- Ineffective system of teacher training – (i), (vii), (viii);
- Ineffective system of teacher and school supervision – (ii), (iv), (ix);
- Inadequate funding and lack of support for teachers in terms of incentives – (iii), (v), (x)

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- Over-ambitious school curriculum when viewed in terms of content coverage and time availability - (vi).

The MOE's list suggests that teacher quality development at pre-service level and the professional working environment of teachers require the most attention. The Government of Ghana's FCUBE initiative in 1996 targeted these two areas for further improvement.

1.2   Teacher training and teacher quality

In 1999 an evaluation of the World Bank-supported Primary School Development Project (PSDP) indicated that teachers were not meeting professional expectations. The study reached the conclusion that the management and utilisation of instructional time was a fundamental problem which undermined the quality of education in public schools. It revealed that high teacher absenteeism, frequent loss of instructional time, poor instructional quality, poor management, and inadequate textbooks were major problems (Fobih et. al., 1999).

From the early 90s there had been clear dissatisfaction with initial teacher training in Ghana. A National Commission on Teacher Education set up by the Ministry of Education in 1993 captured the major concerns:

> [The Teacher Training Colleges] are inefficient in producing effective teachers since the trainees and the tutors have so little exposure to actual schools and classrooms, and academic content is taught and tested above practical teaching methodology. [Also] the college curriculum does not differentiate sufficiently between primary and junior secondary methodology (Ministry of Education 1993, p. 23)

The Commission's contention was that teacher training had not placed sufficient emphasis on developing teaching expertise from a school-focused orientation. Professional educators commenting on the problem of teacher quality also echoed this point. K. A. Awuku, a respected Ghanaian teacher educator, saw the problem as an overemphasis on trainees' academic knowledge instead of focusing on methods of teaching (Awuku 2000). Unfortunately criticisms leveled against teacher training have lacked any backing from empirical analysis to reveal where the system might be failing.

To date, the best available study on possible problems of teacher training in Ghana was one commissioned by the Teacher Education Directorate (TED) with financial assistance from the British Overseas Development Agency (ODA), now DFID. The study was an evaluation of a teacher education project (Junior Secondary School Teacher Education Project, JUSSTEP: 1989-1993), targeting five subject areas for reform (Mathematics, English, Science, Technical Skills and Education) in 38 Teacher Training colleges.

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1.3   **The JUSSTEP study findings**

JUSSTEP worked on the assumption that the most serious problem with teacher training in Ghana was college instructional practices. JUSSTEP had pointed out that training colleges had adopted an approach to teaching and learning that was highly didactic and teacher-centred (GES/TED/ODA, 1993). According to the JUSSTEP reformers,

> Learning [in training colleges] was heavily examination-oriented. Students were largely the passive recipients of "content" and "theory" while methodology and practical teaching strategies were largely ignored (p. 1).

The central thrust of the JUSSTEP reform was therefore to up-grade the professional competence of college tutors and to disseminate ideas on appropriate teaching methodology (e.g. student-centred pedagogy) through INSET workshops and tutor-supported instructional materials.

After four years of the reforms, JUSSTEP concluded from its evaluation of the project's impact that "tutors (were) positive about the new methodologies and in certain areas such as Mathematics, Science and Technical Skills (were) applying a more student-centred approach". But the reformers added that the impact of JUSSTEP initiatives had been limited by

> …certain major structural constraints; the main ones being an overloaded curriculum, excessive student-tutor ratios exacerbated by insufficient tutors per subject, over-enrolment, high staff turnover, and lack of classroom facilities. These factors, combined with pressure to cover the syllabus and prepare for examinations, present an excessive workload in terms of teaching and assessment requirements and act as major impediments in the effective implementation and adoption of new methodologies in teacher education in the training colleges (GES/TED/ODA, 1993: p1)

In effect, JUSSTEP attributed the lack of sustained impact of its reforms to structural constraints that, it felt, had undermined the student-centred instructional approaches it had introduced.

A notable methodological limitation of the JUSSTEP study was its exclusive reliance on questionnaires to gather data. Although useful in aiding broad generalisations, questionnaires tend to lack the depth of insight into practices that are often the product of complex conditions, values and beliefs. Including qualitative approaches would have helped to explain and understand how structures actually restricted instructional strategies.

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1.4 **Increasing financial investment into teacher training**[4]

Analysis of financing of education in Ghana shows that teacher training has enjoyed substantial investment as compared to other sectors of the education system.

Table 1.1 shows the recurrent cost per student by educational level over the period 1992 to 1998 adjusted for inflation using constant 1996 US$ prices. It indicates that the relative differences in the unit costs by level of education have changed during the 1990s. Unit costs at the primary level have remained fairly constant but have declined in the most recent period despite the FCUBE. Unit costs for Junior Secondary School (JSS) have also fallen back to their 1992 levels. By contrast expenditure per student at the Senior Secondary School (SSS) has increased significantly. The unit costs of technical and vocational education have increased since falling in the mid-1990s. The unit cost of Polytechnic students has more than doubled between 1992 and 1998. Over the period, the university student unit cost declined by 37.5%.

Table 1.1: **Recurrent public expenditure per student (constant 1996 US$ 1 = c1637)**

Level/Type of Education	1992	1995	1998
Primary	36.79	44.25	41.75
JSS	66.76	86.55	67.96
SSS	77.44	153.88	168.00
Vocational/technical	188.37	139.04	299.54
Teacher education	246.62	442.60	617.31
Polytechnic	102.18	131.80	209.63
University	1376.94	1123.87	855.91

Source: Adapted from data in MOE 1999: Appendix 4.1; World Bank 1998:16

But by far the most dramatic change in unit costs has been the increase in cost per student in teacher training. In real terms, the annual unit cost of teacher education increased by 79.5% between 1992 and 1995, and then by 39.5% between 1995 and 1998. The numbers in the training college system during this period remained fairly stable at around 18,000. Most of the costs of teacher training (77%) lie in the payment of salaries of tutors, wages of ancillary staff, and the allowances given to teacher trainees. The remaining 23% is used for administration and other running costs. Table 1.2 shows this.

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[4] See Akyeampong & Furlong (2000) and Akyeampong, Furlong & Lewin (2000) for expanded analyses and discussions.

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Table 1.2: **MOE Recurrent Expenditure on Teacher Education (1998)**

Division	Recurrent Expenditure Billions of Cedis	Percent of Total
General	820.0	2.2
Manpower	178.3	0.5
Training	105.7	0.3
CRDD Inspectorate	27.6	0.1
Teacher Education	1.0	2.9
GES Secretariat	89.4	0.2
Supply and Logistics	59.5	0.2
Central Administration	5.8	15.6
Teacher Training	28.8	76.9
Management	463.3	1.2
Total	**37.5**	**100.00**

Recurrent expenditure on teacher education covers the costs of the teacher training colleges and the management of the college system. As a percentage of total recurrent expenditure on education this was estimated at 6.7% for 1999, a significant increase from its share of 2.7% in 1989, despite decreases in the years 1991, 1996, and 1997 (Figure 1).

Figure 1: **Recurrent Expenditure on Teacher Education as a % of Total Recurrent Expenditure on Education, 1989-1999**
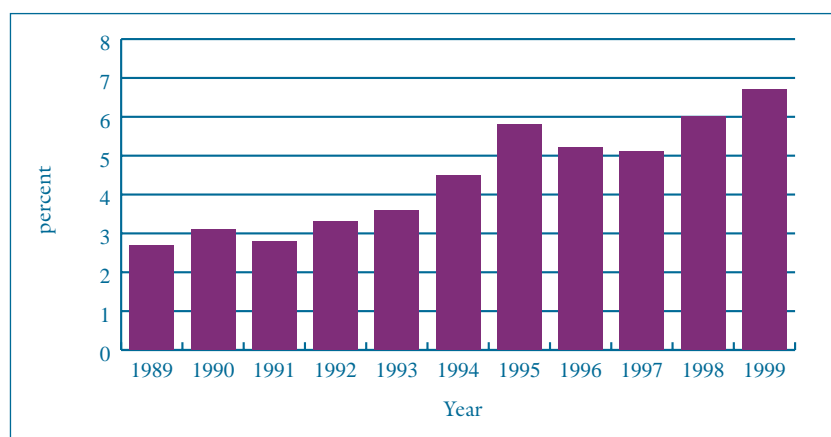
Ministry of Education documentation does not refer to any specific policy to increase the share of the recurrent education budget given to teacher education. Throughout this period of reform, however, the government has consistently articulated its objective that *all teachers should receive pre-service training to improve the quality of teaching and learning in classrooms*. To

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achieve this goal, in 1992 the government significantly increased the allowances paid to teacher trainees, and from the mid-1990s onwards the number of teacher trainees increased dramatically. This has been referred to by the MOE as a successful strategy for recruiting more candidates into teacher training and by implication providing more qualified teachers. As the MOE has noted:

> At the heart of the effectiveness of education reform is the classroom teacher... With the reforms, an *increasing number* of *trained teachers* are being placed in the primary and junior secondary schools. The increase in pay for teacher trainees in 1992 has also provided a stronger incentive for candidates to enter the teaching profession, and has resulted in a rare expansion of the teacher training colleges (MOE, 1994:16, emphasis added).

But the key question is whether this increased financial investment into teacher training has been directed at those areas that have the greatest potential to improve the quality of training?

Table 1.3 presents data showing how the total recurrent budget to teacher education was allocated between two budget headings for the years 1993-1997.[5]

Table 1.3: **Allocation of Recurrent Expenditure to Teacher Education between GES Budget Headings, 1993-1997**

Year	1993	1994	1995	1996	1997	Average 1993-97
GES Headquarters	1.9%	1.5%	4.4%	3.0%	5.7%	3.3%
GES Schools and Regional Offices	98.1%	98.5%	95.6%	97.0%	94.3%	96.7%

Source: Finance and Administration, MOE, 1998

Although there has been some fluctuation in the distribution of recurrent expenditure to teacher education between the two budget headings, the proportion allocated to the Ghana Education Service (GES) Schools and Regional Offices averaged over 96% of the total between 1993 and 1997.

Data disaggregating the GES Schools and Regional Offices teacher education budget between the administrative functions of the Regional and District Education Offices and expenditure by the training colleges could not be obtained. In the absence of this

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[5] The Ministry of Education makes allocations to the teacher education recurrent budget under two headings: Ghana Education Service (GES) Headquarters' Services, and GES Schools and Regional Offices. Recurrent expenditure on teacher education under GES Headquarters' Services budget heading is used to finance the management of teacher education system at the national level through the Teacher Education Division (TED). Recurrent expenditure on teacher education under the GES Schools and Regional Offices budget heading is used to finance the administration of teacher education at the regional and district levels and cover TTC running costs.

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information it is assumed that the former is negligible relative to the latter, such that data on expenditure under the GES Schools and Regional Offices heading is taken to be comprised almost exclusively of training college running costs.

The data presented in Table 1.4 below summarise actual recurrent expenditure for the training colleges in terms of budget item 1, "personal emoluments", and other expenditure under budget items 2 to 5[6].

The data indicates that over 90% of the recurrent expenditure allocated to the training colleges is spent on personal emoluments. "Other expenditure" items that have potential to impact positively on *efficiency* and *effectiveness* of training colleges comprise less than 10% of the total recurrent budget allocated to training colleges. This undoubtedly has implications for the quality of training since the very low budget allocation means inadequately and poorly maintained infrastructure and an insufficient supply of instructional resources for training.

Often the increased financial investment in initial teacher education has been justified as an important step in increasing the number of trained teachers in schools (MOE, 1994). Yet the evidence suggests that a large proportion of teachers, particularly at the primary level, remain untrained.

Table 1.4: **Allocation of Recurrent Expenditure to GES Regional Offices and Schools between Personal Emoluments and Other Expenditures, 1993-1997**

Year	1993	1994	1995	1996	1997
Personal Emoluments[7]	92.9	94.8	91.7	92.7	94.5
Other expenditures	7.1	5.2	8.3	7.3	5.5

Source: Finance and Administration, MOE, 1998.

A 1996 World Bank report on the Basic Education Sector Improvement Programme in Ghana shows that in some districts between 50 to 70% of teachers remain untrained, mostly in rural districts. This is an indirect indication that perhaps trained teachers disproportionately refuse to accept teaching positions in poor rural communities.

Thus, increased investment in teacher training to attract more candidates may not necessarily lead to sufficiently trained teachers for all schools. More complex factors may be influencing trained teachers' choices and decisions with regard to whether they remain in teaching and if they do, for how long.

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[6] Each budget heading is further divided into expenditure items. Item 1 represents expenditure on personal emoluments - salaries of teaching and non-teaching staff, and allowances paid to trainees; item 2 travel and transport; item 3 general expenditure; item 4 maintenance, repairs and renewals; and item 5 supplies and stores. In theory budgetary allocations are fixed and cannot be transferred between items.

[7] Personal emoluments consist of salary payments to teaching and non-teaching TTC staff and trainee allowances.

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1.5   **Implications of teacher supply and demand in Ghana[8]**

The teacher supply and demand situation in any education system implicitly asks about the capability of the training system to meet increasing demand for teachers. To meet the goals of education for all children, training colleges must be capable of producing sufficient numbers of qualified teachers to keep up with population growth.

FCUBE intended that by year 2000 universal entry to grade 1 would be achieved, 95% of pupils would complete Primary 6 (P6) by 2005 and enter Junior Secondary School (JSS), and 85% of those entering would complete JSS3 successfully. These aspirations have direct implications for teacher education's capacity to prepare an adequate number of teachers who are well motivated and committed to staying in teaching longer at both primary and JSS levels.

The basic parameters which determine the demand for new teachers in Ghana at primary and JSS level are: the growth in the school age cohort, the need to increase participation rates to levels that ensure all children complete the basic cycle, the numbers leaving teaching who need replacing (attrition), and the aspirations to limit increases in the pupil-teacher ratio to maintain quality. In addition those who are currently untrained will need upgrading to minimum levels of qualification to ensure that all teachers are trained.

The age cohort of six-year olds was about 582,000 in 1998 (MOE 2000) of whom 457,000 were enrolled, giving an intake rate of about 78%. Primary school enrolment in 1998 was 2.29 million, and 1.31 million at JSS. Gross enrolment rates (GER) across the primary cycle averaged about 73% in 1998, having fallen from nearly 80% in the early 1990s. At JSS level gross enrolment rates were stable through the 1990s at around 58%. Over the period from 1988 to 1998 the school age population of 6-14 year olds grew by nearly 4% per annum (MOE 2000).

Changes in the number of pupils, qualified and unqualified teachers and the pupil-teacher ratio are shown in Table 1.5

From the table it can be deduced that the total number of teachers at primary level has fallen over the last ten years, whilst enrolments have grown by 37% with the effect that the average pupil teacher ratio has increased from 26:1 to 36:1. *But the pupil to qualified teacher ratio has remained fairly constant at about 45:1.* At JSS level the number of teachers has increased by 16% and the number of students by 24%. Overall pupil-teacher ratios have increased marginally to 20:1 and the *pupil per qualified teacher ratio has fallen to 23:1.* Also from the table, we see that about 12,700 primary teachers and 5,100 JSS teachers remain untrained.

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[8] See Akyeampong, Furlong & Lewin (2000) for expanded analysis and discussion

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Table 1.5: **Numbers of pupils, trained and untrained teachers, and pupil-teacher ratios 1988-1998.**

	Primary			**JSS**		
	1988	**1993**	**1998**	**1988**	**1993**	**1998**
Pupils	1677100	2047300	2288800	610100	645000	755200
Teachers	65300	67800	63700	32600	33800	37700
Number qualified	37500	46400	51000	22200	25500	32600
Number unqualified	27800	21400	12700	10400	8300	5100
% Unqualified	42.6	31.6	19.9	31.9	24.6	13.5
Overall PTR	25.7	30.2	35.9	18.7	19.1	20.0
Qualified teacher PTR	44.7	44.1	44.9	27.5	25.3	23.2

Thus although the number of trained teachers has increased, this has not led to significant reduction in the trained teacher to pupil ratio, which suggests that increased access to primary education may have outstripped the colleges' ability to produce sufficient numbers of qualified teachers. (It is important to point out that in general large pupil-teacher ratios (PTR) are found in urban areas and low PTRs in the more rural areas of the country). But there may be other reasons that need exploring to develop effective policies that improve the situation.

Producing sufficient numbers of qualified teachers, as FCUBE envisages, requires that we examine two critical issues – are traditional routes the most cost-effective and productive ways to increase teacher supply? Secondly, what conditions of training and of the beginning teaching phase might be undermining greater interest and longer-term commitment to primary and JSS teaching?

The Multi-Site Teacher Education Research (MUSTER) Project offered a unique opportunity to examine these and other issues that might lead to better understanding of the underlying forces and conditions responsible for the quality of the teaching force, teacher training and teacher retention particularly at primary level.

1.6 The MUSTER Agenda

The MUSTER project has provided the opportunity to gather a wide range of qualitative, quantitative and official statistical data to explore initial teacher education in Ghana. We felt that any attempt to understand more comprehensively the efficacy of the teacher training system had to address the following fundamental questions:

1. What characteristics and experiences appear to define beginning student teachers' identity? Answers to this can become the basis for examining the appropriateness of the

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assumptions behind the starting points of training, and inform curriculum planning decisions.

2. What do trainees experience in training and how do they feel about its value in terms of enabling them to perform effectively in the classroom? Answers to this would lead to a better understanding of programme content and delivery quality, and whether it promotes a philosophy of teaching and learning that fosters deep commitment to pupils' learning.

3. What insights about the efficacy of teacher training can be gained from the attitudes and dispositions that appear to change in becoming a teacher, and from changes in student teachers' academic knowledge? In effect, is there evidence of significant positive shifts in becoming a teacher that might be attributable to the influence of training?

4. What does it cost to train a teacher and does this cost appear justified by the evidence of training outcomes? What are the implications of the structure of costs for programme restructuring and curriculum planning?

5. Will the current system of teacher training be capable of meeting the future demand for teachers in Ghana?   If not, what alternatives might be considered to ensure that sufficient numbers of teachers are trained to keep up with demand?

Before discussing the findings in more detail, it is necessary to provide an overview. Chapter 2 describes the study framework and methodology. It also discusses the limitations of the MUSTER study. Chapter 3 presents descriptive information about initial teacher education development in Ghana up to recent reforms. The findings of the study are reported mainly in Chapters 4, 5 and 6. In Chapter 4 findings relating to beginning student teachers are presented. Chapter 5 provides findings relating to curriculum delivery and college training costs. Chapter 6 focuses on newly qualified teachers (NQTs), their early professional experiences and attitudes, and evaluation of their professional attitudes and performance from the perspective of Head teachers. Chapter 7 provides data on the effectiveness of teacher training via an analysis of the rise in student teacher achievement, attitudes and dispositions that change in becoming a teacher, and finally, differences in instructional characteristics between some NQTs and untrained teachers (UTs). Chapter 8 takes on the implications of future demand for teacher training and possible scenarios for addressing future needs. In Chapter 9, the key issues that emerged from MUSTER work in Ghana are summarised and concrete suggestions made as to possible steps that might lead to greater improvements in the efficiency and effectiveness of initial teacher training.

Chapter Two   **2 Research and Methodology**

2.1   **Research design**

In order to explore teacher training in Ghana to understand its strengths and constraints, it was necessary to adopt a research design that would provide various kinds of information, and at different stages in becoming a teacher. This consideration led to a three-stage research framework: *inputs*, *process* and *outputs* (see Figure 2 below). Basically, the three-stage design was intended to capture systematically the experiences and perspectives of student teachers in becoming a teacher.

A mixed method approach was used to gather data, depending on what the relevant questions were for each stage. This enabled as much information to be gathered as possible to develop multiple understandings of initial teacher training in Ghana.

Figure 2 overleaf is a diagrammatic representation of the research framework. It shows three arenas with key questions that define the relevant issues investigated and was later used as the organising framework for reporting the data and findings.

2.2   **Research methodology**

Each level of the design (Figure 2) required different methods to collect data in response to the particular research questions asked. To ensure consistency, data in each arena was collected using the same teacher training colleges[9] .

2.2.1 **Samples**

At the "input" arena, a random sample of 100 beginning student teachers (BSTs) was selected from each of four Teacher Training Colleges (TTCs). The total of 400 was made up of 265 male and 135 female student teachers. Furthermore, 18 BSTs (9 male and 9 female) were selected to write autobiographies about their family life and schooling experiences. Of the 18, a dozen also participated in focus group interviews.

At the training "process" arena, data was collected mainly from final year trainees who were completing training. A total of 300 final year student teachers (FSTs), comprising 184 males and 116 females, were surveyed for their views and evaluation of their training experience. For more in-depth analysis of the training experience,

Focus group interviews were conducted with 12 of the FSTs (6 males and 6 females). A pre- and post-achievement test in mathematics was administered to 378 beginning student

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[9] There are 41 Teacher Training Colleges in Ghana. 38 of them are state-run and the remaining 3 are private. All four colleges selected for the study came from the state-run institutions. The 4 colleges are all located in the south of Ghana with one in an urban area and the remaining three in semi-urban locations.

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Figure 2: **Research Design Framework**

(INPUTS)
Pre-training level:

- What are the characteristics of beginning student teachers in initial teacher training?

- What criteria are used to select trainees?

- What do trainees bring into training in terms of their images, experiences and expectations of the teaching profession?

- What are the implications of the beginning student teachers' backgrounds and shaping factors for training and policy?

(PROCESS)
College Training Level:

- TTC Curriculum Framework
  From the design and content of teacher education, what philosophy of teacher education underpins the curriculum?

- Delivery of the Curriculum
  What strategies and processes are employed in the training of teachers?
  How do trainees perceive the value of their training?

- Cost per student per college
  How are college budgets determined and utilised?

(OUTPUTS)
Post-Training

- Does the TTC experience result in enhanced capabilities?
  - In retrospect, what do NQTs perceive they have gained or not gained from the training programme?
  - How do images and expectations of the teacher and teaching change on becoming a teacher?
  - What significant differences in insight, competence and understanding of teaching exist between NQTs and UTs?
  - What are the school and classroom effects on the performance of NQTs?
- What are the key policy issues that arise from an analysis of cost?
  - What are the implications of cost analysis on training program options?

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teachers. The purpose was to determine whether beginning student teachers had made significant improvements in mathematics after completing one year of college remedial instruction.

An objective of the study was to capture some aspects of teaching and learning in the colleges to gain insights into the philosophy of teacher education and pedagogy. For this purpose, 7 male tutors and 2 female tutors were each observed teaching and later interviewed. The observations and interviews were conducted in 3 of the colleges. 55 college tutors in the four colleges answered a questionnaire that sought their views and perceptions about trainees and the teacher training process.

The "output" arena focused on the early experiences of newly qualified teachers (NQTs) in school and examined how they perceived their experiences in the light of their college training. As Feiman-Nemser & Remillard (1996) point out, " if we want to understand how and why teachers learn what they do … we have to investigate both what the experience was like and what sense teachers made of it" (p. 80). In all 134 NQTs participated in a survey of their perceptions and experiences of college and in schools. The NQT survey questionnaire was similar to that given to BSTs and FSTs in two sections: the bio-data and Likert statements. Also eight head teachers were interviewed to provide further insight into the experiences and performance of NQTs in schools.

In addition, classroom observation followed by interview was carried out with seven NQTs and four untrained teachers with the same number of years of teaching experience as the NQTs. This data, though limited in terms of sample size, did offer preliminary insights into differences that might exist between trained and untrained teachers.

2.2.2 **Survey Questionnaire**

MUSTER sought to gain some broad understanding of teacher training in the various countries and this required the use of surveys. The development of survey instruments for the study therefore became a major task of MUSTER. After development, the questionnaires were pilot-tested and refined before final administration.

Questionnaires covering similar topics with minor variations were administered to all three teacher groups and different parts analyzed to address different questions posed by the research.

Each of the questionnaires had a biographical section relating to age, sex, religion, ethnic group, language spoken at home, family members who are teachers, parents' level of education, and occupation. The student teacher questionnaire also included a variety of open-ended questions requiring longer responses. For the beginning student teachers, these

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covered best and worst memories of schooling, views on life at teachers' college and career ambitions. For the final year student the questions focused more on the college curriculum with particular emphasis on teaching practice experience. The newly qualified teachers provided data relating to their early school and community experience, classroom teaching and training college experiences.

