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# **Improving Subject Knowledge and Subject Pedagogic Knowledge in Employment- based Secondary Initial Teacher Training in England.**

Paper delivered at the Annual Conference of the Association of Teacher Education in Europe, Vrije Universiteit Brussel August, 2008.

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## **Abstract**

Each year in England about 6,000 trainee teachers qualify by undertaking an employment-based initial teacher training route (EBITT), where training is mainly school based. Government inspectors have found that trainees on this route are weaker in subject knowledge and subject pedagogic knowledge compared to trainees following the more traditional one year training course (PGCE) of which about a third of course time is University based. EBITT providers are currently seeking to improve the subject knowledge aspect of training. To support this work the TDA have published a model for developing trainees' subject knowledge for teaching and suggest that providers review their provision against the model. In addition EBITT providers must also meet a new requirement that the total training time should be a minimum of 60 days. This new requirement presents a challenge to EBITT providers as most of the subject knowledge enhancement will have to be school-based. This paper seeks to find out:

- how trainee teachers acquire subject and subject pedagogic knowledge while based in a school and
- whether teaching staff in schools have the required subject and subject pedagogic knowledge and skills for this enhanced role.

Data have been collected from trainees, school-based mentors, school-based Initial Teacher Training Coordinators and University assessors over a one year period. Data about the way trainees acquire subject knowledge was interpreted against the TDA model.

The study finds that

- trainees acquire subject and subject pedagogic knowledge in a variety of highly individualistic ways that suggests that the TDA model only partially explains what is happening in practice and
- there is a significant training need to ensure schools are well equipped to deliver high quality subject focussed training.

## Background

Teacher Training in England has undergone significant change in recent years. Possibly the most significant is the introduction of professional standards in *Qualifying to Teach* (TDA, 2002) which gave greater responsibility to schools, the removal of the "one size fits all" approach to training opening the way to a increased variety of training options and a more central role for school-based trainers.

The findings given in this paper are based on data collected from trainee teachers during a one year programme of school based teacher training organised between a large University and three Local Authorities. Trainee teachers are all employed by schools as unqualified teachers and follow the Graduate Teacher Programme (GTP) and have an individual training plan. Most of the subject knowledge and subject pedagogic is delivered by school staff.

Individual training plans provide the necessary flexibility to account for the varied and diverse needs of trainees including subject knowledge and subject pedagogic knowledge. The EPPI Centre Review of Research (2006) into Individual Teacher Training found that there were no studies in the literature that considered the operation or provision of flexible and responsive ITT as a general issue. Most of the 24 studies reviewed were small scale and written by ITT tutors researching their own programmes and few of the studies sought students' views. Importantly these studies did not consider the question of effectiveness.

There is also tension between the providing a flexible route with students taking responsibility for their own learning and the constraints of reaching government defined standards and competences. As Lawson and Harrison (1999) suggest *trainees can vary the route but not the direction of travel*. A relatively new feature of GTP is that a significant number of students now have prior experience of working in a school support role: typically as a teaching assistant, cover supervisor or in sports development. These posts have become increasingly a popular career for graduates considering a career in teaching. Schools generally get a good deal - these support staff learn fast, are able to support learning in specialist subjects and often relate well to pupils. They do not however have the "authority role" of the teacher. Success in these roles means that schools will often support them if they wish to train as a teacher and they clearly start the programme with enhanced knowledge of schools and how children respond to learning. However as Mayotte (2003) reports, previous career success does not guarantee success as a teacher.

Pedagogical Content Knowledge (PCK) is a concept that has developed over time and sometimes is regarded by teachers as part of the "common sense knowledge about teaching." Our experience is that although teachers (and mentors supervising training) recognise that they are helping their trainee to acquire PCK they are often doing so from a practical view of what works for them - i.e. passing on experience. Our own perception when discussing this issue with mentors and ITT coordinators is that that there seems to be wide variation in the depth and rigour in the way in which PCK is delivered and that school based tutors need support in this aspect of their role. The challenge with novice teachers is how to help them to make rapid progress in acquiring PCK. Educators have been concerned about this for well over one hundred years. Bullough (2001) cites a quote from Parr (1888)

*An analysis of the process of teaching shows that there is a special knowledge in each subject which belongs to instruction. This is quite distinct from academic knowledge. It differs from its purpose, in relation to the facts of things, and in the mode by which it is obtained. The ideas of an academic subject are arranged in an order which is determined by their own relations. The order of the same ideas, when they are arranged for teaching, is determined by their relation to the learning mind. The purpose of academic knowledge is acquaintance with series of beings in the order of the necessary dependence on the purpose of teaching knowledge is acquaintance with the processes of the learning mind in the order of mastery.*