A common feature of the questionnaire for student teachers and newly qualified teachers was the Likert items section, consisting of 20 structured statements with categories from *strongly disagree* (scored 1) to *strongly agree* (scored 4). In all 834 student teachers and newly qualified teachers responded to these items. Factor analysis was performed on data from this component of the questionnaire and the conceptual groupings derived were used to explore the response patterns of entering (BSTs), exiting (FSTs) and newly qualified teachers (NQTs) (see Chapter 7).

2.2.3 **Interviews**

No structured instruments detailing predetermined questions were used for any of the interviews. However, the key topical issues were used as the organizing framework for asking questions. Student teachers' questions sought to explore particular perceptions, values and attitudes to issues about teacher education. For example, FSTs were asked about the aspects of classroom teaching they felt least prepared to handle and what they liked or disliked most about their training.

2.2.4 **Classroom Observation**

A classroom observation guide was developed to collect data about the college teaching and learning experience, and the teaching experience of newly qualified teachers. No explicit structure was imposed on the observation. For all the classroom observations, two observers sat through lessons and produced as detailed as possible notes on the lessons as they unfolded. No attempt was made to make judgments in the recording of lessons. The two researchers later discussed the written records to reconcile details and explore emerging issues.

Interviews with the tutors immediately after teaching provided further data to enable observed practices to be put in their proper perspective and to validate interpretation.

The classroom observation schedule for NQTs and UTs focused on teaching styles, classroom management and relationships with pupils, pupil learning activities and fluency in the language of instruction. Each teacher's lesson notes were later inspected (where they were available) to evaluate their adequacy, relevance of content and coverage.

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2.2.5 **Autobiographies**

In all, 18 beginning student teachers produced short autobiographies that focused on their early life experiences of parents, teachers and schooling. In producing the autobiographies the student teachers were provided with brief guidelines to focus their writing on the issues relevant to their early years of schooling and experiences with teachers.

2.3 **Strengths and limitations of the study**

At the beginning of MUSTER, we searched for a design that would allow us to draw firm conclusions about the efficacy of teacher training in the individual countries. In the course of the research, we kept returning to the question: does training, as it exists in the different country systems, make a significant difference and at what cost? Unfortunately, with time it became clear that, at best, we might be able to provide insights into the processes of training and the conditions and factors that appear to shape teacher training. Arriving at very firm conclusions about the efficacy of training and what it was that clearly made the difference was going to be more difficult to determine. For a start, our design was too broad and as the study progressed we increasingly became aware of the complexities of factors that affect change in becoming a teacher. Also, the limitations of the survey data, most obviously that it comes from a cross-sectional and not longitudinal study, meant that we could not interpret results from a strictly developmental perspective.

Nevertheless, the strength in what turned out to be a broad and holistic approach lay with the extensive qualitative insights that were gained from observations and interviews. Such insights provided contextual meaning and understanding of teacher training in Ghana.

The study has other limitations worth pointing out. Although the research design (input, process, output) suggests a developmental research perspective, this was not the intention. The "input, process and output" analogy was used mainly to present the various study findings in a more coherent and consistent manner. But, in the process, it was possible to suggest likely factors that influence the process of becoming a teacher in Ghana.

In one of the Ghana MUSTER reports[10] we cautioned the use of surveys to arrive at broad generalizations of a complex phenomena such as the processes and experiences of teacher training. Experience in using other research tools (e.g. interviews) has alerted us to sometimes ambiguous or predictable responses even after refinements from pilot testing. We feel that this is often a reflection of the unfamiliarity of many of our research subjects with surveys, which leads to their treating research questionnaires as "official" inquiry instruments that might reflect on them and their institutions. Assurances to the contrary

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[10] See, Akyeampong K, Ampiah J, Fletcher J, Kutor N & Sokpe, B (2000) MUSTER Discussion Paper 17: "Learning to Teach in Ghana: An Evaluation of Curriculum Delivery"

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were given, but we took no chances and tried to use in-depth interviews as much as possible to enable us to have greater confidence in the data and interpretations.

Although interviews and classroom observation were used to provide rich qualitative data, the samples used were often quite small. In qualitative research this may not be considered a weakness since the emphasis is on developing meanings and depth of understanding rather than producing generalizations. Nevertheless, carrying out more interviews and classroom observations through a "grounded theory" (Guba & Lincoln, 1989) approach might have enabled firmer conclusions about the efficacy of teacher training in Ghana to be made. The scope of issues being covered by the MUSTER project, together with time constraints, made the extensive use of interviews and observations difficult to achieve. All the same, rich data were collected through the interviews and observations and in conjunction with the surveys generated valuable insights into teacher training in Ghana

Chapter Three   3 Teacher Training Development in Ghana[11]

3.1   Introduction

This chapter examines the development of teacher training in Ghana. It describes the range of teacher training programmes and qualifications, focusing on the three-year post-secondary course run by 41 initial training colleges in Ghana.

3.2   Teacher training: from early to recent developments

The Basel Mission opened Ghana's first teacher training college in 1848 at Akropong-Akwapim. This started a tradition of teacher education founded by missions training teachers for their schools. Following independence in 1957 and a strong government commitment to developing human resources, more teacher training colleges were opened to cater for the increase in demand for teachers created by the expansion in school enrolment rates.

The history of the development of teacher education in Ghana is a chequered one, often based on ad-hoc programmes to meet emergency situations and needs of the education system. As the needs of basic education have changed over time, teachers have been required to undertake more institutional training to upgrade. Consequently, Ghana has built up a teaching corps comprising different categories of teachers. These are summarised below.

Certificate "A"
The four-year Teacher Training course was established in 1930 for the training of middle school leavers to teach in the primary and middle schools. It attracted middle school leavers with the best qualifications since teaching was quite highly respected as a profession.

Certificate "B"
In order to meet the increasing demand for more teachers at the primary level due to the rapid expansion of the education system, a two-year Certificate "B", post-middle school training programme was introduced in 1937.

Post-B Certificate "A"
As a result of further expansion of the education system, at the time of the Accelerated Development Plan in 1951, a new two-year programme was introduced for Certificate "B" holders which enabled them to upgrade to a Post-"B" Certificate "A" after a period of teaching experience in the classroom.

Certificate "A" (Post-Secondary)
With the expansion of secondary education, in 1950 a new two-year programme was established for secondary school leavers to train them to teach in middle and secondary schools. These graduates were awarded the Certificate "A".

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In summary, at certificate qualification level, initial teacher training moved from a four–year course to a two-year course. Then the two-year course for teachers with some classroom experience changed to two years straight from middle or secondary school.

Two-year Specialist/Three-year Diploma
These were teachers trained in specialised subject areas. The two-year programme covered specialisation in Home Science, Physical Education, Music, and Art. It was later upgraded to a three-year diploma course to embrace more subject areas such as English and Mathematics. This programme was introduced in 1962, and was open to all Certificate "A" teachers with some classroom experience.

All the programmes described above have been phased out and replaced with the three-year Post-Secondary Teacher Training Programme leading to certificate "A" qualification. This programme was introduced in 1978 with the main purpose of improving the professional competence of trained teachers. Presently there are 41 teacher-training colleges; all but three are public training institutions, offering courses leading to the award of the certificate "A". Of the 38 government-run colleges, seven train female teachers only, one is an all-male technical-oriented college, and the remaining 30 are mixed. Out of the 38 public colleges only one is non-residential. All colleges prepare teachers for both primary and JSS levels.

In 1993, the Education Commission on Teacher Education recommended the setting up of only two levels of teacher education. These are:

- 4-year straight degree programmes for graduates from senior secondary schools; and
- 2-year post-diploma degree programmes for practising teachers.

These have been partially implemented but the post-secondary certificate route to a teaching career still remains. The Education Commission's recommendation appeared to be an attempt to reduce the time it took to train a teacher to degree level and also to reduce the costs. As it stands, a certificate "A" graduate will require a further five years of training to achieve a Bachelor's degree in Education, making the total length of training to graduate level, 7 or 8 years (see table 3.1).

In reality it may take between 10 to 11 years for a certificate "A" teacher to upgrade to graduate status if one takes the three-year mandatory teaching service before eligibility for further study into account. Obviously, this has serious cost implications and appears to justify the 1993 Education Commission's recommendations outlined above.

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Graduate Teachers

There are two types of full-time graduate teachers in Ghana. One group, with professional training, (have at least a diploma qualification in general education) is classified as "professional graduate teachers". The other group, without professional training, is referred to as "non-professional graduate teachers". Graduate teachers are usually posted after their training to senior secondary schools and teachers' training college. However, not all college tutors and secondary school teachers are degree holders. Some hold diplomas only.

Table 3.1: **Teacher Education in Ghana: Programme and Qualification Status**

Level	Duration of Course	Entry Level	Certificate Awarded	Level of teaching after certification
Post-secondary level	3 Years	Completion of Secondary School	Post-secondary Certificate "A"	Primary and junior secondary
Higher education (non-graduate level)	2 Years	Completion of Post-Secondary and having taught for 3 years	Diploma Certificate	Either post-secondary teacher training or senior secondary
Higher education (undergraduate level)	3 years or 2 years for post-diploma BEd	Teachers holding Diploma Certificate, or Senior Secondary Leaving Certificate*	BEd. Degree	Either post secondary teacher training or, senior secondary school
Higher education (postgraduate level)	1 Year	Holders of graduate degrees e.g. BSc, BA	Post-Graduate Certificate in Education	Senior secondary schools or post-secondary teacher training colleges

* The entry qualification is higher than for the post-secondary level.

The studies contained in this report focused on the training of certificate "A" teachers.

3.3   Selection into initial teacher training

Traditionally, admission into training colleges followed a two-stage procedure[12]. First was the selection of candidates who met the minimum entry qualification. Next, each college invited selected candidates for interview and to take short tests in core academic subject areas.

The two candidate groups eligible to apply for entry into the TTCs were 'O' level holders, and non-'O' level holders with Senior Secondary Certificate Examination (SSCE).[13] Certificate. The minimum entry requirements for non-'O' level holders were four credits including English and Mathematics, and one other pass; SSCE holders needed a minimum of five grade E's to qualify. Candidates could accumulate the minimum requirements over some years if unsuccessful at the first attempt. Under the new 2000 selection system these academic entry requirements remain the same.

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[12] Since 2000, selection procedure has changed. Candidates for teacher training have to pass an entrance exam set by the West African Examinations Council (WAEC). This is after they have achieved a minimum aggregate of "24" in the Senior Secondary Certificate exams.

[13] The SSCE was introduced in 1994 and 'O' levels gradually phased out. 1997/1998 was the last year of 'O' level examinations.

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Candidates with 'A' level qualifications were admitted on their 'O' level results, because the criteria for selection were based strictly on 'O' level performance. Of course, candidates with 'A' level presumably have the requisite 'O' level qualification grades. There are, however, very few 'A' level applicants. Most colleges tended not to admit applicants with 'A' levels, because they questioned their commitment to teaching; 'A' level student teachers have been known to abandon their training for university once they were able to improve their 'A' level grades.

Prior to 2000, applications to TTCs were first filtered through a centralised process conducted by the Teacher Education Division (TED). This phase was to ensure that all candidates had the minimum qualifications before being considered for admission by the training colleges. TED in consultation with college Principals drew up a shortlist of applicants for interview and entrance examinations conducted at each college. The number attending interviews was roughly double the number of places available. The entrance exams were developed by each college with the result that tests varied greatly across colleges in terms of content, scope, structure and difficulty. All written exams focused exclusively on English and Mathematics. In addition to written examinations, a selection panel consisting of the principal and senior tutors interviewed candidates before final selection.

An example of selection criteria used by one college is illustrative of the kind of qualities expected:

➢ Appearance (5 marks);
➢ Good communicating skills (correct use of tenses, expressions) (10 marks);
➢ Interest in teaching/teaching experiences (5 marks);
➢ Knowledge of teacher education trends/structure and trends of basic education (5 marks);
➢ Knowledge of subject matter in elective area (10 marks); and
➢ Grades in elective subjects (15 marks).

The criteria show about 50% of total scores was allocated to background academic knowledge, comprising knowledge of subject matter and qualifying grades. This weighting suggests that colleges placed a high premium on a candidate's academic knowledge background.

The official selection procedure described was intended to be meritocratic, but in practice the colleges often came under pressure from prominent people in the local and educational communities (commonly referred to as "protocol") to admit candidates other than the best qualified. This practice appeared to be widespread throughout the colleges. From interviews conducted in the study colleges, it appeared that the number of applicants admitted through protocol varied between ten percent and one-third.[14]

14 Data from preliminary fieldwork conducted by D. Furlong, October-December, 1998.

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The main advantage of this selection procedure identified by college principals was that the minimum entry requirement weeded out those without adequate qualifications, and the interview and examinations identified those who, despite adequate qualifications, were not best suited to the teaching profession. The main disadvantage according to the principals was that they did not have a totally free hand due to protocol. Also, interview selection criteria varied from one institution to the other.

Apart from the entry qualification criteria, all aspects of this selection system have been abandoned in favour of common entrance examinations in English and Mathematics, and a paper testing aptitude for teaching. Once students passed the exams, they were automatically eligible for admission into a training college. The effect of this procedure appears to be a drastic reduction in students admitted into training college. In the 2000 selection process some colleges are known to have been able to admit only about half the number of candidates who originally applied. In effect, colleges have been removed from the selection process, which has been entrusted to a uniform external examination system organized by the West African Examination Council (WAEC).

3.4   Teacher Training College curriculum

3.4.1 Structure and Process of Curriculum Development

The Professional Board of the Institute of Education at the University of Cape Coast regulates the curriculum for initial teacher training (ITT). Subject panels composed of training college tutors, and a subject chief examiner from the University of Cape Coast undertake the review of syllabi for the TTCs. Panels periodically review college curriculum under very specific guidelines from the TED who set the agenda for curriculum planning.

3.4.2 Old TTC course structure

Since 1987, the TTC course had been undergoing constant changes. In this section we describe the main structure of this system prior to the significant changes that took place after 1998.

The three-year TTC Certificate "A" course for basic education was structured as follows: general education (30 per cent); academic education (30 per cent); and, professional studies (40 per cent). General education comprised eight "core" subjects taught in all the 38 TTCs. These were, Basic Mathematics, English Language, Basic Science, Ghanaian Languages, Physical Education, Cultural Studies, Education and Agricultural Studies.

Under the "academic education" component of the programme, each student took two elective subjects chosen from science-based subjects (group one) or vocational subjects

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(group two). Subject availability varied from college to college with some specializing in group one subjects and others in group two subjects.

Three of the 38 colleges offered group one elective subjects only, while twenty-one offered group two elective subjects only and 14 offered both.

Time allocation was in terms of the number of periods per week with each period consisting of a 40-minute lesson. Officially, all colleges provided 33 weeks of instruction per year. Colleges, however, had the flexibility to organize their own schedule, but were required to inform the Teacher Education Division. Time allocation per subject (both core and elective) per week across each year of study is shown in Tables 3.2 and 3.3 below. For example, a teacher trainee taking mathematics as an elective subject had six periods of mathematics a week in years one and two, and ten periods a week in year three.

Table 3.2: **TTC - Core Subject Time Allocation (per week)**

Core Subject	Year 1	Year 2	Year 3
Mathematics	4	4	0
Science	4	4	0
Agricultural science	3	3	0
English language	5	5	5
Education	6	6	6
Cultural studies	3	3	0
Physical education	2	2	0
Ghanaian language	3	3	0
Total	**30**	**30**	**11**

Table 3.3: **TTC - Elective Subject Time Allocation (per week)**

	Students select two subjects from either Group 1 or 2			
Elective Subjects	**Year 1**	**Year 2**	**Year 3**	
Mathematics	2	2	10	
Agricultural science	3	3	10	
Science	2	2	10	**GROUP 1**
Technical skills	7	7	8	
Physical education	6	6	10	
English literature	5	5	12	
Social studies	5	5	12	
Vocational skills	5	5	12	**GROUP 2**
Life skills	5	5	12	
French	7	7	12	

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For the second and third years each subject area was divided into two parts: academic subject content knowledge and professional knowledge (methodology). The Education course focused on issues related to theory and practice of education and child psychology. Student teachers during their training spent eight weeks on supervised teaching practice.

3.5   **System of Assessment**

The system of assessment in the colleges has virtually remained the same throughout teacher training reforms. The Institute of Education of the University of Cape Coast has sole responsibility for conducting certification examinations and engages University teacher educators to set questions for its exams. College tutors are also invited to submit questions for consideration by the Institute examiners. College tutor involvement is to ensure that Institute examiners are familiar with learning outcome expectations as defined in college tutor questions. With time what has tended to happen is that previous examination questions have come to define certification assessment standards leading to a situation where the examinations drive most of curriculum delivery in the colleges (Akyeampong, 1997).

No statements of standards have ever been developed to guide the teaching, learning and assessment of student teachers in the training colleges.

Selected tutors from the training colleges mark the examination scripts at a central residential marking centre, after which an award committee of the Institute of Education reviews the results and makes recommendations to the Professional Board[15] of the Institute of Education for approval. At award meetings chief examiners present reports on candidate performance pointing out specific problem areas of the student teachers. These reports are circulated to all the colleges for their study.

Certification assessment scores are composed of two parts – 70% from external examinations and 30% from internal continuous assessment.

Continuous Assessment (CA) was introduced in 1990 to offer an opportunity for college tutors to improve the link between training and assessment. It was hoped that this would encourage the development of skills, knowledge and abilities considered necessary for effective teaching but difficult to validly assess using external written exams. Because college tutors were largely given responsibility to develop CA tasks with the only guidelines specifying general rules of operation and scoring, there have always been doubts about score reliability.

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[15] The Professional Board of the Institute of Education comprises principals of all the training colleges, Director of Teacher Education, a representative of the Ghana National Association of Teachers (GNAT), a representative of WAEC, the Vice-Chancellor, Registrar and all the Deans of the University of Cape Coast

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A study by Akyeampong (1997) revealed numerous problems with the practice of CA in training colleges. Among the most significant findings of his study were the following:

1. Tutors' continuous assessment practices gravitated towards external examination requirements and continuous assessment was perceived and implemented as supplementary rather than complementary to examinations. The study revealed that a major constraint to change is the political focus on summative assessment conditioned by the examination culture.

2. Many tutors and teacher trainees recognised the importance of continuous assessment for promoting professional learning and instruction. This was not, however, put into practice. Instead, it reflected commonly accepted theoretical knowledge about the function of continuous assessment.

3. Generally tutors made very little use of continuous assessment results for formative and professional development purposes. The main reason for this was the lack of will on the part of tutors to use continuous assessment in this way because of the increased workload this generated. Also, for some there was a lack of understanding of how the continuous assessment process and results could be used to promote teaching and learning outcomes.

4. Time available for assessing students on a more regular and systematic basis was limited. This problem had arisen because of the short college year resulting from extracurricular and examination activities that took up a considerable amount of term time. Tutors preferred to use the scarce time available to teach in order to complete the syllabus before external examinations.

5. Institutional support for continuous assessment in terms of professional guidance for tutors was non-existent. Again, this seems to reflect a lack of proper orientation and inadequate training in the management of continuous assessment at the institutional level.

6. The system for monitoring and moderating continuous assessment was lacking, leading to no uniformity of practice across colleges.

According to Akyeampong (1997) the fundamental problems of CA in the training system stemmed from poor conceptualisation of its functions in the teacher training context.

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3.6   **External examination structure**

The structure of external examinations has remained largely unchanged. What is described represents the main features of the training college external examinations that are still in use. Concrete proposals for a new assessment regime in teacher training have yet to be developed.

Most external exams consist of two papers. However, starting from 1999 student teachers in the first year take only one paper in the academic subject content areas. Academic subject content knowledge papers are subdivided into two sections. The first section is made up of short structured questions and multiple-choice questions for some subjects. The second section of the paper often requires more elaborate written responses. Professional knowledge papers (methodology) also have two sections: the first section requiring short answer responses and the second section, more extended responses.

Teaching Practice (practicum) and "long essays" (to be phased out and replaced with project work) require student teachers to write on a topic related to teaching and learning, and are considered separate examinable subjects examined by college tutors. Candidates are not awarded a certificate unless they have passed teaching practice. However, very few students fail teaching practice and the long essay examinations. The pass mark for all external examinations, teaching practice and long essay is 40%. Under some conditions, 35% may be considered a pass.

Students who fail in more than two subjects, apart from the long essay and teaching practice, are deemed to have failed the entire teacher training examination. Students who fail one or two subjects, apart from the long essay and teaching practice, have to re-sit and pass them before being certified. However, students in this category are allowed to take up teaching positions in schools whilst preparing to re-sit failed papers. In effect, all student trainees are guaranteed a teaching position after training irrespective of whether they pass the final certification examinations or not. If they still do not pass after two attempts they are made to withdraw from teaching. Re-sit teachers receive "untrained" teacher salary, which is a little less than what certified teachers receive.

3.7   **The new system of teacher training: The "In-in-out" model**

In this section the highlights of the new proposals for training are presented. A policy decision was made in 1999/2000 to adopt an "In-in-out" model of initial training to replace the three-year full-time "In" programme. Under the "In-in-out" model students spend two years in college training, while the whole of the third year is spent learning to teach in a school. The details of the model are still emerging. Materials are being developed

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to support the "Out" year and the college curriculum is being adapted for a two- year cycle. Figure 3 shows the diagrammatic representation of the "In-in-out" model.

Figure 3: **"In-in-out" model**

"IN"	"IN"	"OUT"
Curriculum:	*Curriculum:*	*Curriculum(under development)*
(i) Foundation Academic Courses (Subject Content Knowledge)	(i) Curriculum Studies and Methodology (CSM) in all subject areas	(i) Distance learning materials reflecting Classroom Teaching
(ii) Education Studies (Introductory Education Course)	(ii) Education Studies	(ii) Mentor-ship training
(iii) School attachment at end of 1st year	(iii) On-Campus teaching Practice	
Assessment:	(iv) Classroom-Based Project Work	*Assessment:*
(i) First Year Promotional Examination based on foundation academic courses	*Assessment:*	(i) Final External Examination of Classroom-Based Teaching Experience
	(i) External Exam in CSM	(ii) Mentors and selected college tutor assessment of teaching
	(ii) Continuous Assessment CSM	
	(iii) Project Work Assessment	

The rationale behind this scheme appears to be that the training process should incorporate adequate opportunities for relating theory to practice, and the best way to achieve this was to situate a substantial part of training in the school context.

An innovative feature of the scheme was that recruitment of candidates for teacher training would be carried out by district offices in accordance with needs of schools in the districts. Recruited trainees were to be sponsored by districts and bonded to teach in the district for an agreed minimum period. This was to solve the problems of poor staffing in rural schools. This initiative was suspended after initial implementation difficulties that were brought upon it by inadequate preparation and implementation strategies. For example, it seems that some districts might have found it difficult to project their teacher requirements needs in the absence of a mechanism for reliably estimating trends in teacher supply and demand.

A framework for the assessment of teacher trainees under the "In-in-out" model is yet to be finalized. But it is emerging that an emphasis will be placed on college and school-based

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assessments. Both second and third year assessments are of particular interest because during this period trainees are expected to spend an extensive period of time in actual classrooms developing practical teaching skills. During this period, therefore, assessment is expected to relate more to the development of teaching skills than to conceptual knowledge alone.

3.7.1 **An Overview of the 1st two years of the "In-in-out" model**

Although the new proposals for TTC course structure have yet to be fully implemented, some changes to the training programme have occurred. This section provides an overview of the changes that began in 2000.

The TTC course remains a three-year programme consisting of 33 weeks per year for all the 41 teacher training colleges. The major components of the restructured curriculum are:

- Foundation Academic and Introductory Studies in Education;
- Education Studies;
- Curriculum Studies integrated with methodology; and,
- Practicum and other practical activities.

Foundation academic and introductory education courses are to be undertaken during the first year of training. The three remaining aspects of the curriculum are taken during the second and third years. Table 3.4 shows the new programme structure and content.

Table 3.4**: New TTC Programme structure – Programmes A and B**

Programme A – Lower & Upper Primary	Programme B –Upper Primary and JSS
Ghanaian Language and Culture	English
English	Mathematics
Maths	Religious and Moral Education
Environmental Studies	Music and Dance
Religious and Moral Education	Science
Music and Dance	Physical Education
Physical Education	French
Integrated Science	Agricultural Science
Agricultural Science	Pre-Technical Skills
Life Skills	Pre-Vocational Skills
	Social Studies

Under the "In-in-out" programme colleges offer either programme A or B courses. Those taking programme "B" courses will select for their electives two subjects from the list and in addition select two subjects from programme A. There are no elective courses for

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programme "A" student teachers since they study all the subjects listed. These programme divisions take effect after the first year academic knowledge courses, the same as the subjects listed under programmes "A". In effect, student teachers in programme "B" will specialise in four subjects after the first year.

Year 1 Curriculum & Assessment

The first year foundation academic study is intended to build upon and consolidate the academic knowledge background of student teachers. It is argued that most trainees possess weak subject background knowledge which undermines their confidence and ability to teach effectively. The development of subject-specific content knowledge, therefore, is set at a different time (first year) from the curriculum studies and methodology, and practicum. Introductory courses in education are also to be offered in the first year.

A concern expressed many times by Ghanaian teacher educators is that there is insufficient training time for developing pedagogic knowledge and the skills of teaching. It appears the new programme arrangements are intended to redress this concern by having the two years of training focused entirely on developing pedagogic knowledge and teaching skills.

Year 1 assessment comprises internal and external promotional examinations. Student teachers who fail these examinations are made to withdraw from the training on the assumption that they lack a sound subject knowledge background for professional development in teaching.

In the first year five subjects are externally examined. These are: Environmental & Social Studies or Technical Skills, Integrated Science or French (offered in one college only), English, Ghanaian language and Mathematics. First year students must pass, i.e. attain a minimum of 40%, in all five subjects or pass in four, with the fifth subject not below 35%. A student passes also if he/she scores 39% in two subjects and 40% and above in the other three subjects.

In addition, student teachers must also pass four internal subjects: Religious & Moral Education, Music & Dance, Physical Education, and Vocational Skills. Students who fail three or more internal subjects can re-sit these internal examinations before the beginning of the second year. Those who fail the re-sits in the internal are withdrawn. Irrespective of performance in the internal exams, a student who fails only one external examination component is automatically withdrawn. Thus the first year examinations are very high stakes.

Year 2 Curriculum and Assessment

For the second year, emphasis is placed on curriculum studies and methodology in all subjects. The idea behind courses in "curriculum studies integrated with methodology" is

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to forge closer links between pedagogic knowledge and strategies for teaching the various subjects in primary and JSS. The second year curriculum also includes on-campus practicum (teaching practice).

Student teachers are assessed in all second year subjects through college-based continuous assessment and external exams. The modalities for passing second year examinations are still being worked out, but indications are that student teachers will be allowed a certain number of re-sits before proceeding to the third year "out" training.

The structure of the first two years of training emphasizes the acquisition of subject content knowledge and pedagogic content knowledge as a pre-cursor for training in classroom practice. It indicates that prior to the "out" stage, trainees must have acquired a repertoire of specific knowledge and skills considered necessary for effective teaching.

Practicum and Teaching Practice

The proposed practicum elements in the first and second years are as follows:

➢ School attachment for observation of teaching and work practice;
➢ On-campus teaching practice;
➢ Project work based on the planning and construction of teaching/learning materials and classroom-based action research.

Although there is talk of introducing teaching practice assessment based on professional standards and presented in the context of student teacher portfolios, to date this has yet to be developed. The current method of teaching practice with its five-point scale has been criticized for emphasising summative evaluation of teaching practice. It appears the intention of any new proposals is to shift the focus onto professional standards as the vehicle for developing and assessing teaching.

3.8. College curriculum as documented

This section presents an overview of two college subjects, mathematics and science, as examples of the philosophy of current curriculum content. As noted earlier, first year work is devoted to subject content knowledge. The second and third years cover curriculum studies and methodology.

Under the "In-in-out" model of training all training college syllabuses are to be organized into units. Each unit is organized under the following headings: topical content, specific objectives, teaching / learning activities, and guidelines for assessment. Each unit has a recommended time allocated to it in the syllabus. For example, in mathematics, the topic "Sets" is allocated 6 periods. A period is equivalent to 40 minutes instructional time.

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3.8.1 **Mathematics Teacher Education Course**

Aim and Objectives
The aim of the mathematics education course as stated in its syllabus, is to equip teachers to teach effectively the revised basic school mathematics curriculum. The specific objectives are to:

(i)   Consolidate student teachers' 'O' level GCE or SSCE mathematical knowledge,
(ii)   Increase confidence in teaching mathematics through a problem-solving approach to mathematical learning and understanding of the nature of mathematics,
(iii)   Develop understanding of mathematical content and processes for school mathematics,
(iv)   Develop mathematics pedagogical content knowledge.

Organization of 1st Year Content
Each topic in the syllabus has corresponding specific objectives that begin with the phrase, "students will be able to …" followed by action verbs such as, "describe, solve, identify, perform etc." The frequency of verbs used to state specific objectives is illustrated in Table 3.5 below. There are no mathematics subject matter textbooks written specifically for training colleges. Tutors and students rely on books written for 'O' and SSCE level and pamphlets written by some college tutors.

Table 3.5**: Frequency of verbs describing specific Mathematics Objectives**

Cognitive	Verbs	Frequency
	Solve/Calculate/Determine/Perform Carry Out/ Derive	29
	Identify	13
	State/Define	2
	Recognise/Realise	2
	Describe	2
	Discover	1
	Interpret	1
Practical		
	Construct	6
	Demonstrate	1

Organization of Year 2 & 3 Course
Student teachers learning to teach mathematics have one main course textbook, entitled, "Mathematics for Teacher Training in Ghana – Tutor's Notes and Student Activities". A group of college tutors and a British ODA mathematics advisor wrote this. According to the authors of this volume their aim was to:

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> … Develop an approach to teaching mathematics which involves active participation by students and pupils rather than passive compliance (Mathematics for Teacher Training College – Tutors Notes and Student Activities TED, 1992 p. 1).

Activities in the book are practical and designed to involve trainees in investigating, exploring, and discussing basic mathematical concepts. The writers stress that this approach is to help decrease the use of static lecturing. College tutors are expected to use the activities as starting points to initiate discussion and investigative work in mathematics.

The second year syllabus has 28 "pedagogical content knowledge topics", 6 "curriculum knowledge" topics, and 1 topic on "knowledge of learners and their characteristics". The third year syllabus has the following breakdown: 7 "pedagogic content knowledge" topics and 3 "curriculum knowledge" and 1 topic on "knowledge of learners and their characteristics" (Table 3.6 below). From the table, it can be deduced that "pedagogic content knowledge" takes up 51% of the topics, "subject content knowledge" – 32%, "curriculum knowledge" – 13% and "knowledge of learners and their characteristics"- 3%. Therefore, the second and third year mathematics course has been designed with an emphasis on pedagogic content knowledge. A few topics have either a historic or psychology orientation. For example, the topic "the nature of mathematics" provides historical accounts of the contributions made to learning mathematics by Piaget, Dienes and Bruner. Other aspects deal with the psychology of learning mathematics.

In summary, the mathematics course for prospective teachers emphasizes mathematics subject matter and mathematics pedagogic content knowledge. Knowledge of learners and their characteristics takes up a small proportion of the course (3%). Although the syllabus emphasizes learning to teach mathematics in practical and experiential contexts, it is not stated whether the topics would have to be studied using real classrooms as laboratory settings for the learning experience environment. For example, the topic "teaching decimal fractions" is presented in the texts without suggestions or practical work experience of how to blend it with knowledge of particular pupils in specific situations. The emphasis is rather on generalised conceptual knowledge for application at a later date in classrooms (e.g. teaching practice). Similarly, the topic "Learners and their characteristics" is generalized without reference to activities that explore the learning characteristics of real pupils.

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Table 3.6**: Mathematics/Mathematics Education Topics by Year of Training**

Year	Number of Topics	Category
1	22	Content Knowledge
2	23	- Pedagogic Content Knowledge (teaching of specific mathematics topics)
	5	- Pedagogic Content Knowledge (characteristics of mathematics and psychology of learning mathematics)
	6	- Curriculum knowledge
	1	- Knowledge of learners and their Characteristics
3	7	- Pedagogic Content Knowledge
	3	- Curriculum Knowledge
	1	- Knowledge of Learners and their Characteristics
Total	**68**	

3.8.2 **Science teacher education course**

Science programme designers stress that the syllabus is intended to adequately prepare prospective teachers to teach General Science, Integrated Science and Environmental Studies (comprising Agricultural Science, Life Skills and Social Studies) at primary and JSS school level.

Aims:

The aims stress good understanding of scientific concepts, practical orientation to learning science, gender sensitivity in teaching science and popularization of science at the basic school level.

Objectives and Organization of Science Course:

As in other training subjects, the first year is devoted entirely to learning science as a subject. Second and third years focus on curriculum studies and methodology in science.

The first year programme consists of 6 courses – 2 in each term - and in all covers 26 topics. Cognitive objectives focus mainly on knowledge, understanding and attitudes. Table 3.7 summarises the frequency of various verbs used to outline specific content objectives for the first year course.

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Table 3.7: **Frequency of verbs describing specific 1st year science objectives**

Cognitive	Verbs	Number
	Explain	24
	Identify	23
	State/mention	15
	Distinguish	2
	Describe	11
	Classify/group	3
Practical		
	Measure/estimate	8
	Demonstrate	6
	Make/Construct	3

The verbs emphasise cognitive instructional objectives, but the teaching and learning activities outlined in the syllabus stress action-oriented activities, suggesting that practical activities are to be used to develop school science concepts.

For the first year the syllabus suggest the following instructional strategies: *class discussions, group discussions, experiments, demonstrations, field trip visits, observation, construction, and lecturette*, in that order of frequency. This emphasizes a "student-centred" learning approach to science.

Year 2 & 3

The year 2 and 3 science syllabus is expansive and has yet to be finalized. However the framework of the science syllabus prior to the adoption of the "In-in-out" model offers some insights into the philosophy underlying learning to teach science. The five parts of the syllabus termed "professional studies" are the following; (i) nature of science – using mainly discussion and lecturette, (ii) importance of primary and JSS science teaching - through discussion of school science objectives, (iii) activity method of teaching primary and JSS science, (iv) other methods of teaching science e.g. demonstration, discovery, discussions, laboratory etc., (v) first hand study of primary and JSS science syllabus and, finally (vi) special topics e.g. improvisation of science resources, field trips etc.

The mathematics teachers' syllabus makes room for learning about pupil characteristics although this appears more theoretical than practical, whilst this is not mentioned in the science syllabus. In both subjects, there is heavy emphasis on practical goals but not much is said about locating it in a real classroom context at the time of learning. It would appear that even if college teacher educators want to locate learning in actual classrooms, the structure of college training would make this difficult to achieve. Topics are timetabled in 40-minute slots per teaching period (some topics take two periods), which would appear to make it difficult to meet many of the goals if tutors intended to situate learning in actual schools or even use the exploratory learning techniques advocated.

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3.9   Summary

The most significant change in initial teacher training in Ghana is the change from a three-year "in" college training to two years in college and one year "out". This seems to be a move to make training more practically focused and ensure that prospective teachers have better insights and understanding into the actual job of teaching. It reflects an increasing desire of the MOE and Ghanaian teacher educators to see teacher training include more experience of learning on the job. What is however not clear is how the experience of learning to teach in this context will play out – whether it will promote a different attitude and conception of teaching, or will simply be used to reinforce ideas of teaching from in-college training[16]. For example, it is not clear how it will promote a different attitude and conception of teaching that makes teachers more sensitive and responsive to teaching contexts – in other words, develop practical knowledge of teaching from a deep understanding of local teaching settings and contexts. As it stands, teacher training in Ghana does not appear to be reconceptualised sufficiently enough to change attitudes and values about teaching so as to improve pupil learning and development. The conception of learning to teach does not appear to have gone far enough for even the "out" period, to make concrete experiences the foundation of reflective practice. The "out" period seems to likely reinforce the idea that learning to teach is essentially a two-stage process. First, one learns the theory, mostly in a de-contextualised sense, and next one applies it in real classrooms. This conception limits schools as the most fundamental clinical environments in which a practical knowledge of teaching and effective practice can be developed. Since the "In-in-out" programme began in 2000, it will be 2002 before the first cohort of "out" students experience training based in schools. In the concluding sections of this report we speculate on possible scenarios of the "out" training based on some of the findings of the MUSTER studies.

Another important change is the system of selection. Currently this is based on performance in 'O' level or 'SSCE' examinations, with qualifying results followed by an entrance examination in Mathematics, English and Aptitude to Teaching. This move appears to be an attempt to standardize selection and ensure that the best candidates, in terms of background academic knowledge and aptitude for teaching, are selected. But it could lead to reductions in the numbers eventually considered for training especially if pass cut-off scores are set too high to select the best. This has implications for teacher supply and demand.

Of the changes in initial teacher training perhaps the area where least change has occurred is in assessment policy. Certification by examination continues to be regarded highly. The

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[16] At the time of writing this was still being developed. Indications are that distance learning materials will be used during this phase and student teachers will have the opportunity to interact with college tutors at specific stages of this period to review learning. It is not clear how college tutors and school teachers (mentors) are to cooperate in supporting student teachers' classroom learning. This would appear to be the biggest challenge.

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introduction of continuous assessment appears to have done little to change this stranglehold of examinations on teacher training in Ghana (Akyeampong, 1997).

The short overview of the mathematics and science courses as documented suggests that training is expected to be practical, requiring that student teachers engage in hands-on activity in developing teaching knowledge and skills. But, as has been pointed out, what seem to be missing are the direct and practical linkages to particular pupils in specific situations. The observations of college teaching, reported below, suggest such linkages are seldom made explicit.

In the remaining chapters the findings of the studies into teacher training are discussed. As the discussions in these chapters unfold, issues raised by developments in teacher training are revisited to highlight some of the relationships and their significance for curriculum planning and development.

All student teachers and beginning teachers used in the studies of this report were in the three-year "in" college programme and as such their experiences reflect this context.

Chapter Four   4 Who Becomes a Teacher[17]

4.1   Introduction

This chapter first analyses the survey data relating to personal characteristics and family background from all three samples: those entering college, final year students and NQTs. It then takes a closer look at the cohort of beginning student teachers, drawing on both survey and qualitative data to analyse some of their background family experiences, their motivation for teaching and their personal memories of best and worst schooling.

4.2   Who becomes a teacher: profile of background characteristics

From the four training colleges studied it was possible to construct a profile of the background characteristics of those who become primary and junior secondary school teachers in Ghana. Table 4.1 enables us to draw some conclusions about this background.

Those who choose teaching enter at a relatively young age, and if they remain in teaching, will have a career life span of about 36 years. Not many NQTs – about 40% – enter teacher training straight after secondary education. The reasons are not easy to detect from our data. A tentative explanation could be that many do not qualify after completing secondary education and have to re-sit some exam subjects to meet academic entry requirements. In fact, the table shows that the majority barely meet the qualifying grades in English and Mathematics and that the standards are falling. Less than 30% who qualify possess grades in the top pass category of A, B or C in English. In Mathematics, the situation is slightly better.

It is not surprising that most student teachers and newly qualified teachers are from the "Akan" tribe. All four colleges sampled for the study were located in southern Ghana, which is predominantly Akan.

In general, between 70 – 80% of the samples had no formal experience of teaching in a primary or junior secondary school before entering training college. Most prospective teachers (over 60%) had their early formal schooling experience in urban areas.

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[17] For a fuller account see Akyeampong and Stephens (2000).

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Table 4.1: **Background characteristics of student teachers and beginning teachers**

Beginning Students	Final Year Student	Newly Qualified Teachers (2yrs)	
Age: (mean)	21yrs	24yrs	27yrs
Predominant Language: Akan	87%	84%	86%
Teaching Experience:			
No experience –	74%	80%	77%
Some experience -	26%	20%	23%
Entry into training:			
Direct from secondary school –	33%	48%	
Waited before entering	(2-5 years) 63%	(1-4 years) 47%	
Entry Grades (Majority Grades)[18]			
'SSCE' English (D & E)	82%	76%	64%
'SSCE' Maths (D & E)	65%	53%	63%
Parents' background profile[19]			
Father:			
(a)	Teacher	21%	23%
(b)	Self-employed	32%	35%
Mother:			
(a)	Teacher	14%	22%
(b)	Self-Employed	79%	61%
Primary School Area			
(a)	Urban		61% 87%
(b)	Rural		39% 13%
Sample Size	300	400	134

The selected background characteristics of parents suggest a sizeable proportion to be in primary sector employment. Most parents of teachers are either self-employed (especially mothers) or are teachers themselves. It is possible that those whose parents are teachers may come with first-hand insights into the socio-economic implications of their decision to become a teacher, which will impact on their values, attitudes and commitment to teaching. If that image is a poor one, it is more likely to affect trainees' and beginning teachers' long-term commitment to teaching.

The background characteristics of the student teachers have implications for policies on the starting points and structure of training, particularly in view of the weak academic backgrounds of the majority. This creates additional burdens for teacher training colleges as they seek to improve the academic knowledge background of trainees to enhance their

[18] Based upon 78% student teachers who were products of the new educational system and therefore had SSCE qualification grades. Grades D & E and grade 6 are lower ends of the pass grade and represented the weakest in pass grades. The grades for NQTS include 'O' grades 5 & 6.
[19] Jobs classified under self-employed are relatively low-paying entrepreneurial jobs – predominantly farming and trading

4 Who Becomes a Teacher

confidence in teaching. If the teaching profession is not attracting the best students in terms of academic achievement, it may have to offer remedial tuition to strengthen prospective teachers' subject knowledge mastery. Since some teachers are expected to teach at JSS where greater demands will be made of subject knowledge mastery, this issue is clearly very important. A weak subject knowledge background could also make it difficult to acquire a deep conceptual understanding of subject pedagogy. It would appear that the new teacher training programme, in which the first year is completely devoted to remedial work in academic subject knowledge, could address this problem (see chapter 3).

4.3 What images and perceptions of teachers, teaching and teacher training do beginning student teachers bring?

Beginning student teachers come with a positive expectation of themselves as to what they believe they can achieve as teachers. Most of them agree that:

➢ Teachers can improve the academic performance of slow learners (59%)
➢ Teachers should be trained to teach all age groups (93%)
➢ The most important thing a teacher can do is to teach pupils facts (86%)

About 60% of them disagreed with the statement that "teachers are born and not made", thus suggesting a good proportion are likely to see training as a means to make fundamental improvements in their capacity to teach.

From a constructivist teaching perspective, the view that teaching is mostly about presenting facts to pupils is rather disappointing, and presents a clear challenge to teacher training to replace this with a more interactive and co-operative understanding of teaching and learning.

The majority of student teachers (62%) felt that pupils learn more from asking questions than from listening, which may be indicative of a positive predisposition towards questioning techniques in teaching.

Student teachers generally believe that children need to be divided into ability groups to be taught well (60% expressing this view). In many Ghanaian schools, particularly those in rural areas, teachers are confronted with multi-grade classes which makes demands on teachers' competence to teach pupils of very mixed ability.

On statements related to teacher training the beginning student teachers felt that:

➢ Teacher training should involve more methodology and less mastery of subject knowledge (66.3%)
➢ Teacher training should involve at least a year's teaching practice (79.1%)

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Generally, the responses suggest that beginning trainees expect training to focus more on practical aspects and less on theory. However, as the entry grades indicate, there is a definite need for prospective teachers to improve their subject knowledge competence.

Beginning student teachers appear to think positively of their career choice. A majority (89%) disagreed that they would have preferred to go to a Polytechnic rather than go to teacher training. About 76% felt friends thought they were fortunate to be training to become a teacher. Although these data suggest beginning student teachers are keen on teaching, other MUSTER qualitative data which probed further motivations for teaching, suggest that this interest may not be deep (see Akyeampong & Stephens 2000). Extrinsic factors such as trainee stipend and study-leave-with-pay seem to be more powerful factors that influence interest in teacher training. Data relating to these are discussed in more detail later in this chapter.

4.4   Background Experiences of Family and Schooling

4.4.1 Experiences of family

A key feature of experiences of family life that might have some relevance to training is the insight they offer into teacher role identity. The autobiographic accounts of early family life experiences painted a picture of children struggling to continue with their education due to financial constraints within the family. Stories often highlighted the teachers' role in motivating parents to make financial sacrifices to ensure their children completed secondary education. Other stories highlighted how teachers influenced pupils' lives, particularly in overcoming learning and social obstacles.

The data suggest that teachers have influence on students' lives beyond the school and classroom setting.

> *My parents were not well off to provide me with all the necessary things that I needed to assist me in my academic work. At times I was sacked from class for owing school fees and had to stay at home until my parents were able to pay my school fees. There were times when my class teacher, Mr Morgan, visited my parents at the house and advised them to take good care of me especially in providing for my education.* (Student Teacher)

Similar stories raised a number of important questions: In the discourse of teacher training, what emphasis is given to the teachers' role as a social worker? What is understood about teachers' work outside the classroom that ultimately influences pupil learning and performance? Such questions seek answers that highlight the importance of greater contextualisation of teacher training to reflect the real needs of children's academic and social development.

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4.4.2 Best Images of Schooling

The images of best and worst experiences of schooling that trainees bring into their training can become fruitful sources of reflective practice discourse in the college. Having student teachers articulate and reflect on their images of best and worst schooling experiences can encourage reflection on their own developing practices in teaching.

Positive images of teaching and teachers that beginning student teachers held were that of teachers:

➢ resourceful in improvising teaching methods
➢ capable of applying effective approaches to teaching to promote student learning
➢ demonstrating good interpersonal relationships but also acting to provide moral guidance to children
➢ knowledgeable in the subjects they teach
➢ capable of contextualising learning to make it easy for children to access knowledge and understanding
➢ with humanistic and liberal values benefiting both children and the school-community.
➢ with high level of commitment to their job as reflected in their punctuality and dedication to helping children overcome learning difficulties.

A lot of these images are consistent with research regarding what effective teachers should know and be able to do (Black & Howard-Jones, 2000). Thus beginning student teachers already come with a positive understanding of what it means to succeed as a teacher. These should provide starting points for exploring with them their own developing conception of teaching as they progress through training. If some trainees perceive effective teaching more in terms of one set of attributes than the other, then what may be required is drawing attention to equally important positive attributes to ensure balance.

The curriculum question is how teacher education pedagogy could use some of these images to foster a discourse of learning to teach, which trainees can easily recognise and identify with. How could positive images be used to develop a conception of teacher effectiveness that addresses the challenges of education reform to improve learning and achievement in the Ghanaian school system? Also, how could these images be incorporated into standards of teacher training and assessment? These and similar questions could guide a conception of teacher education that draws on and extends familiar images of teaching that beginning student teachers bring into training.

In chapter 5 we point out that the central focus of training in the colleges appears to be acquisition of teaching skills and knowledge mainly in de-contextualised teaching settings. Developing personal agency in teaching, where teachers are movers of change and facilitators of learning, would require inclusion of some positive teacher attributes and dispositions that student teachers seem already aware of. The challenge is for teacher training

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programmes to depart from a model of teaching fixed on discrete behaviours, and which overlooks the value of positive teacher attributes already experienced by student teachers, towards one which is grounded in real teaching environments that they can identify with.

4.4.3 **Worst images of schooling**

Student teachers' recollection of their worst school experience featured mainly corporal punishment. Caning would often be meted out for poor academic performance or failure to answer teachers' questions in class. In general, trainees perceived these as counterproductive but others felt it served a moral purpose by shaping character and motivating hard work.