Models of education and teacher education particularly in the notion of the structure of knowledge and how it should be taught have also contributed to our understanding of models of teacher education, for example Ryle (1949) - "knowing that and knowing how"; Schwab (1964) - knowledge having substantive (facts, concepts, frameworks for organising knowledge) and syntactic structures - how the substantive knowledge has been generated and established; Hirst and Peters (1970) - forms and fields of knowledge, Turner-Bisset (2001) - a model of knowledge bases for teaching that uses eleven categories. However nearly all recent understanding of the process of teacher education can be traced back to the ideas of Shulman (1986) about pedagogic content knowledge (PCK). This came at a time when there was a real need to raise the status of teaching as a profession.

Modelling of teacher education practice is complex but there are four broad conceptual models in the literature (EPPI, 2004)

1. The *academic* - in which teaching and learning to teach are based on subjects or disciplines which includes the concept of pedagogical content knowledge (PCK) (Shulman, 1986)
2. The *practical* - with a focus on the craft, skills, techniques that skilful practitioners use.
3. The *personal* - that which places the teacher as learner at the centre of the educational process
4. The *critical* - which combines a social and political vision of schooling and that novice teachers need to promote particular values

and cutting across these is the notion of reflective practice (Schon, 1993)

Those who are involved in school based teacher education whether school or HEI based will engage in the above orientations to greater or lesser extent. What is new, however, is the increased emphasis on the enhancement of subject knowledge and subject pedagogic knowledge by schools in England which has been identified as a developmental need by the Training and Development Agency (TDA).

The publication *Developing Trainees Subject Knowledge for Teaching (2007)* recommends that providers review their provision against a model (Appendix 1) [http://www.tda.gov.uk/upload/resources/pdf/s/subject\\_knowledge07.pdf](http://www.tda.gov.uk/upload/resources/pdf/s/subject_knowledge07.pdf)

This model overlaps:

- subject knowledge per se
- pedagogy: subject pedagogy theory and practice
- pupils' development
- the attitudes of trainees

This model is underpinned by the competency based model of teacher qualification which is now part of the framework for professional standards for teachers.

Grossman (1990) conceptualised a model in which PCK has four components: subject specific matter, knowledge of students' conceptions and difficulties, knowledge of the curriculum and knowledge of instructional strategies. The closest model to that proposed by the TDA is suggested by Cochran et. al.(1993) in an extension of the ideas about PCK by Shulman. In this article the authors take a constructivist view to suggest that the education of teachers should promote learning in contexts where the goals are focussed on specific content to specific students and in specific contexts. They argue that in teacher education a more appropriate model is *Pedagogic Content Knowing PCKg* - which they define as: a teacher's integrated understanding of *four* components of *pedagogy, subject matter content, student characteristics, and the environment of learning*. This is very similar to the TDA model

The implementation of PCKg is characterised by

- cooperation between pedagogical experts, subject specialists and experienced teachers
- substantial and innovative course development closely linked to field experiences
- methods and procedures of courses in these programmes to be accurately and appropriately evaluated and revised
- Faculty must acknowledge that such accomplishments require time, money and commitment

## **Methodology**

An initial review of trainee teachers' reflective accounts of their subject knowledge enhancement was conducted in July 2007. 20 trainee reflections of general progress over the course were analysed against the TDA model. The analysis indicated that where subject knowledge was concerned trainees focussed on individual pupil development or assessment for learning or organisational aspects (eg. use of support staff, groupings, classroom layout in planning) rather than considering the range and depth of subject and pedagogical knowledge they themselves needed to learn and develop and how to go about this. Their accounts also echoed the concerns of the government that there appeared to be insufficient knowledge and understanding from the trainee about subject knowledge and pedagogy and support from departmental staff in furthering this understanding.

The TDA model was discussed with trainees, mentors and ITT coordinators in our own Employment Based ITT route during the 2007-8 year, but this was without a strong theoretical rationale. We found the TDA model useful in raising awareness of the complexity of conceptualising "subject knowledge" and renewing interest particularly in "subject pedagogical knowledge" and how this might best be developed in ITT routes that are predominantly school based. We felt that there would be benefit in exploring the TDA model further. For many in the partnership the conceptualisation of subject knowledge was new. As competence in subject knowledge and PCK is a standard in the new *framework of professional standards teachers and for QTS*: developing a better understanding of this standard is therefore at the heart of the work of school based trainers.