We could argue that a teacher's ability to control and manage learning processes, using strategies that promote respect for students, is a sign of a constructive conception of teaching and learning. The many references to caning as a strategy used by teachers to foster learning and maintain discipline therefore suggest the inability of some teachers to create and maintain a learning environment that reflects the needs of all students, particularly lower achievers. This is an issue relating to classroom management - important if effective teaching and learning is to take place in classrooms.

Poor school facilities, not having enough teachers, undisciplined teachers (not attending class or coming late or drunk) and images of being labelled as low achievers were also recounted as some negative experiences of primary school.

Again, except for the many references to teachers' use of the cane, the worst images are quite similar to those recounted in other research reports (e.g. Black & Howard-Jones, 2000).

It is interesting to note that no reference was made to instructional practices specifically described as poor, as was done in the case of describing good teachers. The methodological approach may account for this (we did not specifically ask trainees to reflect and write about methods of delivery of worst teachers). Nevertheless, the fact that, given an open invitation to write about their worst school experiences, images that reflect poor instructional strategies were not triggered, may suggest that poor *personal characteristics* of teachers leave a greater impression than poor *instructional characteristics*.

4.5 **Exploring deeper motivations for choosing teacher training**

4.5.1 **Further education through "Study leave with pay"**

Some beginning student teachers believe teaching will win them respect from society. Others see teaching as offering job security. However, the most compelling incentive to enter teaching seems to be the opportunity it offers for entering university whilst being paid

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to obtain a degree for teaching at senior secondary level[20], or for upward mobility to obtain jobs considered of higher status and offering better remuneration than teaching. Some of the reasons for choosing the teacher training route were:

A teacher can further his or her education and there is also study leave with pay

You can further your course at the University to become a secondary school teacher

Through teaching one can become an officer (join military) …and even join politics to become a prominent person

In fact, both student teachers and newly qualified teachers clearly indicated that primary teaching was not of long-term interest to them. They feel it has a low status image in society and requires enormous personal energy as compared to teaching at the secondary school level.

The desire to move out of primary teaching at the first opportunity raises serious questions about the returns from high investment in training primary teachers, if those trained are not likely to be there long enough for society to reap the benefits of the investment. There is really nothing wrong with teachers wanting to further their education at the university level to enhance their competence. But if investment in further training tends to move teachers out of primary teaching or out of teaching altogether, then the policy seems counterproductive and perhaps needs review.

Beginning trainees were aware of the price they had to pay to achieve their personal goals. For example, they were not ignorant of the poor conditions of service and other challenges associated with teaching, especially at primary level. Some of the references to the unattractive nature of teaching were:

➢ Working in deprived areas and the danger of catching disease;
➢ Language (teachers may be posted to teach in areas where the spoken language may be unfamiliar) and accommodation problems;
➢ Potential conflict with community members and parents – particularly being blamed for pupils' poor academic performance, and
➢ Public scrutiny of lifestyle because of the expected role model image of teachers.

But, as indicated, it seemed that deeper reasons for accepting teacher training were because of the opportunity it offered to pursue further education at little or no cost to the teacher and because of the possible reward of being able to teach at secondary school. Perhaps without these incentives fewer would have opted for an initial career in primary teaching.

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[20] Three years of teaching after graduation from college is a statutory service condition that entitles the newly qualified teacher to study leave with full pay

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The evidence suggests that certain factors and conditions conspire to make teacher training an attractive option, but ultimately these do not serve the good of primary teaching. Factors that contribute to this are: the weak academic grades that are accepted for teacher training, an attractive trainee stipend, and chance to obtain a degree with financial support from the state. All of this leaves primary school teaching the poorer.

Policy makers need to recognise that many student teachers aspire to move up the teaching ladder, and that this aspiration may affect commitment and attitude to teaching at primary school level. The policy challenge is to make primary school teaching attractive enough to encourage greater interest and commitment to it.

4.6 **Expectations from Teacher Training**

Beginning trainees expect that after training they will be equipped with specific teaching knowledge and skills, but also they would have developed social life skills.

This expectation that training will equip student teachers with life skills (personal and social) appears rather odd, as this vision is not articulated in training goal statements and curriculum documents. But college tutor surveys and interview evidence suggest that college norms and culture are expected to play a significant role in shaping a future teacher role identity that requires acquisition of some social life skills. Generally college tutors interviewed believed that training colleges should be responsible for instilling a sense of discipline and responsiveness to duty through administration of strict rules and regulations; these seem intended to communicate to prospective teachers the importance of certain social behaviour qualities that define their identity in society.

But by contrast many student teachers felt that the strict college rules and regulations undermined their personal self-worth and ability to exercise control over their lives in college, as these two statements suggest.

> We are treated like primary school pupils. We are not allowed to regulate our lives

> The type of training we receive here is somehow like military training. If you prove to be recalcitrant in the college, you are punished

Colleges, it appears, feel responsible for developing some important personal and social skills that they think prospective teachers must possess in order to be successful teachers. But it is important that the methods they adopt to achieve these goals do not undermine student teachers' personal worth, as this could erode prospective teachers' sense of personal agency in teaching. For example, stringent college rules and regulations may eventually undermine prospective teachers' ability and confidence to take greater responsibility for managing

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change in communities, schools and classrooms.

The authoritarian environment of training colleges is most likely a reflection of the history of how teacher training colleges were developed in Ghana. Most colleges started as missionary institutions with a culture of strict discipline to train ministers, catechists and later teachers. Others were originally traditional secondary schools which were later converted into training colleges, but which have maintained similar organisational and cultural characteristics as secondary schools. To move towards a true sense of developing practical skills and dispositions important for effective teacher performance will require a significant shift in how colleges view student teachers and train them.

4.7   Summary: Policy and Curriculum Planning Consideration

In general, the issues that emerged from the study of the students' background which are important for policy and curriculum planning consideration are the following:

➢ It is important for teacher training to attract better academically qualified applicants or to introduce remedial programmes that can rapidly improve their mastery of subject content knowledge prior to professional training.

➢ Primary teaching suffers from a poor image even among beginning student teachers. Incentives that may help to raise the image and status of primary teaching, and encourage longer-term commitment to it, are needed to change attitudes towards it.

➢ Student teachers arrive in college with rich background knowledge of teaching from family and educational experiences. To achieve greater relevance and meaning in their training, it seems important for teacher educators to tap into this rich background of knowledge and understanding.

➢ Clearly, student teachers feel some college rules and regulations stifle autonomy and initiative and this may be dealing a deathblow to that personal teacher agency so much needed for school improvement and change. It is important that the goals of training make clear those values that it expects trainees to acquire, and adopt positive strategies that instil confidence in prospective teachers' personal agency in teaching.

In summary, the images, experiences, and expectations of beginning student teachers highlight who they are, and what they bring with them into training. There are several issues emerging from beginning student teacher background, dispositions and attitudes that could serve as leverage for a greater contextualisation of teacher training in Ghana. The issues raised by the findings are pertinent for selection, training and the early years of a teaching career.

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Finally, the effectiveness of training is affected not only by sound curriculum planning and realisation but, as beginning student teacher voices suggest, by the impact of authority structures, rules and regulations operating within teachers' colleges.

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5 College Level Training: Curriculum and Cost Issues

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Chapter Five

5.1 Introduction

In studying college training, surveys and interviews with existing student teachers in their third and final year of training were used. College classroom observation and interviews with college tutors were also conducted. The data provided insights into the processes involved in teacher preparation; what trainees valued most and least about the training process and why. We also explored the theory-practice links in curriculum delivery and the factors that have been influencing this relationship. Finally data relating to curriculum and internal costs are presented and the implications explored.

5.2 Characteristics of Training Colleges

Structurally and operationally, training colleges in Ghana resemble the traditional senior secondary school system. Most were started as missionary institutions to train ministers, catechists and later teachers. Others were originally traditional secondary schools which were later converted into teacher training colleges. Typically, institutional structures include residential boarding facilities, a dining hall, classrooms with seats arranged in rows and columns facing a chalkboard (seating between 40-50 students), a small library, staff bungalows, an administrative block and playing grounds for sports activities. Those with strong missionary roots have a chapel.

Classrooms often have no visual aids or instructional storage facilities. Science laboratories are usually poorly equipped and small in size. In one of the study colleges a single laboratory served practical work for physics, chemistry and biology, and had a seating capacity of only about fifty. College libraries are small in comparison to student population. For example, in one college with a population of about 550, its library could seat only 30 students at a time. We observed that the newest collection of books in the four colleges studied were books donated during the JUSSTEP programme which finished in 1993. Most of the library's collection was old and appeared rarely used.

College life for student teachers outside formal teaching and learning is characterised by daily chores such as weeding compounds, fetching water (particularly in colleges without pipe-borne water supply), and by organised co-curricular activities e.g. games, choir singing etc.

Although generalized, this portrait of training colleges highlights their many constraints as institutions for training teachers. For instance, intake into teacher training is limited by boarding space. Resources and facilities are limited and favour more theoretical studies than the practical work expected of a curriculum for training teachers. Staffing is limited by availability of college housing facilities, and suitable accommodation outside the college is

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often scarce. Life of students on the college campuses seems too highly structured and regimented. This may be a legacy of the missionary roots of most of these colleges. But, in the extreme, it may create a feeling of dependency on authority; it could undermine the spirit of autonomy and responsibility that trainees need to internalise for effective professionalism once they start full-time teaching.

The characteristics of college institutions make any attempt to radically restructure their programmes for an increased practical focus a big challenge.

5.3   Profile of college tutors

From a questionnaire distributed to tutors in all four colleges it was possible to construct a profile[21] of college tutors. About 60% of the tutors were between the ages of 41 – 50 years. Nearly 15% were over 50 years old. Only about 27% were between 26 to 40 years old.

Male tutors were in the majority (76.4%) to females (23.6%). About 71% had a Bachelors degree and 3.6% (2), possessed a Masters degree. The rest (25.4%) had a diploma qualification.

Since college tutors were training students for primary and/or junior secondary teaching, we explored their own teaching experience prior to tutoring. About 70% had taught at JSS before. The majority (about 43%) had taught at JSS between 1-5 years, and 27.2% had taught for more than five years. About 60% had no senior secondary teaching experience. Slightly more than half of the tutors (55%) had no primary teaching experience. The rest had primary teaching experience ranging from 1-5 years. Most tutors in the study colleges (about 60%) had about ten years college teaching experience. About 40% had more than ten years experience.

This profile reveals important characteristics worth noting. College tutors have more junior and senior secondary teaching experience (JSS & SSS) than primary. Most tutors are middle-aged or above which is consistent with the varied range of teaching experience at secondary (JSS & SSS) and primary. Generally, the career trajectory of college tutors appears to reflect the career path aspirations of student teachers i.e. to move from primary to higher teaching levels. In fact a lot of student teachers interviewed desired one day to become college tutors.

5.4   Curriculum resources in college

From the survey, few student teachers said they owned school textbooks (24%). The majority borrowed textbooks from schools in which they did teaching practice (90%). There was a feeling that curriculum resource materials were in short supply in colleges as revealed

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[21] The response rate was quite low. For three of the colleges it was about 55%. In the fourth college we retrieved only 3 questionnaires after several attempts. Thus, the data reported here has to be treated with some caution.

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by the following statistics: about 95% felt more primary textbooks, and 94% college subject course books were needed for training. Furthermore, 89% felt reference books and 79% education books were in short supply. Therefore, colleges seem to lack an adequate supply of books and materials for training.

5.5   College teaching

We observed how some college tutors delivered their lessons, in order to try to understand their underlying objectives and the philosophy of their instructional practices. The lessons observed were science, mathematics, education, English and religious studies.

5.5.1 Methods of teaching subject content

The college tutors observed used a mixture of instructional approaches, but with some more predominant than others.

(a) Transmission of knowledge
Here, tutors lectured their students. The students were hardly engaged in active participation and only occasionally asked questions for clarification. For example a tutor teaching "construction of triangles" lectured and gave out specific instructions for students to follow: e.g. students were shown how to construct triangles (given different conditions), and finally they were assigned specific tasks whilst the tutor circulated to inspect their work. In other lessons, tutors distributed information with only occasional input from the students. Tutors who used this approach *predominantly* justified it by explaining that it ensured good coverage of the syllabus, in view of the limited college time available to complete teaching before external examinations.

(b) Student-centred teaching
Students engaged in discussions and debates on topical issues, with tutors acting as facilitators. Only one science tutor (female) used this approach exclusively. Generally, tutors claimed student-centred learning promoted better understanding since students had to defend their views or answers. Students' active participation saw them producing, creating or extending knowledge and made these lessons very lively and engaging. In one typical lesson (education), the tutor led students to debate different types of need under the topic "motivation". They went on to engage in extensive discussions about what constitutes "safety" when determining safety needs, and the tutor only offered points of clarification to extend the discussions. In a later interview, this tutor explained she often used the discussion approach because of its versatility in generating a wealth of information, and also because it made learning more interesting. This approach was also observed in an English literature lesson. Two tutors out of the nine observed used a predominantly student-centred approach.

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(c) **Question and answer approach**

In this approach tutors mainly asked questions and used students' answers to further develop the lesson. The strategy seemed also to be an attempt to increase student participation in lessons. Two tutors used this approach (science and English) very often, and later explained that students had been required to read relevant material prior to the lessons. Furthermore, its effectiveness was dependent on the availability of reference materials. Questions were intended to reveal students' understanding of assignment reading and encourage them to share in the development of the lesson.

In the science lesson where this approach was used almost exclusively, the tutor asked as many as forty-seven questions in a 40-minute lesson. It was often a two-way interaction, and included students also asking questions of their own volition. The tutor explained that she learnt to use this approach to teaching from her science methods course at university.

5.5.2 **Teaching pedagogical knowledge and skill**

Pedagogical knowledge was transmitted through lectures interjected with questions and answers, and occasionally by a demonstration of a teaching apparatus (e.g. use of fractional board) by the tutor. A typical example is that of a mathematics tutor using "multi-base blocks" to teach the concept of place value. The lesson followed a three-stage process, illustrated in Figure 4:

Figure 4: **Sequence of instructional activity in a mathematics methods lesson**

Tutor demonstrates method:
- Uses structured apparatus to demonstrate two-digit addition, without grouping and with grouping e.g. 24 + 35, 38 + 45

Students demonstrate method:
- A few students demonstrate solving similar addition problems using apparatus. Other students and tutor offer assistance and make comments.

Diagrammatic representation of addition problem illustrating the use of the apparatus:
- Tutor poses several two-digit addition problems. Students illustrate addition procedure diagrammatically in their notebooks. Approach emphasizes symbolic representations of solving addition problems.

There was a lot of rhetoric about the "activity-based" approach, or "student-centred" learning. Further investigation revealed that it was mostly perceived as physical involvement with manipulative materials, or greater student participation in lesson development through the question and answer technique.

Each tutor who was observed and interviewed felt their teaching approach stressed particular aspects of learning to teach. For some, this was a matter of establishing close links between

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theoretical pedagogic knowledge and school subjects. For others, this meant ensuring students had a good conceptual understanding of subject content knowledge to enable them to teach concepts accurately.

From classroom observations in the three colleges, it appeared that while student teachers' professional learning focused mostly on pedagogical content knowledge, we observed very little or no discussion on issues relating to the contextual application of teaching strategies and what potentially different teaching situations might require of the teacher. Learning to teach seems to mean building up a repertoire of teaching strategies to convey concepts in primary and junior secondary school subjects. The impression created was that mastering a set of teaching strategies defined the professional identity of a classroom teacher. But as Feiman-Nemser & Remillard (1996) point out, "whereas lack of knowledge and skill may limit what teachers can do, having them does not guarantee their wise use" (p. 71). What appeared missing in our classroom observations was the importance of affective qualities, attitudes and dispositions towards effective teaching.

Before concluding, it is important we point out a limiting condition that seemed to shape the nature of curriculum delivery as we observed it. Out of the 33-week training time only about 8 weeks was spent on school-based training (i.e. teaching practice) and this was after college-based training. Undoubtedly, this reinforced the view of learning to teach as first acquiring a store of theoretical knowledge and understanding of teaching for later application in actual classrooms.

There were other conditions that seem to influence tutors' instructional practices and perhaps their willingness to engage in activities that might have enriched teaching and learning. The three most significant are discussed next.

5.6   Limiting conditions on curriculum delivery practices

5.6.1 External examinations

From interviews there were indications that the external exam system exerted some influence on attitudes towards teaching. For example, we suggested to one tutor how he could have used a more co-operative approach to teaching and learning to enhance understanding. Basically he disagreed and suggested that this would rather encourage student copying in exams. To discourage this from happening, he required independent seatwork in his class. In another case, a tutor insisted students produced clearly illustrated diagrams of how they would use manipulative material to teach addition involving two-digit numbers. When questioned why he insisted on this, he pointed out that this was to ensure his students would be able to answer accurately exam questions that asked for explanations on how to use similar apparatus to teach number concepts.

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Tutors alluded to the "hidden", or sometimes open, pressure from students to teach in ways that maximised their chances of scoring high marks in the external exams. In a case study of assessment practices in three training colleges, Akyeampong (1997) suggested that the ITT examination system might be a disincentive for college tutors to engage in instructional practices that have greater potential to enhance professional learning experiences.

5.6.2 Training time available

With external examinations looming, an overcrowded syllabus, and many extracurricular activities, engaging in professional learning activities that would require extensive work by students seemed unattractive to college tutors.

An analysis of three TTCs by Akyeampong (1997) revealed that in the three-year course approximately one-third of that time was actually spent on activities directly related to classroom instruction and assessment (see table 5.1). Moreover, this excluded time lost due to tutor absenteeism, tutor lateness, and other regular college disruptions. This limited time-frame for curriculum delivery undoubtedly affects the quality of instructional practices.

Tutors interviewed pointed out that sometimes student teachers resisted work which they felt did not reflect the demands of external certification exams. Such attitudes also encouraged lecturing and note taking. During fieldwork we observed a keen interest in supplementary texts written by tutors. Most of these had been written as exam preparatory texts and included solutions to past examination questions.

Table 5.1**: The breakdown of official term time in three colleges**

Term	Official term time (weeks)	Approximate contact time for teaching and learning (weeks)		Examination time (weeks)		Other activities/events (weeks)	
1	12	Year 1:	10	Year 1:	0	Year 1:	2
		Years 2&3:	6	Years 2&3:	0	Years 2&3:	
						Teaching Practice (TP):	4
						Orientation/Settling:	1
						Sporting Events:	1
2	11	Year 1:	7	Year 1:	2	Year 1:	2
		Years 2&3:	3	Years 2&3:	2	Years 2&3:	
						TP:	4
						Examination preparation:	1
						Sporting Events:	1
3	10	Year 1:	7	Year 1:	2	Year 1: Exam Preparation:	1
		Year 2&3:	4	Years 2&3:	5	Years 2&3	1
Total	**33**	Year 1:	24	Year 1:	4	Year 1:	5
		Year 2&3:	13	Year 2&3:	7	Years 2&3:	13

Source: Akyeampong, 1997

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5.6.3 Curriculum and teaching loads[22]

In the training colleges almost all teaching is organised in standard classroom settings (grid-like seating arrangements typical of the school system). Lessons are scheduled according to subject-specific contact hours, meaning that often a tutor's teaching load is viewed strictly in terms of fixed classroom contact time with students. A common complaint of tutors was that teaching loads were excessive, making it unrealistic to provide extensive learning experiences that could potentially increase already heavy workloads.

We tackled the issue of tutors' workload in two of the four colleges to ascertain whether the often referred-to impact of teaching load on instructional practice reflects lack of management efficiency or was an organisational problem. Furthermore, we explored whether it is possible, or indeed reasonable, to reduce tutor-student contact hours and increase student group work by means of projects, investigations, reflective assignments and individualised study, to take advantage of the possibilities these offer for improving learning to teach.

The distribution of students on each of the programs in the two colleges used for this analysis is shown in Table 5.2. The overall staff-student ratio was as follows: College A – 1:15, College B – 1:21. At the time of the study, Colleges A and B ran slightly different programmes

Table 5.2**: Number of tutors, and student distribution by number in each programme for 1999/2000**

College	Number of Tutors*	Programme/Number of students			
		GTTP	PTP	SSP	Total
A	35	470	256	-	736
B	45	500	-	197	697

* Excludes Principals of the colleges
GTTP – General Teacher Training Programme, PTP – Primary Training Programme, SSP – Subject Specialist Programme

The Ghana Ministry of Education (MOE) policy on staff recruitment stipulates that staff-student ratio should be 1:15 and tutors should teach between 32 – 36 periods a week (a period is equivalent to 40 minutes). Based upon this policy, College A would be considered to have a *high* staff-student ratio of 1:21 and College B a ratio of 1:15, which satisfies the official requirement.

We assumed that a tutor teaches *different* student groups of 15 students for each period to deduce the following results. For a staff-student ratio of 1:15, a tutor has to be in face-to-face classroom contact with a minimum of 480 students in a week (15 students per period

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[22] See Akyeampong, Furlong & Lewin (2000) for a detailed account.

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x 32 periods), and a maximum of 540 students a week (15 students per period x 36 periods). This translates to an official teaching load in *student-hour* terms ranging from 320 per week to a maximum of 360 student-hours per week.[23] We compared this to the actual teaching loads of tutors in the two colleges.

The actual average teaching load in student-hours for College A was 458 and the estimated contact time with students was 12 hours. The average number of periods per week was 17 (ranges from 3 –18). A tutor in this college averaged 278 student periods a week. In College A, the tutor-student ratio fell within the official figure of 1:15. But viewed in terms of student hours, tutors had larger loads than implied by the official standard. However this was achieved by using group sizes that averaged 40. The consequence was that the average number of teaching hours that a tutor actually taught was only 12 per week for the weeks of normal operation.

Our data illustrated a wide range of teaching loads across the tutors, arising from their *specialisations*, the *elective choices* that students make, and choices made about *teaching group size*. Most tutors taught both first and second year courses and therefore had to prepare materials for both. Although 71% of tutors in college A taught more than 360 student hours per week, they were actually in contact with student groups for 12 hours on average. Thus it appears that inefficiencies have arisen from uneven workloads across staff with different specialisations, whereby some are relatively heavily loaded and others have fewer periods with small groups.

In College B none of the tutors was able to meet the MOE minimum teaching load of 32 periods a week, partly because the college had a favourable staff-student ratio. Our analysis revealed that the number of student periods a tutor worked in a week ranged from 51 to 736. The average time a tutor was engaged in teaching was 363 student periods a week - a figure much higher than college A. Also tutors in college B on average taught 7 classes (average size 52) a week, with most teaching two levels e.g. year 1 and 2. The average teaching load in student hours a week of 614 was considerably higher than College A, with 97% exceeding the notional Ministry guidelines. However tutors taught on average 12 hours a week, the same as in College A, because of the larger average group size.

Recruitment of staff is done exclusively by the Principal of a College, whose only guiding rule is to keep within the officially recommended staff-student ratio of 1:15. It is clear that the guideline is also sometimes ignored. It leads to situations where some departments are understaffed and overburdened, whilst others are overstaffed and under-utilised. For example, although College A had the full complement of staff (using the 1:15 ratio), the

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[23] Student-hours appears to provide a better picture of workload. Each period of 40 minutes for a 32 or 36 period schedule works out to be a minimum of 21.3 contact hours and a maximum of 24 contact hours respectively. In student-hours terms this is between 320 – 360. (i.e. 21.3 x 15) Therefore the more the student-hours the greater the work load because of the number of students to deal with and its implications for the organisational demands of student learning.

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social studies department had only two tutors teaching a total of 70 periods a week, whereas the science department had five tutors teaching a total of 48 periods a week. The physical education department had three tutors sharing a total of 27 periods a week. It would appear from this analysis of teaching load in the two colleges that the problems emanate from both *organisational structure* and *curriculum demand*.

Issues about staff-tutor ratio and tutors' workload are complex and their resolution may not be simple as they raise a lot of challenges that touch on policy, politics and practice. Nevertheless, any serious attempt to improve curriculum delivery to yield positive professional learning outcomes will need to face the challenges it presents, and search for strategies that are efficient and cost-effective.

The MUSTER data on tutor loads do indicate that there may be some scope for more efficient utilisation of staff. Average class contact times of 12 hours per week (about 2 hours per day) do not seem excessive, especially when coupled with the large amounts of time allocated to assessment tasks. Group sizes could be smaller, with larger numbers of contact hours, if it was thought this would improve the quality of learning.

More fundamentally, the problem of efficient utilisation of staff revolves around three main factors:

• Relatively small size of colleges,
• Number of subjects in the curriculum and
• Willingness and ability of tutors to teach two or more subject areas.

A review of policy in these areas might produce opportunities to expand enrolment, maintain student contact, and deepen learning experiences, with modest increases in staff-student contact time. Currently colleges do not appear to have an obvious incentive to manage staff time more efficiently. Teaching-group sizes are not monitored, and making deployment more effective would bring no clear benefits to the college. Perhaps the real barrier to more efficient utilization of staff is the manner in which the content of the curriculum is structured and delivered. Because the content is packaged for delivery in a classroom environment, and framed in terms of predetermined knowledge and skills required for teaching, a transmission mode of instruction is favoured.

It is conceivable that once the curriculum model shifts towards one in which student teachers take more responsibility for how it is developed, shaped and documented, based upon their learning experiences, this will free "time and space" for staff to acquire more flexible roles. For example, with a de-emphasis on "tutor delivery of content knowledge of teaching", college tutors could then focus attention on creating suitable learning experiences for student teachers, and assist them, through cooperative activity, to learn teaching through

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such experiences. But this will require a complete reconceptualisation and reorientation of teacher training pedagogy and structure, as well as redesigned instructional materials.

5.7   **Trainees' preparedness to teach**

Almost all trainees felt unprepared to teach at least one school subject. These trainees perceived their competence to teach a subject in terms of the level of mastery they achieved at secondary school. This has implications for promoting confidence in teaching subjects in which student teachers have weak backgrounds. Subject content knowledge teaching at the training college would appear to be critical in raising the confidence and competence levels of trainees. Later data is presented on the likely impact colleges can make in raising trainees' mathematics achievement level (see chapter 7).

Other trainees perceived preparedness to teach in terms of the amount of knowledge and skills acquired at college. But overall, adequate exposure to teaching through teaching practice was considered the most significant factor in being adequately prepared to teach. In summary, three issues stood out as significant in the final year students' perception about their preparedness to start classroom teaching:

➢ First, subject content mastery level prior to entering teacher training college.
➢ Second, acquiring an adequate repertoire of teaching knowledge and skills at college,
➢ Third, and perhaps the most important, whether adequate exposure to teaching had been gained through supervised teaching practice.

In the case of teaching practice, the perception seemed to be that *more* teaching practice would ultimately help attune their teaching knowledge to practical situations. This perception is in actual fact a reflection of "conventional teacher education" – an approach which "reflects a view of learning to teach as a two-step process of knowledge acquisition and application or transfer" (Feiman-Nemser & Remillard, 1996, p. 79).

In the next section, survey data is presented about the teaching practice experiences of student teachers.

5.8   **Teaching practice experiences**

Survey data showed that the majority of trainees spent between 16 to 20 days in each of their teaching practices. This worked out to be 32 to 40 days teaching practice for the entire three-year training. If the data is taken to be typical of the two teaching practice sessions of training – one in the second year and the other in the third year, a measure of the quality of this experience is the number of lessons student teachers were able to teach and the supervisions received. From the survey data the following picture emerged:

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➢ About 3% had not done any teaching at all at their last teaching practice
➢ 26% had taught between 1 and 4 lessons a week
➢ 22% had taught 5 to 10 lessons a week
➢ 16% had taught 11 to 15 lessons a week
➢ 24% had taught 16 to 20 lessons a week
➢ 9% had taught 21 lessons and above

To put this data into perspective and understand its significance, we needed to compare it with the average number of lessons a typical primary school teacher was expected to teach a week in Ghana. This ranges from 30 to 32 lessons a week (lessons are about 30 minutes duration). Thus, trainees were teaching relatively few subjects when on teaching practice, or they may have been avoiding teaching some subjects altogether.

In a study of management of instructional time in some Ghanaian public primary schools, Koomson et al., (1999) observed that, on average, less than three subjects were taught in the 24 schools studied. The study also revealed mathematics and English as the most frequently taught subjects. Thus, the quality of teaching practice, in terms of subjects taught, could be a reflection of instructional practices in schools which, as Koomson and his colleagues' note, is rather lax.

From survey data the following general observations about teaching practice were reached:

➢ The majority of trainees (82%) did teaching practice in a primary school, and 18% in a junior secondary school. Less than 1% did teaching practice in a kindergarten. Trainees may therefore not be experiencing adequate exposure to junior secondary teaching, even though most prefer teaching at this level.
➢ College tutors were the main teaching practice supervisors, supervising about 86% of trainees on more than one occasion. About 68% of trainees reported that they had received some supervision from class teachers. Other education professionals such as head teachers, teachers from other classes, and circuit supervisors accounted for less than 50% student teacher supervisions. Although trainees received supervision from a wide range of professionals, this was not necessarily considered very productive. In fact, trainees felt that suggestions about how to improve teaching lacked consistency between the different professionals. Better co-ordination and training seemed needed in the organisation of teaching practice.
➢ College tutors' methodology notes appeared the most relied-upon reference for preparation to teach. About 88% indicated they relied mostly on these. College peer teaching activity was found useful by 73%, while input from interaction with primary school teachers was the least supportive activity (53%).
➢ About 94% and 89% respectively indicated they found discussion with tutors and tutors' methods notes most useful in preparation for teaching. Other inputs such as school

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visits, discussions with primary and junior secondary teachers and peer teaching were also considered valuable in developing insights about teaching. However, these inputs seemed not as highly valued as tutor notes and discussions with college tutors. Project work was least valued.

➢ More than half the students reported follow-up activities after teaching practice, as the following figures show: assignments based on teaching practice (68%), individual discussions with class teachers (63%), individual discussions with college tutors (63%) and whole class discussions with methods tutors (56%).

➢ To improve teaching practice, trainees suggested increasing all aspects of teaching practice preparatory inputs. This seemed to be an indication that despite the variety of preparations, the total effect was still unsatisfactory.

The survey findings on teaching practice create two important impressions:

(i) Although training inputs from outside the college are valued e.g. from head teachers, and classroom teachers, greater value is placed on college preparation e.g. teaching method notes.

(ii) Although teaching practice supervision is received from a wide group of education professionals, student teachers did not perceive the varied input as necessarily productive. The lack of a framework of professional standards for assessing and enhancing student teachers' practice, which all supervisors could be trained to use, seems to be the main cause of this problem.

Interview data generated more in-depth insights into trainees' experience of teaching practice and is the subject of the next section.

5.9   Qualitative insights into teaching practice

Student teachers unanimously declared that teaching practice represented the most insightful experience of learning to teach. By that they meant that without real classroom teaching experience as part of training, they might not have known what challenges faced them in a teaching career. As one student put it, "[Teaching Practice] exposed us to the type of job we opted for".

From the interviews, we gathered that student teachers had become more aware, through teaching practice, that teaching was much more than simply applying a set of pedagogical strategies. Rather it involved dealing with *real* problems of children's learning which could not be specified beforehand, as college training seem to suggest. Some practical difficulties recalled were: *problems of learning readiness, pupil absenteeism that obstructed sequential lesson delivery, lack of instructional resources, teaching children with mixed learning abilities,*

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communication difficulties due to poor English language background of pupils..

We noticed from observing tutor lessons that learning about teaching was often presented as an unproblematic task as long as one applied certain teaching strategies. College training emphasized the correct format for writing lesson notes, preparation and use of structured teaching and learning materials, etc. Both college classroom observation and interview data suggested that learning to teach is presented as a simple two-stage process: pedagogical skills and knowledge are acquired in college first, followed next by its application in classrooms.

But the kind of difficulties student teachers faced suggests the need to rethink this philosophy of learning to teach. To develop a positive approach to conflicts and unstructured classroom problems, it would be useful for pedagogical skills to be developed in full understanding of its implications for actual classroom practice. In other words, the real world of teaching must feature more in the discourse of teacher education in Ghana. This has the potential of making learning to teach more sensitive to the idiosyncrasies of children's learning experiences and behaviour, and other real life classroom problems. Hopefully, such an approach would create in prospective teachers more critical reflection and a sense of personal agency in teaching.

College tutors seemed more interested in ensuring that trainees applied specific strategies and behaved in a predefined "appropriate" manner. Trainees talked about their experience mostly in terms of trying *hard* to ensure a specific teaching strategy or instructional material was applied in teaching. There was less reflection on pupil learning characteristics, or classroom settings, as critical domains for understanding and developing appropriate teaching strategies.

College textbooks and tutors' methods notes could also have influenced this image of learning to teach, since they are based predominantly on the application of specific teaching strategies. Such texts in subjects such as mathematics, science or English teaching rarely addressed issues such as:

- What student or classroom characteristics would support the use of a specific strategy in a "typical" classroom?
- What possible teaching constraints would make application of certain strategies problematic and what should teachers do in such situations?
- What attitudes and dispositions should teachers have to promote effective teaching and learning?

These and other similar questions could highlight the importance of critical reflection and adaptive behaviour in teaching.

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5.10 **The cost of training a teacher**[24]

We turn our attention now to estimating the costs of training a teacher. Teacher training takes three years to complete and an analysis of the training costs has implications for any restructuring proposals to make it effective and more cost-efficient.

Data from 12 colleges indicated that average college costs per trainee were about US$680 per student (Table 5.3). However, training costs varied from about US$550 to as much as US$1000, which in this sample is unrelated to size. Typically colleges are small in terms of total enrolment (average 450 in this sample and 500 across all colleges) and have about one member of teaching staff to 15 to 20 students.

Table 5.3: **Trainees, staff, student-teacher ratios and unit costs for 12 colleges**

College	No of Trainees	Teaching Staff	Student-Teacher Ratio	Unit Cost (US$)
1	445	23	19.3	553
2	440	22	20.0	592
3	535	28	19.1	614
4	489	21	23.3	686
5	600	41	14.6	676
6	309	20	15.5	459
7	494	34	14.5	940
8	358	22	16.3	727
9	436	27	16.1	550
10	494	34	14.5	637
11	519	22	23.6	688
12	364	20	18.2	1004
Average	**457**	**26**	**17.9**	**677**

The structure of college financing is unusual in the sense that most of the costs lie in the value of stipends for trainees. This can be illustrated with reference to budgetary data from a particular college for year 2000 (see Table 5.4). In this case, there are about 320 students, 30 teaching staff, and a total of 48 non-teaching staff.

This specific case confirms MUSTER data across the college sector. Typically about 75% of direct costs are in student stipends, 20% in college salaries, split between teaching and non-teaching staff about 60/40, and about 5% in non-salary expenses. College running costs are concealed in this budgetary allocation system. Trainees, we noted, did not receive the entire value of the stipends since a proportion was held back and used by the colleges for operating costs. Estimates indicated that about 40% is deducted from payments to trainees and allocated to purchases of food, equipment, learning materials etc.

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[24] For fuller account see, Akyeampong, Furlong, & Lewin (2000)

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Table 5.4: **The allocation of a college budget**

Category	Percentage of Total
Teaching Staff Salaries	12.8
Non Teaching Salaried Staff	3.3
Daily Paid Staff	3.9
SSF	2.5
Miscellaneous	0.3
Trainee Stipends	76.8
Vehicle maintenance etc.	0.1
Total	100

The scope for cost saving is limited by the main parameters identified above. Increasing the student-staff ratio would have reduced costs per student but ratios above 20:1 might be thought to be unsuited to conventional curriculum delivery. The only element of costs that might be reduced relates to students' stipends. But judgments would have to be made whether the proportion that is withheld is efficiently allocated, and whether the proportion of the stipend paid directly to students for living expenses (excluding what the colleges provide in the form of board and lodging) is appropriate. The latter is about US$ 330 per year out of a total unit cost of nearly US$700.

This unusual cost structuring has implications for ways in which efficiency gains might be constrained. A first-order analysis of college costs indicates that, as currently structured, most costs are variable and rise directly with the numbers of students. This is because so much of the cost is in stipends. Increasing average college size from current levels, which are small by international standards, ought to reduce unit costs as fixed costs are spread over more students. This would not result in significant savings in this system since it is only perhaps 10% of the costs that could be regarded as fixed within different ranges of enrolment. It would be logical and managerially useful to separate budget running costs and student stipends, and to separate fixed and variable costs. Currently there appears to be no incentive to increase the efficiency with which resources are used.

Another important issue relates to the implications of training costs for reconceptualising curriculum delivery in ways that promise enhanced professional learning while achieving more cost-effective training outcomes. The indications are that trainees in college utilize only a part of the time allocated and budgeted for in-college training (Akyeampong, 1997). With most training costs being in the form of student teacher stipends, it appears logical to attempt to maximize returns on such investments through engaging trainees full-time in strategies for active professional learning and development.

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5.11 Summary

Learning to teach involves a whole range of professional learning experiences, which begin even before the initial training phase, and continue well into the teacher's professional career (Feiman-Nemser & Remillard, 1996). This chapter has described the college context and the students' views and experiences of training and teaching practice. Conditions that may be responsible for shaping college tutors' instructional practices were also discussed. Finally, the issue of internal costs of training was examined.

Pulling together all of the evidence from this range of data sources, the following issues appear critical for improving college training.

5.11.1 Model of learning to teach

The study evidence suggests that college training focused mainly on subject content learning and on acquiring teaching knowledge and skills. The model of training could be described as *additive* since it aimed to *increase* teachers' repertoire of teaching knowledge and skills for future application in school.

Recent research into teaching suggests that teaching strategies are not effective in themselves, but rather, that situations, contexts and pupil characteristics are what determine appropriate teacher actions or behaviour. Consequently, transmitting generalized knowledge and skills of teaching for some future application is unproductive, because effective teaching activity is far too complex to be reduced to the simple application of predefined teaching strategies (Darling-Hammond, Wise & Klein, 1999).

5.11.2 Resources for learning to teach

The main resources for learning about teaching in the colleges were primary and junior secondary school textbooks, college textbooks and tutors' notes. The majority of students appear to have access to school textbooks but feel that more textbooks, especially those for primary and junior secondary classes, are needed in the colleges for study reference and practical use. The colleges visited also lacked audio-visual equipment. The poor instructional resource situation clearly undermines the quality of training received in college.

5.11.3 Teaching Loads

Analysis of teaching loads in the colleges suggests that some colleges may not be utilising instructional time efficiently, and that the problem reflects both organizational structure and curriculum demand. Generally, a more efficient utilization of instructional time could be promoted if the philosophy of training shifted towards student-directed professional

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learning and the development of teaching. This approach would, however, require a whole system change to reflect a more professional outlook to teacher training in the colleges. For example, more availability of reference books and materials, as well as increased tutorial activity, would be essential for this to be effective.

There is also evidence that the extensive and time-consuming assessment system, and the extent of peripheral extra-curricular activities in the colleges, has implications for ways in which time available for student-directed learning might be constrained.

5.11.4 **Quality of teaching practice**

Clearly, teaching practice is highly valued by trainees, but it appears to be organized in ways which do not take full advantage of its potential benefits. To be more productive, the ethos of teaching practice has to reflect a conceptualisation based on more recent understanding of teacher learning for effective practice. Essentially its practice needs to reflect three important characteristics.

- It should be centred around the critical activities of teaching and learning – planning lessons, evaluating student work, developing curriculum – rather than on abstractions and generalities
- It should grow from investigations of practice through cases, questions, analysis, and criticisms; and
- It should be built on substantial professional discourse, that fosters analysis and communication about practices and values in ways that build colleagueship and standards of practice (Ball & Cohen, 1999).

From the student teachers' accounts, supervision was not always productive because supervisors did not seem to share a common understanding of good practice. It suggests the need for training of supervisors (classroom teachers, head teachers, circuit supervisors, college tutors) and adoption of a common framework of standards for effective professional practice.

Also, if teaching practice is to become more beneficial, it may be necessary to link what colleges do more closely to school settings, with the hope that this will increase familiarity with pupil background learning characteristics, school ecology, and the common problems encountered in teaching.

6 Post Training: Newly Qualified Teachers' Early Experiences, Practices and Reflections on Training

Chapter Six

6.1   Introduction

The newly qualified teachers' data largely sought to address the following questions:

1.   What are the early experiences of newly qualified teachers (NQTs) and what sense do they make of it?
2.   In retrospect, how do NQTs evaluate their training programme?
3.   How do head teachers perceive the capability of NQTs and what criteria do they use?

6.2   Professional and community support for NQTs.

Induction into teaching is a critical phase in becoming an effective beginning teacher (Knowles & Cole, 1996).   Parts of the survey examined the NQTs' experience of the support they received during the early years of their career.

According to NQTs, head teachers provided the most professional support in their first year of teaching. About 95% indicated that head teachers were the most helpful in adjusting to classroom teaching.   However, the consistency of the support appears weak, as heads admitted offering only the occasional tip and advice as and when NQTs approached them for assistance.   Formal school or district induction was rarely organised, and when they took place topics usually covered were: (1) lesson notes preparation, (2) school and community relations, (3) organisation of classroom teaching, and (4) continuous assessment and record keeping. Views about how useful induction courses had been were mixed. About 45% of NQTs who had received some form of induction said topics that covered general information about schools, continuous assessment, and organisation of classroom teaching, were quite useful.

Community support, in the form of providing accommodation and other facilities that made the transition to teaching more comfortable, was recognized as essential to their early adjustment to teaching.   About 65% said they received help from their school's Parent-Teacher Association (PTA) or School Management Committees (SMC) in finding suitable accommodation.   Other community support came in the form of food items, or help in farming (especially those in rural communities where food could be a problem).

Most NQTs (about 71%) said they had positive relationships with the communities in which they worked – which may be taken as an indication of generally constructive community participation in the welfare of beginning teachers.   In fact, the majority of the NQTs surveyed expressed positive sentiments about their initial adjustment.   For example, 90% maintained they easily got used to teaching, while 82% felt capable of achieving some

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changes in schools and about 80% felt respected as teachers. Closer exploration of some NQTs' lives by Hedges (2001) suggests a rather different picture of difficult adjustment to teaching. But this may be a reflection of differences in the experience of teachers working in urban or rural districts respectively. Hedges studied teachers who were sent to poor rural communities and faced especially difficult circumstances. In the survey, a more diverse group was used, with the majority teaching in semi-urban districts. Thus, it appears that adjustment to teaching depends very much on where a beginning teacher is posted to, with rural areas presenting the most challenging circumstances for NQTs.

The NQTs surveyed felt the worst problems encountered in life as a teacher related to late arrival of salaries (75%), difficulty in feeding themselves (67%) and suitable accommodation (67%). About 60% also indicated they had problems with transport to district centres to receive their salaries.

Less common problems encountered were relations with colleagues (25%), language barrier difficulties with communities in which they taught (30%) and relations with pupils (40%). Nearly half suggested they experienced some difficulties with pupils' parents. It is not clear what some of these problems were, but a few of those interviewed complained of parents showing little interest in their children's education.

6.3   **How committed are NQTs to a teaching career?**

When asked what they expected to be doing in five years' time, only about 37% of NQTs felt they might be still teaching at primary or junior secondary school. Some NQTs had ambitions that seem to far exceed what was possible in five years – e.g. to be an accountant (20%) or an administrator (10%). About 10% expected to have left primary or JSS teaching for further studies, and 20% expected to be teaching at senior secondary school. In all over 60% expected to quit primary or JSS teaching. When asked what was most likely in five years time, seeking for their more realistic expectations, the responses confirmed the determination to quit primary teaching in the long term - only 3% indicated they might be teaching at the junior secondary and none of them said they were most likely to remain teaching in a primary school, in five years time. Most (84%) hoped to have gone on for further studies – an indication of their readiness to take advantage of "study leave with pay" after teaching for 3 years. (NQTs surveyed were in the second year of service and had one more year to qualify for study leave with pay). About 13% maintained they would have left teaching for a different job.

After five years of teaching it is unlikely that all of them would have realised their aspirations. But such intentions to quit teaching, especially primary teaching, clearly indicate a failing of teacher education policy in Ghana to sustain interest in basic school teaching. Hedges'

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(2001) study provides rich-textured insights into some of the reasons for this, such as poor status, an ineffective teacher welfare system and the weak professional organisation of the Ghana Education Service (GES).

In conclusion, the survey data on early years of teaching suggests that although formal induction is rare, head teachers and perhaps other teachers are on hand to assist beginning teachers adjust to early classroom teaching experience. However, this seemed sporadic and uncoordinated, raising doubts about the effectiveness of the inputs. Induction courses, when conducted, seemed to address issues related to school professionalism and less about the personal, professional or psychological adjustments needed to succeed as a beginning teacher. Clearly, the issue of salaries (linked to their ability to feed themselves), and accommodation, especially in rural districts are the most urgent personal needs of NQTs. Meeting these needs will undoubtedly help beginning teachers to apply their energies to enhancing their professional practice.

6.4 **Preferred instructional strategies**

The NQTs noted their preference for *question and answer (Q&A) technique, group work and demonstration* as teaching strategies, with Q&A as the most preferred instructional technique.

The NQTs surveyed said they made least use of the lecture method and role-play, although qualitative evidence from classroom observation suggests that lecturing is quite frequently used (Hedges, 2001). Most NQTs (75%) indicated they found preparation of lesson notes a useful activity. But interview evidence suggests that lesson notes preparation is often seen as fulfilling a bureaucratic teaching requirement and that with time less professional significance is attached to it. According to Akyeampong *et al*., (1999) although Ghanaian teachers may continue to write lesson notes, their motivation for doing so is fuelled by official requirements. For example, one of the preoccupations of circuit supervisors when they visit schools is the inspection of the teacher's lesson notes, without much professional evaluation of its role in actual classroom teaching (see Fobih et. al., 1999).

The respondents reported using a variety of assessment methods in teaching. These included short-answer items (75%), multiple choice and filling the blanks (62%), essay questions (58%) and practical work (52%). True or false items (34%) and projects (35%) were less frequently used. The percentages may simply represent preferences and not necessarily be indicative of actual practice. As Hedges noted in his fieldwork, teachers sometimes ended their lessons with exercises or tests as an evaluation of teaching objectives. Extended forms of assessment such as essay tests seem less practised, perhaps because of pupils' English language difficulties.

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6.5   College preparation for classroom practice

Judging from the survey evidence one may conclude that there was a positive relationship between college training and actual classroom practice. Areas where they apparently found college preparation most relevant and useful for teaching were: lesson notes preparation (67%), subject content (87%), teaching strategies (90%), classroom management and control (92%), assessment methods (90%), attending to individual pupil needs (83%), designing teaching/ learning materials (TLM) (78%) and using TLM (87%). It appears most regard college notes and other learning materials as valuable for teaching. Over half of NQTs reported that they made use of their methodology notes, books obtained from college and instructional materials for teaching.

Hedges' (2001) case studies of NQTs provided in-depth insights into the quality of this transfer. From his studies it emerged that often teachers were unprepared for the peculiarities of teaching settings and did not know how to respond to them adequately. College training did not deal with the concrete nature of actual teaching, as already noted (chapter 5), and therefore NQTs seem to learn from prevailing school practices, some of which may not be very positive. What strongly emerges from the interview accounts is the lack of "doing" – actually practising and developing understanding of teaching from real learning experiences during college training. Thus, the survey evidence tells only part of the story of how knowledge and skills transfer to classroom practice.

Lack of instructional resources in schools further compounds the teaching difficulties NQTs faced. Although subject syllabuses seem readily available, instructional guides were often difficult to obtain, and about 78% noted they were provided with "few copies" or had none to refer to. In addition, 60% of the surveyed NQTs noted they were not provided in their schools with relevant reference materials and raw materials for making instructional aids.

6.6   How NQTs relate to poor pupil performance

About 71% of NQTs surveyed rated their pupils as average achievers. However the qualitative evidence about their teaching and how they viewed pupil learning suggest this was probably an overestimation. About 27% rated their pupils as below or well below average, with only 2% rating their pupils as above average.

Repeatedly, NQTs attributed pupils' poor performance to their low proficiency in English. The in-depth case studies by Hedges revealed a tendency for beginning teachers to blame external factors for poor pupil performance, although some admitted poor teaching was also responsible e.g. teaching above the pupils' level. NQTs in Hedges' case studies suggested poverty, pupil absenteeism and house chores prevented pupils from achieving in school.

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Some went as far as allude to "hereditary" factors and witchcraft. Although these may be isolated perceptions, they point to the failure of training to help prospective teachers understand the task of teaching as solving problems, and to encourage them to take more responsibility for improving pupils' learning and performance.

Asked what would improve pupils' performance, most NQTs pointed to the following:

- Provision of reading materials and other textbooks to pupils to encourage reading
- Teachers to give more exercises – class work and homework - to pupils
- Encourage pupils to speak the English language
- Teach to the level of pupils i.e. teachers need to tailor their lessons to pupils' level of understanding

The last two suggestions relate to issues of classroom practice. In particular, the problem of teaching above the ability level of pupils, also noted by Hedges, might indicate how far training is out of touch with the concrete problems of teaching and learning.

According to one beginning teacher, English teaching methodology taught at college failed to show adequately how to address problems of reading. The problem may rather be that the methodologies learnt at college were fixed and abstract, and unable to respond to the real and complex problems of teaching. This is illustrated in the comment of one NQT who had learnt to be more flexible in applying a teaching method for English reading in an in-service course. From his training he had learnt that the correct approach was to teach "… the key words before giving a model reading [lesson]". But, he had found it was more "… appropriate for the two to go hand in hand because it gives the opportunity to explain the words in context and not in isolation" (Asebu Teacher).

6.7   NQTs' evaluation of college training

According to the NQTs surveyed, the most commonly used instructional approach in college was "lectures with tutors dictating notes" (47%). Rarely was "small group" work or discussion employed by tutors in college (15%).

Over 60% maintained that more time was needed to study science, mathematics, English, and for teaching practice. About 70% felt colleges needed to focus more attention on methods (pedagogy) and practical work. But more teaching of subject methodology was rated as the most important thing that could improve the college course – as many as 98% considered this as either "very important" or "important". Provision of instructional materials such as textbooks and instructional aids were also rated highly (about 97%), as the most needed inputs to improve training.

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Consistently, student teachers and NQTs pointed to teaching practice as the most significant experience of their training. As noted in chapter 5, teaching practice created greater awareness of a disjunction between the prescriptive teaching methodology presented at college and the real demands of teaching. College tutors' emphasis on prescriptive teacher behaviour was evident in the way some NQTs described their teaching practice experience.

> During teaching practice we were taught how to manage the class, some of the things we *would have to do* in the classroom to encourage pupils learn and some things we *should not do*. Sometimes when I am teaching I *refer back in my mind*. For example, *'do not call the name of a student before asking a question in class'* (Kormantse NQT. Emphasis added)

What emerged from accounts of teaching practice was that college tutors were mostly preoccupied with ensuring that trainees applied teaching strategies, or demonstrated certain teacher behaviour, without raising equally the need for adaptive behaviour.

There appears to be a tension between what college training espouses as effective teacher behaviour and what real teaching situations demand. When Hedges (2001) asked NQTs how they knew pupils understood their lessons, most responses were in terms of applying teaching techniques, rather than on monitoring the effects achieved. Thus when NQTs spoke about the usefulness of teacher training, this was often in terms of acquiring teaching techniques and not necessarily how teacher training prepared them to deal with the actual problems of teaching. Asked to describe their best lessons and why they considered them so, most gave examples of using manipulative objects, providing practical examples and activities that increased pupil participation in lessons. Although these teaching techniques may have been effective for the purpose intended, there seemed to be undue preoccupation with such techniques, creating the impression that these alone guaranteed pupils' mental engagement and learning, irrespective of other conditions influencing the technique's effectiveness.

> My best lesson is science – light. This was because we had real materials to do some experiments and the children got themselves involved, they brought their own materials and everybody tried to make use of the materials (Moree NQT)

What made this lesson effective seems to be considered in terms of physical involvement. Hedges made similar observations in his study of NQTs, but added that some teachers seemed more anxious about connecting to the pupils' world, which motivated them to make teaching and learning more practical and reflective. Thus, the challenges of real life teaching may eventually cause shifts towards adaptive behaviour. But from our data it appears that not all NQTs are able to respond to pupil learning needs.

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6.8   **Head teachers' views about NQTs' professional and personal attitudes to teaching**

Eight head teachers provided information about NQTs' professional attitudes, competence and initial adjustment to teaching. Most head teachers (7 out of 8) identified the following as persistent problems that they encountered with new teachers: reporting late to assume duty (when first posted), and an unwillingness to participate in extra-curricular activities of the school. They however realised that such attitudes might be the result of the difficult circumstances of teaching e.g. finding suitable accommodation, and late payment of salaries. Head teachers cited instances where NQTs had not been paid their salaries for about four to five months since assuming duty. They argued that this was likely to affect teachers' morale, commitment and classroom effectiveness. As one head teacher recounted his experience with one NQT:

> For instance, my P1 teacher last year had a similar problem. For more than one year she never had her pay arrears. So she vacated post for almost 3 weeks to stay with her parents. The children were left without a teacher so they also stopped coming to school.

According to the heads, some teachers seem to adjust better to teaching and its attendant problems than others. For example, one head teacher had observed that new teachers in his school were punctual and performed their professional responsibilities creditably despite facing possible financial difficulties. It is unclear what helped these to cope better than others. Perhaps such teachers had some external assistance that cushioned the effect of the late payment of salaries. It is unfortunate that after all the investment made in training teachers, very little attention is paid to setting up structures to meet beginning teachers' basic personal needs and thus encourage a more positive attitude to teaching.

Heads generally rated highly personal qualities - dedication, punctuality, respect, and professional capability (perceived mostly in terms of subject content knowledge) - as the most important qualities new teachers needed to possess. The head teachers felt that the current crop of beginning teachers often lacked these qualities. They expected beginning teachers to enter the profession with "fresh ideas from college" about teaching but found that not many exhibited this quality either.

Some head teachers suggested that the lack of commitment and dedication to the profession by some NQTs was because they lacked certain innate professional qualities fundamental to a teacher's survival in the profession, as the following illustrate:

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> One thing I have observed is that some of them are not *born* teachers. I believe that they would leave the teaching service very soon because they find it to be very tedious work

> Most of the students who enter training college don't enter willingly as in the former days. This time it is just like I don't have anywhere to go so I have to move in (i.e. to teaching). Some of them are teachers, you could detect from the way they go about their job [born teacher idea]. There are others who enter and would want to use the profession as a springboard and leave the service. So when they come they have a different attitude towards teaching

But others felt the problem was actually due to the difficulties NQTs faced in the early years, which undermined their commitment and loyalty to teaching. As one head teacher argued:

> …When they feel comfortable they would put up their best, think of their pupils and prepare well for class

Any system of supporting NQTs must deal with the problems of adjustment, particularly basic accommodation needs, and most importantly the late payment of salaries. Teachers in less affluent communities may not be able to engage in additional work, as others seem to be able to do, to supplement their income or support them whilst waiting for delayed salaries. There is no doubt that if beginning teachers find their early career experiences traumatic they will lose interest in teaching, and even if they stay in teaching for some time, they will probably not give their best. Thus the country's investment in their training will return little in the way of benefit.

6.9   Strengths and weaknesses of NQTs

Head teachers generally felt NQTs were reasonably prepared for teaching, but this view must be interpreted carefully. Without some reference to standards of professional practice that define the specific professional expectations of beginning teachers, heads' judgments could be based on their own subjective criteria and may have overlooked important considerations for an overall judgment on teacher quality.

When head teachers said NQTs were "good all round", they generally referred to three main characteristics that did not describe precisely the nature of the "good" behaviour. These were:

• Had good control over children,
• Had good command over their subject, and
• Possessed skills to deliver the lessons.

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In contrast the closest they came to pinpointing a specific difficulty of NQTs was the reference they made to problems about "teaching above the levels of the pupils" – generally meaning their inability to select appropriate content and instructional strategies to reflect the background needs of pupils' learning and development. As has been pointed out several times in this report, training appears to focus on building student teachers' repertoire of pedagogical strategies, thus narrowing the conception of what effective teaching requires – one of which is attention to students' background characteristics to determine appropriate actions.

We believe the prescriptive philosophy of teacher training does not allow this issue to receive the attention it deserves, which reflects a major weakness of training.

In conclusion, it is difficult to discern much about the professional competence of NQTs from the head teachers' perspective. But one thing is clear - the hardships faced by new teachers as they tried to settle into teaching exert a toll on their commitment to teaching. No doubt, this is a matter that has implications for their level of effectiveness in the classroom.

6.10 Summary

The following points highlight the key findings about NQTs' early school experiences, and reflections on training. They also outline some of the implications:

- College notes and materials continue to be used and thus play an important part in the early professional practice of new teachers. This suggests the value attached to such college inputs, and perhaps also indicates the lack of instructional resources at school.

- Question and answer technique, group work and demonstration are teaching methods preferred by NQTs. But, it is not clear whether this preference means a commitment to use them in practice. Our observations suggest that the use of group work is rather sporadic.

- NQTs suggested they found daily lesson notes preparation useful. This is encouraging. But other evidence suggests that bureaucratic requirements and threats from higher education officials, in particular circuit supervisors, tend to force teachers to treat lesson notes as simply badges for inspection (see Akyeampong et al., 1999). With time the role of notes may become merely cosmetic. According to Fobih et al., (1999) the atmosphere of threats and sanctions, which accompany inspection of lesson notes when circuit supervisors visit schools, risks undermining their role in effective teaching.

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- Head teachers seem to be the providers of frontline professional support for NQTs. However, the support is often in the form of tips and suggestions. We have noted that a more useful approach would be to organise more structured and systematic professional support for new teachers in the early years.

- NQTs suggested that they found college training and actual classroom practice similar. Their examples, however, show they perceived the similarities between the two mostly in instrumental terms e.g. lesson notes preparation, use of instructional materials etc. They seemed less successful in using what they had learned effectively to promote pupil understanding.

- Most NQTs indicated that schools they taught in lacked adequate teaching materials and resources. Head teachers felt that this situation undermined the effectiveness of NQTs. We have argued that situating training more in the context of real classrooms may help new teachers to deal with real teaching and learning problems, such as inadequate instructional materials and resources.

- Community input and support (e.g. helping to find accommodation, occasional gift of food items) appears to make a difference in how well and quickly some beginning teachers adjust to teaching.

- Late payment of salaries – sometimes by as much as 5 months to a year - is a major source of discontent with teaching, which undermines beginning teachers' commitment and dedication. The effect is that some beginning teachers fail to attend classes, are less caring about their pupils, and are unwilling to engage in extra-curricular activities

- NQTs clearly did not see themselves teaching in the long-term, especially when it came to teaching at primary level in rural areas. Most preferred to teach in urban junior secondary schools. Others looked forward to jobs outside teaching or to the opportunity to further their education and become senior secondary school teachers, where it appears teachers enjoy relatively higher status and have better accommodation.

In conclusion, at the early stages of their teaching career teachers are faced with two major problems. First, the problems of working and living conditions appear to affect beginning teachers' morale and distract them from concentrating on classroom teaching. Second, through the lack of systematic induction into teaching new teachers are for the most part left to learn to teach on their own. They get very little or no organised professional assistance as they adjust to teaching.

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To address these two major problems, policy should first address the immediate welfare needs of new teachers. The evidence of NQTs' lack of commitment to basic education teaching suggests an urgent need for policy that would make early teaching experience less stressful and more rewarding. Considering the relatively high investment in training a teacher (only university training is more expensive) ways must be found to encourage new teachers to invest sufficient personal energy in teaching for at least five years. This may mean delaying the entitlement to study leave till after at least five years of service in primary school and making the conditions of service more rewarding for teachers.

Clearly, some NQTs are able to cope better in terms of the professional and social challenges of early teaching, for reasons that are not fully understood. More research may be needed to provide clear answers. But as Feiman-Nemser (2001) has observed,

> no matter what kind of preparation a teacher receives, some aspects of teaching can be learned only on the job. No college course can teach a new teacher how to blend knowledge of particular students and knowledge of particular content in decisions about what to do in specific situations (p. 18).

This important realisation calls for some form of systematic induction into actual classroom teaching, particularly NQTs' need to be shown how to teach under less than perfect conditions e.g. lack of instructional materials, pupil absenteeism, and combined classes that may require mixed ability teaching (see Hedges, 2000). It is also necessary that the teacher training colleges expose prospective teachers to the concrete challenges of teaching in typical Ghanaian schools for longer periods of time, instead of teaching them in the abstract.

Chapter Seven

7 Insights into the Effectiveness of Teacher Training

7.1 Introduction

A central issue of many investigations into teacher education is whether it is producing the kind of teachers who can improve schools and enhance student learning. Another is whether teacher education systems are capable of meeting the increased demand for teachers as enrolment in basic education grows and access improves. For the MUSTER work in Ghana, these two issues were of paramount interest because of the aspirations of the 1987 Education Reform Programme and 1996 Free Compulsory Universal Basic Education reforms. As noted earlier, part of the objective of educational reforms in Ghana was to improve access and participation in basic education, and enhance the quality of teaching and learning outcomes (MOE, 1994). Both had implications for teacher training: improving access and participation meant more teachers had to be trained, and enhancing the quality of teaching and learning meant improving teacher quality through more effective training.

In this chapter, we address the latter by presenting MUSTER empirical data that speaks to the issue of the effectiveness of teacher training.

7.2 Teacher training: what difference does it make?

In the preceding chapters, the characteristics of prospective student teachers and beginning teachers and their beliefs, values and expectations, were explored. Experiences of learning to teach were sought from student teachers and, together with other college-based data, a picture of the philosophy and constraints of teacher training was constructed. Data regarding NQTs also yielded insights into some of their early experiences of teaching, how they viewed their training and teaching, and their strengths and weaknesses as perceived by head teachers.

What has been presented so far gives some indication of the "felt problems" (Kennedy, 1996) of learning to teach, but little about whether and how student teachers might be changing as they become teachers. Knowing whether teacher training is making a positive difference or not is fundamental to any suggestions or recommendations for programme or policy review and the issues it should target. Research shows that some teachers do not view teacher education as particularly influential in terms of changing their attitudes and practices, whilst some teacher training programmes have been known to "…affect the way teachers think about teaching and learning, students, and subject matter" (Feiman-Nemser & Remillard, 1996 p. 65). Thus, in one way or another we need to know whether teacher training is having a positive influence by helping prospective teachers "acquire knowledge, alter their beliefs, gain skills, or develop new attitudes and dispositions … important to teaching practice" (Kennedy, 1996 p. 146), or is not making much of a difference.

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There are many ways to investigate whether or how teacher training makes a difference (Kennedy, 1996). For teacher training in Ghana, we were interested in any signs of positive influence in two spheres: (i) improving the academic knowledge background of student teachers, with mathematics as the example, and (ii) improving the commitments, attitudes and values that might impact positively on professional practice.

7.2.1 Some basic assumptions

According to Kennedy (1996) approaches to investigating the effectiveness of teacher education that focus on changes as student teachers undergo training, have credibility issues to address. For example, changes could be due either to student development or to programme impact. The methodological approach may also account for any changes observed, especially if the same sample is used and "over time they learn not only what will be asked but also how to respond" (Kennedy, 1996 p. 144). By adopting a cross-sectional approach to data collection this methodological threat was avoided.

Other factors extraneous to the college experience might affect attitudes and achievement of trainees. For instance, attitude change might not be progressive since the experience of being an NQT is not managed in any systematic way as a continuum which reinforces training. Including NQTs with two years' experience was meant to explore further the effect of teaching experience and the resilience of teacher training.

In another approach, we compared the teaching characteristics of qualified teachers with those of untrained teachers to explore any qualitative differences. Although this provided further insights into differences that might be attributed to training, because of the rather small sample used (4 untrained teachers) and the difficulty of controlling for other effects (e.g. school characteristics) the results must be interpreted with caution.

7.2.2 Impact of training on mathematics knowledge of trainees[25]

It was noted in chapter 4 that most beginning student teachers have very weak academic grades in mathematics and English. This weakness becomes starker when we examine the chief examiner's reports on trainees' academic performance. For instance, the 1998 chief examiner's report on the final Part 1 basic mathematics certification examinations revealed that, of 5,797 regular candidates, about 50% scored between 0 and 5 out of 30 in a section containing items requiring simple computational skills (Institute of Education, Chief Examiners Report: Mathematics, 1998).

The introduction into the training programme of a first-year course in foundation subjects was intended to improve the academic background knowledge of trainees before they

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[25] See Sokpe & Akyeampong (2001) for extensive discussions.

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embarked on professional training. Students who failed in any one of five subjects after one year of remedial teaching were withdrawn from college. About 600 hundred students were dismissed when this policy was first introduced in 1999.

A study was designed to ascertain whether after a year's remedial work in mathematics, student teachers' mathematics performance would improve significantly. The study had as its accessible population 1,055 first year student teachers from the four colleges used by the Ghana MUSTER project. A hundred student teachers were randomly selected from the 1998/99 student cohort with a proportional stratified sampling technique employed to retain the male/female proportion in each college. The researchers designed two parallel achievement tests consisting of 40 short-answer type items. The items reflected the requirements of the SSS mathematics syllabus as well as the requirements of the 1st year college mathematics syllabus. An outline of topics was prepared and used to develop test items. In the end, the test scores correlated with the trainees' mathematics entry grades, strengthening the tests' validity.

7.2.3 **Summary of Findings:**

a) **Survey:**

From the survey questionnaire about 86% of student teachers said college mathematics tutors stressed deeper understanding of concepts than secondary school mathematics teachers. Also, most (78%) felt their mathematical understanding had improved considerably at training college. About 68% indicated they were able to understand mathematics concepts the first time it was presented in a lesson.

Most college mathematics tutors surveyed (60%) felt the 1st year course had helped to improve student teachers' mathematics competence. About 73% felt training should not split academic subject knowledge learning from pedagogical subject learning. Finally, 60% did not favour dismissal of student teachers after failing mathematics at the end of the first year promotion examinations. Most felt that emphasis should be placed on securing more teaching resources e.g. textbooks and reduced teaching loads to allow more individual attention, which would help to improve the pass rate.

b) **Entry Mathematics Grades and Test Results**

About 40% possessed the minimum grade of E or 6 in mathematics. Also 63% (made up of 55% of the males and 79% of the females) possessed generally weak grades of D and E or 5 and 6.

Entry grade and pre-test score analysis showed a statistically significant relationship between the two. Generally, the stronger the entry-grade the higher the achievement score, and the weaker the grade the lower the achievement score. The relationship was found to be

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moderately strong.

c) Pre-test and Post-test Achievement Scores
The main interest of the study was to see whether after one year of college remedial tuition student teachers' mathematics performance had improved significantly. Table 7.1 shows the mean scores, standard deviation, correlation coefficients between pre-test and post-test scores by college, and paired sample t-test values. The pre-test was administered at the beginning of the first year course and the post-test at the end of the course.

Table 7.1**: Pre-test and post-test scores by college**

College	Pre-test		Post-test		Paired t-test	
	M	**SD**	**M**	**SD**	**R**	**T**
KIF	28.5	13.4	43.2	15.1	0.77	13.2*
COF	24.7	15.6	37.8	17.4	0.88	15.6*
PET	38.8	16.8	48.2	19.2	0.89	11.0*
SEW	35.4	15.2	42.0	17.4	0.87	7.8*
	32.0	16.4	42.8	17.8	0.85	2.43*

* Statistically significant results

A few points are worth noting. With individual college group sizes of about 100 (moderate sample size), statistical significance at the 0.05 level has to be interpreted cautiously. Looking at the size of the mean differences for a score scale which ranged from 5% lowest score to about 80% maximum score in each test, the observed effect (difference between sample means) appears rather small – on average about 11%. Thus, although the results are statistically significant, the practical importance of the difference seem doubtful when compared to the score scale of about 75% points. We can conclude that the observed effect probably reflects a small effect and therefore possesses little practical difference.

The results were also compared on grade category basis: strong graders (SG), defined as those who entered college with grades A-C or 1-4, versus weak graders (WG) with grades D and E or 5 and 6. Table 7.2 shows the results by gender and by grade.

Table 7.2**: Pre-test and post-test scores by gender and performance category (in %)**

College	Pre-test		Post-test		Paired t-test	
	M	**SD**	**M**	**SD**	**R**	**T**
			Gender Category			
Male	35.1	16.1	46.9	17.5	0.85	19.98*
Female	26.2	14.9	35.1	15.6	0.81	11.1*
			Grade Category			
SG	44.6	16.9	56.0	16.8	0.88	15.9*
WG	24.8	10.7	35.2	13.4	0.69	16.3*

* Statistically significant results

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The results showed that both male and female trainees gained on their mathematical performance. Male trainees however, improved more (difference between means is 0.70 standard deviation units apart) than female trainees (difference between means is 0.58 standard deviation units apart).

For both SG and WG, the observed effect is statistically significant. The magnitude of the effect for the WG was much lower than that of SG. For WG, the two means are 0.43 standard deviations apart, whereas the means are 0.67 standard deviation units apart for SG. Thus, improvement was greater for SG than for WG. Overall, both groups made only modest improvements. Thus, although the observed effect of a year's remedial tuition in mathematics in each college was positive, the practical significance of the effect seemed rather weak. Even assuming a criterion cut-off score of 50% (half way score) post-test scores fell below this level except for those with strong entry grades. It is reasonable to conclude that, although remedial tuition in mathematics improves beginning student teachers' achievement level, perhaps more than a year of remedial work will be needed to raise scores to levels that could be considered practically satisfactory. Using the Institute of Education's minimum exam pass cut-off score of 35%, the majority (84%) of student teachers with weak entry grades (D, E, 5, 6) failed the pre-test. Only 2% of weak graders achieved a score above 60%. About 21% of strong graders (A, B, 1, 2, 3) passed and 34% achieved a score above 60%. Post-test score analysis showed that about 58% of weak graders failed the test and only 4% achieved scores above 60%. About 97% of the strong graders passed the post-test. The message is that the academic knowledge of beginning student teachers may be so weak that much more remedial effort and time would be required to raise their performance levels appreciably

College mathematics tutors had explained that they often combined classes to reduce teaching loads and this meant they were unable to give individual attention. College duties for students, e.g. weeding and fetching water, were cited by tutors as perhaps some of the major hindrances to effective teaching and learning. It would appear that to reap the full benefits of one year of remedial tuition, some college practices have to change to free up more time for private study.

7.3 **Changes in becoming a teacher**[26]

A questionnaire was developed and administered to three groups of trainees: beginning student teachers (BST) in their first year of training, final year student teachers (FST) and newly qualified teachers (NQT) with 2 years teaching experience. Each questionnaire had a biographical section relating to age, sex, religion, ethnic group, language spoken at home, family members who are teachers, parents' level of education, occupation and years of teaching before entering training college (see section 2.2.2).

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[26] See Akyeampong & Lewin (2002) for a detailed account

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The last section of the questionnaire, which was used to evaluate changes in becoming a teacher, contained statements to which respondents could indicate agreement and disagreement using a four-point Likert format with categories from "strongly disagree" (scored 1) to "strongly agree" (scored 4). The items were chosen to reflect important topical issues relevant to teacher education and the teaching profession in Ghana, and were discussed with various reference groups of lecturers and teachers before deciding on a final collection.

A factor analysis was performed on the responses to the statements to see whether preliminary conceptual grouping was confirmed by statistical analysis. Six factors emerged from this analysis and are:

Status: Commitment/enthusiasm for teaching
Teacher Control: attitude towards class control and discipline
Placement Preference: readiness and suitability to teach at different schools
Teaching and Learning 1: attitudes to teachers and teaching
Teaching and Learning 2: attitudes to group work
Teaching and Learning 3: attitudes to learning

These themes are groupings justified by the patterns of response with some conceptual congruencies, and represent groups of items where response patterns intercorrelated. This in itself does not mean they constitute unambiguously linked constructs in trainee teachers' minds. They are used here to organise the discussion.

A one-way analysis of variance (ANOVA) was conducted to evaluate the differences between the 3 independent variables represented by the three groups (BST, FST and NQT). Initially, mean responses to the 18 statements were compared across the three groups. ANOVA confirmed that there were differences in agreement between the three groups for 14 out of the 18 statements[27]. (See Appendix 1). No significant difference means that the three samples did not appear to differ at the 5% level, indicating that patterns of response were similar between the samples. Follow-up tests were conducted to evaluate pairwise differences among the means of the 14 statements. The results of these tests, as well as the means and standard deviations for the three groups, are reported in Appendix 1.

7.3.1 **Summary of Findings:**

The findings are presented under the six factor groupings.

a) Status
Beginning student teachers (BST) tend to agree most with the statement that "being a

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[27] Statements 2, 6, 13 and 17 showed no differences.

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teacher is the best job I can get" when compared with final year students (FST) and NQTs. The differences are significant and progressive, indicating that at the end of training fewer agreed, and the trend continued for NQTs. Mean scores for the statement, "I would rather have gone to University than Teacher Training College" suggest that NQTs are most likely to say they would have preferred university and BSTs least likely. The response to "friends think I'm fortunate to be [training as] a teacher", suggest that BSTs believe this more often than either of the other two groups. NQTs are not statistically different to FSTs. For "I would rather get a higher qualification and do a different job than remain in teaching" BSTs disagree, whilst the other two groups agree. In relation to feelings that "teachers today are more respected than they were before" FSTs and NQTs are most likely to disagree.

The evidence in relation to attitudes to teaching as a profession is not very encouraging. It is suggestive that positive attitudes to teaching deteriorate as trainees pass from BSTs to FSTs and become NQTs. The trends appear marked and move from a majority positive to a majority negative. Many explanations are possible. It may be that as students acquire more exposure to the realities of teaching in primary schools they become less idealistic, and for some this encourages a lessening of commitment to teaching and a weakening in their beliefs about the status of the profession they are entering. MUSTER qualitative evidence regarding student teachers' teaching practice experience suggests that once exposed to real classroom teaching there is a "reality shock" leading to belief that teaching is more demanding than had been made to appear during college training (see chapter 5). As a result some student teachers felt frustration and disappointment with their initial teaching encounters. It may be that the training programme does not expose student teachers sufficiently to the realities of teaching in ways that help them to maintain high levels of motivation. It may also, as noted earlier, be that problems with unsuitable accommodation, challenges of working in deprived communities, and conflicts with community members over poor pupil performance, begin to undermine motivation and commitment. So also may peer comparisons with colleagues who did not go into teacher training and who may appear to have more attractive occupational futures. It may, of course, be that the changes would be even more negative if training was not taking place, but this is impossible to demonstrate from this data.

Finally we can note that the positive attitudes to teaching shown by BSTs may not be quite what they appear at first sight. Earlier in chapter 4 we noted that beginning student teachers often explained their interest in teaching in terms of the opportunities for social and academic advancement that arise through "study leave with pay" after a short period of teaching. As noted there, trainees were open about their intentions to move out of primary teaching whenever the opportunity arose. With the difficult circumstances of primary teaching and its generally low status in Ghanaian society (Bame, 1991; World Bank 1996) it is perhaps not surprising that FSTs and NQTs aspire to get higher qualifications and teach in a senior secondary school, or do a different job.

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b) Teacher Control

BSTs and FSTs are similar in their responses to the item concerning the extent to which caning "is necessary to maintain discipline", with most disagreeing. NQTs predominantly agree and are significantly more likely to support this view. BSTs and FSTs agree that "caning will not help children do better". Again NQTs differ and are more likely to disagree, though in this case their mean score suggests that a small majority remain in overall agreement.

The real shift therefore is between those in training and those in schools for two years. Plausibly this is the result of experience in the schools, where caning is not uncommon and is widely condoned though officially frowned upon. Student teachers appear to have more liberal views on the subject than NQTs. Beginning student teachers' recollections of their worst school experience often featured corporal punishment in the form of caning and this may be why they were predisposed against its use.

NQTs tend to favour using the cane to maintain discipline, reflecting common practice in schools, and perhaps the lack of effectiveness of their training to use other methods of classroom control. Hedges (2000) points out that most new teachers working in rural Ghana believed in the use of corporal punishment to address problems of ill-discipline. The following quote from a female teacher is illustrative.

> Well, we have been made to understand that corporal punishment is very bad in the classroom especially when you are using the cane to beat the child, but you see some of the children are just hard nuts, I mean if you talk to them in the form of counselling, unless you use the cane, they don't care … In fact, talking to them sometimes we didn't solve the problems but just giving them some whips will…
> [Female teacher in a rural JSS, quoted from Hedges, (2000)]

There is a tension between practice, which often favours some corporal punishment, and training and official policy, which discourage it. NQTs may take their cues more from school norms than from the advice they receive in training colleges.

c) Placement Preferences

Three statements dealt with preferences for placements in schools and whether males and females were likely to be equally capable teachers. The responses to the statement, "newly qualified teachers should teach where they like" produced strong agreement amongst FSTs. BSTs and NQTs responses were similar to each other, and different to FSTs in their level of agreement. The most obvious explanation of this is that FSTs are most concerned since they are about to be posted. NQTs may have either resigned themselves to the postings they have accepted, or found ways to acquire the postings with which they are comfortable, and are evenly split between those who agree and disagree. Field research evidence indicated that

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often NQTs posted to rural districts managed to secure transfers to semi-urban or urban districts. Some head teachers were sympathetic to NQTs' desire to move to more urban districts, considering the hardships encountered by many, especially female NQTs (Hedges, 2000).

BSTs are more likely than FSTs not to have a preference for the level they will teach at ("I don't mind whether I teach at the JSS or primary school level"). Differences between FSTs and NQTs are not significant. BSTs are most likely to agree that males and females "are equally capable of teaching in primary schools". The differences in mean scores across all the groups for this item are small and indicate strong overall agreement that males and females are equally capable.

d) Teaching and Learning 1

The next group of items explored attitudes to slow learners, teachers' competencies, innovation in schools, and the perceived difficulty of teaching. Two items – "teachers can't do much to improve the performance of slow learners" and "it is difficult to bring changes in school as a teacher" - showed no significant differences in response between the groups. In the first case the mean scores were very low, suggesting a high level of disagreement across all groups. Mean scores were also low in the second case. These responses indicate some optimism about the extent to which new teachers feel they can improve achievement, and introduce more effective teaching methods that might enhance achievement.

MUSTER analysis of the college curriculum in action suggested that dominant approaches stressed prescriptive teacher behaviours, rather than critical reflection and personal agency in teaching (noted in chapter 5). Thus although trainees may believe that they can improve learning it may be that they need much advice and assistance in converting the aspiration into viable teaching strategies.

The two other statements produced significant differences. BSTs are less likely than FSTs to believe that teachers are "born not made". FSTs and NQTs hold this view more frequently. It may be that if beginning teachers find their early career experiences stressful, their belief strengthens that some are more suited than others to the profession, independent of the training they receive.

BSTs are less likely than FSTs and NQTs to feel that teaching "is more difficult than many other jobs". Thus those with more training and experience appear more likely to believe that teaching is more demanding than many other occupations. Perhaps the teaching problems experienced by both FSTs and NQTs e.g. poor English language background of pupils, pupil absenteeism and its effect on instruction etc. (see chapters 5 & 6) had assumed greater importance in their minds as they experienced the realities of coping with their consequences.

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e) Teaching and Learning 2

Two items, "school children learn best when in small groups" and "it is difficult to teach children of different abilities unless they are grouped", were used to see if attitudes to group work appeared to change. In the first case there was very strong overall agreement that did not vary between the groups. In the second, FSTs and NQTs were more likely to agree that grouping was necessary for effective teaching. But, generally, strong preferences for group work persist across all groups.

School and college observation data indicated that in reality the use of group work, as a teaching strategy, is fragmented and sporadic. It seems that the training curriculum does not provide many examples of the ways in which group work can be organised given the logistical and spatial constraints of most Ghanaian classrooms. Neither does college work often take this form. Thus though group work is a theme emphasised during training as a teaching strategy and is rated highly by both student teachers and newly qualified teachers, this may be more a reflection of an aspiration than a commitment to using the approach.

f) Teaching and Learning 3

Two statements – "the most important thing a teacher can do is to teach pupils facts" and "school pupils learn more from asking questions than from listening" - addressed pedagogic questions. In the first case there was a strong difference in level of agreement between BSTs, and FSTs and NQTs. Enthusiasm for teaching facts appears to diminish with training and time (though observational data from classrooms suggests this might be more rhetoric than a reality). Nevertheless levels of agreement as represented by mean scores remained high, even for FSTs and NQTs, suggesting it represents a dominant perspective.

Responses to the second item produced no significant differences across the groups, though there was strong overall agreement that question-based teaching methods were desirable. MUSTER FST and NQT survey data suggests that the use of question and answer technique in teaching is a valued practice and emphasised during the college training (see chapters 5 & 6). This could explain the reason for student teachers and beginning teachers valuing highly question-based teaching.

The emphasis on teaching as presentation of facts is not necessarily inconsistent with a preference for using questioning as a teaching strategy. The questioning may of course be predominantly focused on factual recall. The emphasis on teaching facts reflects the deeply entrenched tradition of knowledge transmission practised in Ghanaian schools (cf. Akyeampong et. al, 1999).

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7.3.2 Conclusions

What conclusions can we draw from the analysis of data on changes in becoming a teacher? First of all, the initial expectations – that there would be progressive changes in directions consistent with the aspiration of the teacher education curriculum – are at best only evident in a few of the results. A host of reasons may be advanced as possible explanations of the trends. One plausible reason is that changes or lack of changes are predominantly grounded in realities exogenous to the college training process. Another could be the result of less than effective curriculum planning and realisation in the colleges.

In reality, what will transform teachers into effective practitioners may not just be simply the result of effective curriculum planning and realisation, but must include the support of other policies that together work in concert to promote positive change in becoming a teacher. For example, it is clear that most beginning teachers find the early years of teaching quite difficult, mostly because of inadequate professional and social support, e.g. the late payment of salaries, accommodation needs and lack of proper induction into teaching. Therefore, beginning teachers often find themselves in a "sink or swim" situation that could further deepen disappointment with teaching, especially primary teaching in rural areas. Policies need to be enacted that seek to support the professional and socio-economic well-being of new teachers and to foster greater commitment and interest in teaching. Even if the benefits are not sustained, at least for the few years that they remain in teaching their energies will be directed more towards helping children learn than focusing on survival.

Finally, the complexity of the changes that might be occurring in becoming a teacher suggests that we do not locate all the training needed to become an effective teacher at the college level. There is the need, as others have observed, to "conceptualise the content of learning to teach and to sort out what can best be taught and learned at the college level prior to teaching, what can best be learned through guided practice in someone else's classroom, and what should be learned through structured induction support, and what depends on learning from teaching over time" (Feiman-Nemser & Remillard 1996, p. 66).

In conclusion, although it is important for Ghanaian teacher training to make a significant impact on student teachers that reflects the needs and realities of teaching, other policies and practices are essential to promote teacher commitment and development. Evaluating the overall evidence regarding changes in becoming a teacher, we can conclude reasonably that teacher training may only make a limited difference even under the most effective curriculum planning, because of the impact of other forces that influence how teachers behave and what they do in real professional settings. Thus, quite apart from improving the curriculum to make it more practice-based, our conceptualisation of teacher training needs to expand and, critically, to include systematic professional support for beginning teachers to sustain the positive influence of training.

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7.4   Comparing trained teachers with the untrained

We undertook to compare the instructional qualities of four untrained teachers with seven trained teachers in the Cape Coast district. These teachers, and their school authorities, had agreed for us to observe and interview them. Both group of teachers were observed and later interviewed, so we could arrive at some description of the characteristics of their instructional practice, and form some tentative conclusions about the main differences between the two groups.

Two of the untrained teachers were GCE 'O' level holders, while one was a polytechnic graduate. The fourth had attended a technical institute[28].

Table: 7.4**: Numbers of trained and untrained teachers observed**

Class	Trained	Untrained
P1	-	1
P2	-	-
P3	-	1
P4	2	1
P5	1	1
P6	4	-

Each teacher was observed 2 or 3 times. The observations covered English, mathematics (for all teachers) and either social studies/environmental studies or science. One teacher (female) was observed teaching a Ghanaian language lesson. All of the teachers were teaching in an urban area.

7.4.1 Summary of Findings

The four untrained teachers showed great interest in teaching, as did the sample of NQTs, and felt that although initially they found teaching difficult, with time they had come to enjoy it. All untrained teachers described their best lessons in terms of the subjects they liked best and had enjoyed studying at secondary or technical school. Two quotes illustrate this when they offered reasons for their competence in teaching:

> I am very much interested in social studies because when I was in school I did Government

> … Because I was good in Mathematics at school, and I had grade 2 in it at the 'O' level

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[28] Some Technical institutes are pre-tertiary but Polytechnics are classified as tertiary institutions.

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Thus, for the untrained teacher, competence in teaching seemed to depend largely on expertise in academic subject knowledge. The trained teachers also saw subject knowledge competence as important but what distinguished them from untrained teachers was the additional emphasis they placed on pedagogic knowledge as essential to teaching. This seemed to mark an important difference between the two groups. Untrained teachers felt they were particularly handicapped in the preparation of lesson notes, whereas trained teachers felt training had adequately exposed them to the purpose and writing of lesson notes for teaching. But the untrained teachers felt they were "catching up" on this professional skill, with support from their head teachers who were concerned that they acquired the skill. However, the quality of head teachers' professional support for new teachers seemed inadequate. For instance, one untrained teacher had pointed out that his head teacher had presented him with a copy of a lesson notes plan and said to him, "do it like this one". Clearly, the relevant knowledge that informs the skill will be missing in this approach.

Untrained teachers emphasised the value of "on the job training" and not surprisingly cherished the little in-service training they had received. One of them pointed to a short course organised for primary 1 and 2 teachers on pre-reading skills that exposed him to useful techniques for teaching reading.

During classroom observation, we noticed that untrained teachers often made faulty starts, which persisted throughout their lessons for most of them. Also we observed problems with their teaching methods. For example, group work was often poorly organised. Pupils in some groups were not attended to by the teacher to facilitate progress in their task, while others were not given any opportunity to manipulate the teaching-learning materials the teachers had supplied.

In contrast to trained teachers, we noticed that untrained teachers habitually encouraged "chorus reading" in their English lessons. For example, a primary 1 untrained teacher started a lesson by reading out aloud (not looking into a text) the dictum, *"there are seven days in the week. These are, Monday, Tuesday…"* followed by pupils repeating in chorus. Later, pupils were invited by the teacher to "read" aloud what had been recited.

To gain insights into the kind of advance preparation both trained and untrained teachers made before teaching we examined their lesson plans. Three of the untrained teachers had made no advance preparatory notes before teaching. On the other hand, all trained teachers had carefully written notes, although in two cases we noticed that some important features of their lesson plans were not practised. For example, although instructional materials had been specified in the lesson notes for use in the lesson, they were not available throughout the lesson.

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Although the study was limited in providing in-depth insights regarding qualitative differences between trained and untrained teachers, nevertheless we can reach some preliminary conclusions. The untrained teachers appeared more confident in their subject knowledge, but clearly lacked the professional knowledge and skills to enhance their teaching. Trained teachers, on the other hand, exhibited some of the qualities of teacher professionalism emphasised in training e.g. writing lesson plans, applying instructional materials to good effect etc.

Untrained teachers referred to the "on the job" support they received as making up for their deficit in professional knowledge. But the effectiveness of this support appears doubtful, since basically the support amounted to receiving occasional tips from head teachers.

More focused in-depth studies will be needed to establish if there are clear differences between trained and untrained teachers, and if so, what these consist of.

7.5   **Summary**

This chapter began by asking whether initial teacher training in Ghana makes a difference in improving subject knowledge background, and the dispositions, attitudes and beliefs important in becoming a teacher. The evidence provided by our data suggests that the effect of training might be rather weak. One thing is clear, trainees' weak background in subject knowledge, as shown in the mathematics achievement tests, can hardly be improved after a year's remedial teaching. The problem with this is that weak subject knowledge background could undermine confidence in teaching, thus limiting the opportunity for pupils to be guided into deep learning and understanding of subjects. If teacher training is not attracting the best candidates, in terms of academic achievement, and is unable to raise the achievement levels of those it attracts, then it faces a big dilemma. Addressing this problem effectively may lie outside the immediate domain of teacher training institutions, although these institutions should also share in the responsibility to improve the situation, through better instruction in the subjects. However, because senior secondary schools supply candidates for teacher training, educational policies must look at how teaching and learning there can be significantly improved, because it is clear that better qualified candidates make the most improvement after remedial instruction.

Similarly, the influence of training in altering beliefs, and developing new attitudes and dispositions, does not appear strong. The point has been made that we need to become clearer about what pre-service teacher training is reasonably capable of achieving, so that the investments in it can be justified. As it stands, it is difficult to pinpoint clear demonstrable evidence of its impact, although further studies may be required to draw firmer conclusions on this issue.

Chapter Eight   8 Teacher Training and Future Teaching Demand

8.1   Introduction

As explained in Chapter 1, FCUBE reforms have set some important targets to improve basic education in Ghana, one of which is to improve access and participation in basic education. This objective has a direct implication for teacher training, as it means more trained teachers would have to be available as access and participation rates go up. The question that this chapter addresses is whether the teacher training system in Ghana is capable of producing sufficient numbers of teachers to meet future demand. The chapter also explores what alternatives may be considered to increase output.

8.2   Estimation of future demand of teachers in Ghana[29]

The Ghana MUSTER carried out an estimation of future demand for teacher training over a ten-year period. Tables 8.1 & 8.2 show the results of this analysis using a number of basic assumptions.

First, the rate of growth of the age cohort was maintained at its historic level of 4%. Second, the pupil-teacher ratio remained at 36:1 and teacher attrition[30] was estimated to be 5% annually. Third, gross enrolment rate was estimated to remain constant at 72% in primary and 58% in JSS. The number of new teachers that would need to be trained each year is indicated in row 10 for 2000, 2005 and 2010. The additional numbers that would be needed to achieve a GER of 100% are indicated in row 12. Lastly the numbers of untrained teachers requiring training are indicated in row 13. Table 8.2 reports the same projections for JSS.

The results of these projections reveal the following:

1. If the PTRs and GER remained constant, annual demand for new teachers would rise from 5,700 to 9,100 at primary and from 3,400 to 5,400 at JSS i.e. a total of 9,100 to 11,300 over the period from 1998 to 2010.

2. If all untrained teachers were to be trained over a five year period then demand for training, but not new teachers, would increase by about 2,500 at primary level and 1,000 at JSS[31] or 3,500 a year.

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[29] For a more extensive discussion see Akyeampong, Furlong & Lewin (2000)
[30] Teacher attrition rates are difficult to estimate. Over the period 1988 to 1998 Mereku (2000) estimates that training colleges produced 54,100 teachers who were posted to the basic school system. This figure represents those posted. There is no data on how long they may have remained in these postings or if they actually took them up. Ten years later the number was 83,600 – an increase of 23,900 or 40%. Thus the rate of increase in the number of trained teachers employed over this period was a little below 4%. On the other hand, the rate of posting of NQTs was averaging about 9% of the number of trained teachers employed over this period. The difference (9-4%) gives an estimate of the underlying rate of trained teacher attrition from all causes.
[31] This would also temporarily increase the demand for new teachers assuming that replacement cover was organised for those in training.

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3. Total annual demand for new primary and JSS teachers would rise from about 12,600 a year at the beginning of the projection period to 15,500 in 2005 (the last year of training of the untrained), and to 14,500 by 2010 (after all untrained teachers have been trained). This can be compared to the current total output of about 6000 per year from the 38 training colleges.

Table 8.1**: Future Demand for Teachers at Primary Level**

	Year	1998	2000	2005	2010
1	Age group 6 years	582223	629732	766166	932158
2	Primary population 6-11 years	3155758	3413268	4152762	5052470
3	Primary Enrolment	2288768	2475531	3011863	3664391
4	Qualified Teachers	50964			
5	Unqualified Teachers	12725			
6	No. Teachers needed at PTR of 36:1	63577	68765	83663	101789
7	No. of teachers in post	63689			
8	New Teachers needed as a result of population growth	2543	2751	3347	4072
9	Teacher attrition at 5%	3179	3438	4183	5089
10	Total annual demand for teachers at constant GER of 72%	5722	6189	7530	9161
11	Total number of teachers needed for GER of 100%	87660	94813	115355	140346
12	Additional numbers needed to raise GER 72% to GER100%	24083	26048	31692	38558
13	No. unqualified needing training	12725			

Table 8.2**: Future Demand for Teachers at JSS Level**

	Year	1998	2000	2005	2010
1	JSS population 12-14 years	1309780	1416658	1723581	2097000
2	JSS Enrolment	755162	816783	993742	1209039
3	Qualified Teachers	32647			
4	Unqualified Teachers	5081			
5	No. needed at PTR of 1:20	37758	40839	49687	60452
6	No of teachers in post	37728			
7	New Teachers needed as a result of population growth	1510	1634	1987	2418
8	Teacher attrition at 5%	1888	2042	2484	3023
9	Total number of teachers needed at constant GER of 58%	3398	3676	4472	5441
10	Total number of teachers needed for GER of 100%	65489	70833	86179	104850
11	Additional numbers needed to raise GER 58% to GER 100%	27731	29994	36492	44398
12	No. unqualified needing training	5081			

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These levels of demand for training are substantially above current capacity. But these estimates could be too high or too low. We considered factors that might increase or reduce demand.

First the factors that might increase demand:

i)   Trained teacher attrition rates may be greater than the 5% assumed, especially for JSS teachers. If greater numbers take up opportunities for study leave and higher-level training, they may move out of the basic education sector altogether. MUSTER qualitative data suggests that certainly there is a strong desire for further training that would move teachers up the school level ladder or out of teaching altogether.

ii) Attrition rates related to HIV/AIDS may rise. In other countries prevalence of infection is greatest amongst the age group into which teacher education students fall. If attrition rates were to reach 10% the number of new teachers needed each year at constant GER and PTR would increase from about 7,100 to 11,700 at primary, and from 4,500 to 7,000 at JSS by 2005. This would create an additional demand of about 7,100 per year by 2005 to be added to the numbers needed, given 5% attrition, leading to a total demand of over 20,000 a year.

iii) Drop out rates appear high from P1 to P2 and from P6 to JSS1. According to MOE statistics, drop out rates appear to have been falling from an average of about 8% to lower levels (MOE 2000). This could have the effect of increasing the number of students in the system. If the PTR were to remain constant the demand for new teachers would increase, as would the gross enrolment rate. The magnitude of this effect is uncertain but it could add substantially to the annual demand for new teachers. If average drop out fell by 1% per year at least 1,000 new teachers a year would be needed. If the historically high drop out between P1 and P2 was dramatically reduced the number needed would be much greater.

Next, we considered factors that might reduce demand for new teachers:

i)   The rate of growth in the school age cohort may slow down. This rate is determined for the next six years by those already born. In the long run a fall from 4% to 3% would reduce demand for new teachers by 25% but this would only have its full effect nine years after the age group began to shrink. For medium-term planning, reductions in birth rate occurring now are unlikely to be significant.

ii) If repetition is reduced, then the flow of pupils through the school system will accelerate, reducing total enrolments. However, repetition in Ghana is already low and appears to be no more than 2%, as a result of automatic promotion. The effects of any

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reduced repetition will therefore be marginal.

iii) If pupil-teacher ratios were allowed to rise, the demand for new teachers would diminish. We simulated the effect of allowing PTRs to increase from 36:1 to 40:1 at primary and 20:1 to 25:1 at JSS whilst maintaining constant GERs and a 5% attrition rate. The result was that the numbers of new teachers needed annually would fall from 7,500 to 6,800 at primary and from 4,500 to 3,600 at JSS by 2005, a total reduction of about 1,600. It should be remembered that class sizes are often between 25%-50% greater than PTRs at primary level, and 50% to 100% greater at secondary, as a result of teacher-class ratios being greater than 1:1. Increases in PTR are therefore not desirable.

In summary the demand for new teachers, and training to reduce the backlog of untrained teachers, is more than double current output from the training colleges (currently 41: 3 private and 38 public). If attrition rates rose to 10% demand would rise to three times current output if PTRs are maintained at current levels.

The prognosis appears more challenging if FCUBE is to achieve its objectives. If a conservative target is chosen (i.e. the achievement of GER 100% by 2010 for primary and JSS, representing the condition where there are enough school places for all children of school age[32]) additional teachers are needed over and above these estimates which assume that GERs remain constant. The total additional number needed rises from about 24,000 to 39,000 at primary and from 28,000 to 44,000 at JSS over the period from 1998 to 2010. Translated into annual additional demand, something like 7,000 more new teachers would be needed each year to achieve GER of 100% at primary and JSS, over and above those needed to maintain current GERs. This implies a total annual demand of 22,000 to 29,000 depending on the attrition rate chosen. Once GER of 100% was achieved demand would fall back to replacement levels of about half these amounts.

We explored what the implications of these projections were for the teacher training system in Ghana.

8.3   Teacher demand: implications for the teacher training system

From the above analysis it is clear that the teacher training system in Ghana would need to increase its output substantially if PTRs are not to increase and the proportion of untrained teachers is to be reduced. Second, the magnitude of increases needed appears quite substantial - between two and three times current output will be needed to maintain the existing GERs, and to cover demand generated by population growth, attrition and reduced drop out. Third, achieving GER of 100% by 2010 would require an increase in output of three to four times current levels. Fourth, these levels of demand could not easily be met by

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[32] See Colclough with Lewin (1993) for a full discussion of "Education for All" goals and their definition.

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expansion of the current system. It is not feasible to assume that the 6% of the education budget allocated to teacher education could be raised to the levels necessary. Nor is it plausible that increased internal efficiency could result in gains in output of these magnitudes.

Several strategies could address the questions raised by this analysis and the issues identified in the earlier description of the teacher education system. The options can be put in the following way.

1. Increase allocation of resources to teacher training.
2. Increase access to pre-service teacher training colleges by increasing intake of students whilst continuing to encourage the recruitment of untrained teachers, and simultaneously develop an effective in-service system to train them. In other words, operate two routes (of equal quality) to professional teacher qualification.

The remaining sections of this chapter present the different implications of these two options.

8.3.1 Increase allocation of resources to teacher training

In chapter 1 we noted that the share of the recurrent budget that teacher education takes has been rising. Few countries allocate more than 6% of national educational spending to initial teacher education. Currently 6% of the recurrent budget amounts to about US$14 million. If initial teacher training were to be prioritised within FCUBE, it is conceivable that the amounts allocated could be doubled or tripled for a period until the achievement of universal enrolment and a fully-trained teaching force working in schools at appropriate levels of pupil-teacher ratio. This observation indicates that the financial challenge is not insurmountable.

Two other observations are also worth noting. Firstly, even if the financial resources available to the current teacher training system were expanded, it does not seem that the system has the capacity to double or triple enrolments. It should not be assumed that simply increasing the scale of the existing system is the best option, given the evidence that MUSTER has accumulated on its efficiency and effectiveness.

Secondly, it is important to note that a considerable volume of resources is currently directed towards the upgrading of qualified primary and JSS teachers through to diploma and graduate status. These programmes are mostly full-time residential courses with direct costs and a teacher replacement cost (i.e. every student is costing more than twice their gross salary to upgrade). MUSTER studies clearly reveal that most teachers wishing to upgrade tend not to want to return to primary and JSS teaching. Investments should rather be made

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in the training of untrained teachers. This is discussed further in the next section.

The key question that we feel has to be addressed is: whether some of the public resources currently being used for upgrading should be redirected in the short term to initial training and in-service training of unqualified teachers, some of whom may be the most committed. This would, at least, allow the GER to increase and maintain the pupil-teacher ratios at existing levels in line with FCUBE objectives.

8.3.2 Increase access by increasing intake (the "In-in-out" model) and training untrained teachers

As was noted earlier (see chapter 5), the costs of the current system of teacher training based in the colleges are substantial. Each trainee incurs a direct public expenditure of about $700 per year, making the cost of training a teacher about $2,100 over three years. During this time trainees do not teach, except during their teaching practice. There is therefore a notional opportunity cost of three years of a primary teacher's salary (about $600 per year = US$1,800) to be added to the $2,100 if a full costing is to be made.

The three-year in-college programme constricts the system from expanding as it is restricted by the capacity of the colleges. Movement towards curriculum and activity structures that situate a greater part of learning to teach in classrooms might free up college space for increased intake. The adopted "In-in-out" system looks like providing an opportunity to increase student numbers.

First, we estimated that under the "In-in-out" model, the output of the colleges would increase by 50% assuming college plant were utilised at the same level of intensity as has been happening. New trainees could be admitted during the "out" year. Thus each training cohort across the college system would increase from about 6,000 to about 9,000. After three years, annual output would rise to 9,000 with the completion of training of the existing cohorts.

The "In-in-out" system of training has the potential of raising the number of teachers produced, although other measures will be required to make it less costly than the full three years in-college system. As it stands, the efficiency of the training colleges is limited by cost and curriculum constraints. The way that the colleges are built and run on traditional lines as secondary schools undermines their ability to increase enrolment at costs that can be sustained.

Training colleges could be zoned to offer afternoon remedial training for untrained teachers on a "modular" course system. It would be most beneficial if the curriculum of such training is closely linked to the on-going classroom teaching experiences of these untrained

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teachers. This would make it more practice-based and relevant to their classroom settings. To achieve professional parity of esteem, the curriculum for untrained teachers should be of similar quality to the regular "In-in-out" route. If teaching is made both interesting and attractive some may consider entering the profession through the "modular" route which could be structured to last for a year. As we have pointed out in this report, it is important that other incentives are instituted to make such a proposition attractive to students. Thus, the "modular" route can be used to train the current crop of untrained teachers and eventually become a viable alternative route to a professional career in teaching.

The discussions in this chapter clearly show that the teacher training system in Ghana may be in need of radical changes to meet the aspirations of FCUBE, especially in the supply of trained teachers. Although many assumptions have been made to explore the implications of our projections of teacher supply and demand, they have helped to set the stage for possible alternatives for the teacher training system in Ghana. In the next chapter, we draw on all the evidence accumulated by the MUSTER studies in Ghana to present some recommendations for moving the enterprise of teacher training in Ghana forward.

Chapter Nine   8 The Way Forward

9.1   Introduction

In chapter 1 the challenges facing teacher training in Ghana were clearly spelt out. The first set of issues dealt with problems of teacher quality, and the second raised questions about the capability of teacher training, as currently structured, to deliver the quantity of teachers required at cost-effective levels to meet targets set by education reforms. But, as was noted, these issues point to deeper challenges of teacher training reform that touch on certain fundamental issues concerning the professionalisation of teaching. For example, the philosophy of learning to teach espoused by teacher training systems can send powerful messages about the professional responsibility of a teacher in the classroom. This may be negative or positive. The MUSTER analysis of college curriculum in action suggested that the dominant approaches stressed prescriptive teacher behaviours, and this was reflected in the conception of practice of many newly qualified teachers. In this report, it has been argued that this conception needs to change to a discourse of teacher training which can promote a deeper contextualised understanding of teaching, and which can empower teachers to tackle the challenges and problems of actual teaching in the majority of Ghanaian schools. These, among others, are critical issues that need to be addressed to make teacher training count in striving for educational quality at primary and JSS levels.

In this final chapter we summarise under certain key themes the salient issues that have emerged from the MUSTER work and what they point to.

9.2   Key emerging issues

Curriculum related:

*   The evidence from the MUSTER project suggests the need for curriculum planning that can maximise the benefits of learning to teach in a school-focussed context. This requires much more than simply situating most of the training in the school context for trainees to be familiar with the challenges of teaching. Rather, a school-focussed curriculum for teaching needs to be purposely structured to engage prospective teachers in finding practical solutions to real problems of teaching.

*   A more serious view needs to be taken of prospective teachers' beliefs when planning the curriculum for teacher training. Student teachers enter teacher training with very rich images of teaching and teachers. We have argued that the discourse of teacher training needs to find ways to engage with the images and expectations of beginning student teachers.

*   The MUSTER analysis of the college curriculum in action shows that transmission methods of learning to teach are prevalent and this needs to give way to a more

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interactive approach in order to enhance prospective teachers' personal agency in teaching.

- Prospective and newly qualified teachers all singled out teaching practice as the most relevant aspect of training. However, the way in which teaching practice is organised and supervised seems to limit the impact it could have on developing practical insights into teaching. The philosophy of learning to teach is sharply compartmentalised as a two-step process: college learning of theory followed by teaching practice. This creates in both student teachers and beginning teachers the mindset that teaching is first learnt in the abstract and later applied in classrooms. We believe that this does not allow sufficient understanding of how to blend knowledge of particular pupils and knowledge of particular content in decisions about what to do in specific situations. Furthermore, extending the duration of teaching practice is not necessarily the solution, as student teachers and beginning teachers appear to think. Rather, what needs to be done is to enrich teaching practice, by presenting teaching as a process of responding to actual classroom challenges, thereby creating better links between theory and practice.

Structure and outcome of training:

- There is a total lack of commitment by the education establishment to the early years of the beginning teacher's professional life. Three years in formal training does not produce the kind of changes expected or necessary to lead to an effective teacher. MUSTER evidence about changes in trainee teacher attitudes suggests a decline in their interest and commitment to teaching with time and experience. Training opportunities need to be designed to foster positive attitudes to the demands of teaching. This means providing more structured professional support for NQTs in the early years of their teaching career.

- The shift towards a longer period of training in school, as planned through the "In-in-out" model, is sound from a professional perspective, but other supportive changes will be needed to reap the full benefits. Spending more time training in school does not necessarily translate into better quality teacher training. To be effective, the curriculum of school-based training should provide learning experiences which actively draw trainees into critical dialogue with teachers and other local professionals responsible for school supervision and management. The goal of this would be to develop in trainees a situated understanding of how theory can be transformed into practical knowledge for effective classroom practice.

- Teacher training is too expensive to leave the outcome in doubt. Trend analysis suggests that the cost of training a teacher is only exceeded by the cost of training a university student, and that the cost keeps rising. MUSTER data does not give definitive answers

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to the question of the quality of training outcomes. Nevertheless, the insights from student teachers' and NQTs' experience, and the sense they make of it, suggest there is room for improving the quality of training and its outcomes.

- The one-year remedial course may not be sufficient time to turn around the weak academic knowledge background of most student teachers, as the mathematics achievement results indicate. Raising the academic entry qualification may seem like the appropriate action to improve this situation, but this could also threaten supply. This remains one of the biggest challenges that would face teacher training in Ghana, as generally the profession appears unable to attract the best academically qualified candidates. One approach is to promulgate specific subject knowledge standards that trainees are required to meet before initial certification, and to give trainees the opportunity to meet these standards in the course of their training, or soon after. Thus, the policy of withdrawing first year trainees after failing the promotion examinations needs to be reviewed, since the evidence suggests that in one year they may not have gained sufficiently from remedial tuition to improve significantly. Alternatively, more effort must be made to make the first year training more efficient, by reducing the wastage in training time.

- From a comparison with a limited sample of untrained teachers, training does appear to improve some aspects of professional practice in trained teachers. How much of this actually makes a difference in pupil learning and achievement is unclear from the evidence gathered. More detailed research is needed to provide clear and conclusive answers.

Costs and financing:

- Clearly, the structure of costs needs reviewing so that funds can be more efficiently utilized. MUSTER estimates suggest that typically across the college sector about 75% of direct costs are in student stipends, from which about 40% is deducted at college to run the colleges, 20% in college salaries split between teaching and non-teaching staff about 60/40, and about 5% in non-salary expenses. As this report has noted, the structure of training costs have important implications for teacher supply. Unless bold initiatives are taken to maximise the benefits of the cost and financing of initial teacher training in Ghana, in terms of increasing the supply and quality of teachers, the future of basic education will remain bleak. In this report we have put forward a number of suggestions on this issue, but these are by no means exhaustive. One approach could be to place trainees in the "out" phase in the same schools where they would eventually begin their first year teaching after graduating from college. The benefit in terms of cost is that no newly trained teachers will be required to be posted to these schools, as trainees will be filling in vacancy positions whilst still receiving training.

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Interest in primary school teaching:

- A matter requiring serious policy consideration is the lack of interest and commitment to primary teaching. The problem is complex and therefore the solution may not be simple and straightforward. But, since primary school teaching builds the foundation for all formal education, it requires investments and policies that will make it attractive and fulfilling. Developing policies that reduce the hardships faced by NQTs, especially in rural areas, should be a first step. The late payment of salaries to beginning teachers shows insensitivity to the problems they face, especially when posted to rural communities where their personal survival needs may override commitment to schools. It is a matter that requires urgent action.

- The education system does not seem to support teaching in rural contexts. As Hedges (2000) showed, poor communication, bribery, exploiting the system and favouritism were perceived by NQTs to characterise the work of the GES. Teachers cannot and should not be forced to teach under conditions that undermine their personal self-worth and status. The profession of teaching must have embedded in it privileges and responsibilities that are strictly adhered to. For example, the issue of bonding – the tying of teachers to their first posting for a specified number of years - needs to be enforced. But equally, there must be a serious commitment by GES to the welfare of teachers if bonding is not to be construed as a punitive measure and lead to a deepening dislike of teaching.

Assessment:

- The MUSTER project unfortunately could not explore in great detail issues relating to assessment and the training of college tutors to implement assessment. However, in tandem with the proposals that this report makes, the assessment policy needs reviewing for teacher certification assessments to become vehicles for promoting abilities and dispositions characteristic of good teaching, without unduly interrupting the processes and opportunities for learning to teach. It is necessary to design teacher certification assessments that, for example, make practical problem-solving competence in teaching a key feature of teacher certification decision-making. Ultimately, the goal of teacher certification should be to determine to what extent prospective teachers have "… acquired the knowledge and judgement required to evaluate what strategies are appropriate in very different situations and whether (they) can apply these understandings in practice" (Darling-Hammond et. al., 1999 p. 101). Assessing such abilities will require more complex assessment methodology than is currently in use.

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Teacher educators

• Teacher educators seem to have little experience of teaching at the primary level and have no special training in educating teachers for that level. It would appear important that teacher educators are given special training that requires practical exposure to work in the primary teaching field. This, we believe, must be made a relevant qualifying requirement for teacher educators.

Reconceptualising Teacher Education

• Finally, the radical demands of FCUBE invite reconsideration of perceptions of the nature of a trained teacher and the career trajectory for professional development. The current system of initial training is heavily front-loaded (all of the investment of teacher training is focused at pre-service level). Three years of full-time training is expensive and risky. There is no guarantee that those who accept a long period of subsidised training will either work long enough to repay the cost, or recoup costs through more effective performance on the job. This calls for greater decentralisation of the process of teacher training. We have suggested the re-introduction of modular training for untrained teachers and those who will choose to enter the profession through this route. There is need for the institutionalization of internships for beginning teachers, and for that to be seen as an integral part of training to become a teacher. Also, contractual obligations with enforcement strategies that would ensure that the benefits of investment in training are realised in the NQTs' subsequent contribution and commitment to teaching, especially in the more rural schools, needs to be developed.

• It may also be necessary to reorganise teacher education curriculum materials so that they are less close-ended - this is to break with the prescriptive tradition of teaching that has the danger of limiting teachers' classroom effectiveness. By including more open-ended and collaborative inquiry-based materials, we can deepen practical knowledge of teaching and enhance the personal responsibility that is required to bring about change in schools and classrooms. Such an approach will also elevate the view of effective teaching as a function of teachers' professional reasoning ability and not of predefined behaviours. According to Shulman (1987), pedagogical reasoning is linked to the practical aspect of teaching through teachers' comprehension of purposes, subject matter structures, and the ability to transform these through stages of preparation, representation, selection and adaptation. This notion of teaching should underpin teacher education pedagogy in the training colleges.

• It is also important for teaching and learning to be organized so that teacher trainees take greater responsibility for how the content of learning to teach is developed, shaped and documented, reflecting mainly their own professional learning experiences. But this

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must be preceded by changes to the organizational structure of training. We ought to explore how colleges and schools can form training partnerships, and create the space and time for genuine collaboration between experienced teachers and teacher educators in training teachers.

- The current system of teacher training does not have the capacity to meet future demand as set by FCUBE. Instead of replacing untrained teachers who are sometimes more committed to teaching because of the circumstances that led to their being there, (see Hedges, 2000), training colleges could provide in-service training for these teachers by using afternoons or evenings when college classrooms are unoccupied. Similarly, head teachers would need training to monitor and support the untrained teachers who are undergoing in-service training in designated college centres.

- Whatever adjustments are made to the teacher education system to improve quality and production targets at sustainable costs, the content of the curriculum and learning experiences of student teachers will have to undergo significant improvements, as has been suggested in this report.

9.3 **Short to medium-term measures**

To conclude, we propose the following short to medium-term steps to move teacher training in Ghana forward.

1 The "In-in-out" scheme has been accepted and in principle is a good step, but it has to be based on a conception of teaching that is reflective as opposed to prescriptive. In particular, the "out" phase of training must seek to empower prospective teachers with skills, knowledge, and attitudes that would make them change agents in classroom practice. This would require a school-based training curriculum that is focused on developing practical knowledge of teaching, and is oriented towards problem-solving.

2. A modular course lasting about one year should be set up in some college centres for untrained teachers. It should be designed so that eventually it can become an alternative route to a teaching qualification, and of the same quality as the "In-in-out" model. The real advantage of the modular programme is that it will help to improve the teacher supply situation, and offer the opportunity for untrained teachers to receive training that draws on their background experiences of teaching.

3. Colleges as currently structured are rather unsuitable environments for the development of wider attitudes considered important for teachers to develop in real teaching situations. In other words, colleges as currently structured do not reflect or provide the opportunity for developing an adequate sense of teacher professionalism – student

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teachers are treated more like secondary school students than as adult learners. As was recommended earlier in this chapter, college organisational structures must encourage trainees to take on greater responsibility for professional learning through more individual and group study of projects based in schools. Too much time appears to be wasted on irrelevant tasks e.g. weeding and fetching water, that have nothing to do with the objectives of training.

4. Changing the way teachers are trained as recommended in this report will mean special training for college tutors. Currently, tutors have no training specific to their role as educators of primary and JSS teachers. If their interaction with student teachers is to be productive in the sense of enabling them to develop a more reflective stance in teaching, they themselves need to receive training that is sensitive to this perspective of teaching. The Institute of Education University of Cape Coast must be encouraged to develop courses that are practical-based for certifying college tutors. Structured as an in-service programme, this should eventually become the route to confer the additional qualification status for teaching in a training college.

5. College budgets need restructuring to increase allocation to training inputs, especially teaching and learning resources, library facilities etc. Student stipends may be the route to achieving this. Stipends would have to be made more accountable in terms of the proportion colleges take, and how students use the remainder in furthering their professional development.

6. "Study-leave-with full pay" needs reviewing and made more accountable in terms of the benefits to primary education. It appears prudent to attach some conditions to the incentive. Possibilities include "bonding" to teach in a primary school for at least 2 years after further training, introducing study leave with part of the payment borne by the teacher, or particular districts sponsoring teachers for further training.

7. Finally, the pre-service and in-service training of teachers has to be re-constructed as equally important routes to teacher training. A certification policy needs to take this into account. For example, teachers could be required to renew certification after about 5 years in teaching and this would then attract reasonable increases in pay. The certification assessment needs to reflect the practical experiences gained in teaching. This would have the additional advantage of encouraging beginning teachers to commit themselves to remaining longer in teaching (at least for 5 years) before qualifying for further training. It is important for further certification status to attract some additional remuneration or points that could be used for promotion.

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In conclusion, bold initiatives in initial teacher training in Ghana are needed to produce a sufficient number of teachers with the commitment and competence to improve the quality of education children receive in schools. The recommendations and suggestions that have been made in this report offer a number of possibilities based upon the outcome of studies exploring a broad spectrum of issues relating to the training to become a teacher. Teacher training in Ghana has not come under the microscope of education reformers as intensely as, for example, basic education. But one cannot separate the two; in fact, it is fair to say that the quality of basic education in terms of the quality of student learning outcomes is greatly influenced by the level of commitment and competence of teachers. Teachers are at the forefront of basic education quality delivery. Therefore, their training, and other policies which enhance their well-being and standing in society, needs to be given more serious consideration in education development in Ghana. Hopefully, this report has raised a number of issues for policy planners to evaluate and determine appropriate actions. The report has also offered suggestions about the kind of changes that might be needed to make the teaching profession more effective in contributing to the quality of basic education in Ghana.

Differences Between Groups in Response Patterns by Statements

Statement	Sample	Mean	SD	BST	FST
1. I think being a teacher is the best job I can get. (0.806) (BEST)	BST	3.07	0.96		
	FST	2.57	1.01	*	
	NQT	2.26	0.96	*	NS
2. I would rather have gone to the university than teacher training college (-0.602) (PREFUNI)	BST	2.06	0.84		
	FST	2.39	0.90	*	
	NQT	2.81	0.83	*	*
3. My friends think I'm fortunate to be a school teacher (0.602) (FORTUNE)	BST	3.04	0.91		
	FST	2.69	0.81	*	
	NQT	2.52	0.89	*	NS
4. I would rather get a higher qualification and do a different job than remain in teaching (0.765) DIFFJOB	BST	2.10	0.94		
	FST	2.80	1.00	*	
	NQT	2.90	0.90	*	NS
5. Teachers today are more respected than they were before (0.351) (RESPECT)	BST	2.51	1.11		
	FST	2.15	1.02	*	
	NQT	2.08	0.96	*	NS
6. Caning is necessary to maintain discipline in school (-0.828) (CANE)	BST	2.24	0.88		
	FST	2.34	0.94	NS	
	NQT	2.86	0.81	*	*
7. Caning will not help children do better (0.824) (NOCANE)	BST	3.11	0.84		
	FST	3.06	0.93	NS	
	NQT	2.64	0.93	*	*
8. Newly qualified teachers should teach where they like (-0.448) (CHOOSET)	BST	2.59	1.07		
	FST	3.37	0.85	*	
	NQT	2.56	0.98	NS	NS
9. I don't mind whether I teach in the junior secondary or primary school (0.651) (NOPREFT)	BST	3.11	0.86		
	FST	2.76	1.00	*	
	NQT	2.92	0.84	NS	NS
10. Both male and female teachers are equally capable of teaching in the primary school (0.697) (MFEQUAL)	BST	3.32	0.80		
	FST	3.13	0.91	*	
	NQT	3.30	0.67	NS	NS
11.Teachers can't do much to improve the academic performance of slow learners (0.514) (SLOWLRN)	BST	1.63	0.78		
	FST	1.66	0.81	NS	
	NQT	1.78	0.74	NS	NS
12.Teachers are born and not made (0.640) (TBORN)	BST	2.28	1.08		
	FST	2.51	1.05	*	
	NQT	2.40	0.92	NS	NS
13. It is difficult to bring changes in school as a teacher (0.510) (NOINNOV)	BST	2.21	0.96		
	FST	2.24	1.01	NS	
	NQT	2.10	0.93	NS	NS
14. Teaching is more difficult than many other jobs I could do (0.428) (TDIFF)	BST	2.69	0.95		
	FST	3.12	0.93	*	
	NQT	3.00	0.87	*	NS
15. School children learn best when in small groups (0.656) (LRNGRP)	BST	3.54	0.62		
	FST	3.61	0.66	NS	
	NQT	3.55	0.57	NS	NS
16. It is difficult to teach children of different abilities unless they are grouped (0.725) (ABILGRP)	BST	2.94	0.88		
	FST	3.21	0.81	*	
	NQT	3.08	0.85	*	NS
17.The most important thing a teacher can do is to teach pupils facts (0.654) (TFACTS)	BST	3.44	0.77		
	FST	3.06	0.92	*	
	NQT	3.07	0.93	*	NS
18. School pupils learn more from asking questions than from listening (0.399) (LQUEST)	BST	3.37	0.80		
	FST	3.43	0.72	NS	
	NQT	3.55	0.66	NS	NS

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