In autumn 2007, following the trainee's initial needs audit, each mentor designed a number of specific tasks together with the trainee to specifically develop identified aspects of subject knowledge and pedagogy. For their 'end of year' evaluations (Appendix 2) all trainees (21 responses) were asked to rate their satisfaction with how well they had developed a range of aspects of their learning on a scale of 1 - 4 (1 being

most satisfied). We include the responses for subject knowledge. In addition we wanted to ascertain trainees' views of the best features of their training and what could be improved. We were interested for this study to see what part subject knowledge would play in the responses. These results are given in the trainees' section.

Over the past decade, teacher education has seen a move away from the theory - practice divide. This shift was inspired by the view that theory is constituted dialectically (Loughran, 2003; and Korthagen and Kessels, 1999), and through reflection (Schon, 1983). With this in mind, trainees on the GTP course were encouraged to set aside time to reflect on their development in PCK. In 2007 the guidance for the end of course reflective writing was made more detailed and precise to encourage the trainee to respond specifically to aspects of subject knowledge and pedagogy. These 21 reflective accounts entitled *'A Personal and Professional Reflection of my GTP Training- with particular focus on Professional Subject Knowledge Enhancement'* were analysed against the TDA model to ascertain the different ways in which trainees conceptualised developing subject knowledge and pedagogy and to see whether the model was useful in enhancing our understanding. Extracts from trainee accounts were categorised into the four areas in the TDA model. They provided considerable evidence about attitudes and pupil development as described in the model but our analysis is mainly focussed on two areas: subject knowledge and pedagogy.

We wanted to explore whether the model matched what was taking place in school based training and the extent to which school based mentors and ITT coordinators recognised the importance of PCK and were ready for this new emphasis on this aspect of their role. We surveyed 26 Initial Teacher Training Co-ordinators to find out their views on the selection and preparedness of their EBITT mentors. We also asked them whether the title *mentor* should be changed to schools based *tutor* to reflect the new requirement of the role (Appendix 3).

We surveyed 35 mentors as part of the end of year assessment process to find out more about their knowledge and use of up to date subject resources and CPD to support their mentoring work (Appendix 4).

To gain another perspective on how well subject knowledge and pedagogy was being supported by school based staff external assessors were asked to complete a confidential qualitative evaluation during the final assessment visit (Appendix 5). There were 17 responses. The evaluation focussed on how well the mentor supported subject enhancement development, whether the mentor has a good knowledge of subject pedagogy; whether the ITT Coordinator checked the quality of subject enhancement training and was aware of any future development needs and for the external assessor to give any recommendations about training that should be provided by the University based provider.

The data are summarised in a series of findings given at the end of the paper.

### **How do trainees develop their subject knowledge and pedagogy?**

The starting point on the course is a self-audit of subject knowledge which enables the trainee to see what they can do with their degree and identifies gaps in relation to their teaching concerns. An overt awareness in the trainee is created by this audit. From this they are able to identify their individual needs as part of their training programme. This audit is highly valued by the trainees.

*'The skills I developed in assessing my own strengths and weaknesses will go on with me as I begin my career as a qualified teacher. It will allow me to constantly be developing my knowledge as I begin to teach at ..A level.'*

In this section we focus on the data from trainee reflections on their experiences of developing subject knowledge and subject pedagogy. Excerpts from the student accounts are given to support key points.

## **Subject Knowledge per se**

Despite having a graduate and, in some cases, a Masters Degree 37 out of 40 trainees said that their knowledge prior to their training was "not enough" to enable them to teach with confidence. They identified schemes of work as the driver for enhancing subject knowledge. This is particularly evident when trainees were teaching aspects of a syllabus in which they lacked subject knowledge. This becomes their starting point. To develop subject knowledge the following eight strategies are identified from the reflective accounts.,

### **1. Attend internal and external training courses:**

*'To improve my subject knowledge, it was decided that I needed to take a couple of courses especially in dance and a rugby league official course, my mentor and other member of the department recommended some courses.'*

*'Besides reading, I have attended several meetings with my department, such as, Islam Awareness Week and SACRE meetings. Through these meetings, I have not only expanded my knowledge, but discovered the relation and relevance of religion in today's world, enriching me as a person as well as in the context of a teacher'.*

### **2. Consult referred and unpublished literature sources including the internet (including TDA, TTRB, TeachersTV, SHU, BBC Sport Academy, Activehistory and Multiverse), textbooks (such as, GCSE PE Theory to the Teaching of Athletics) and newspaper articles.**

*'The internet has proved to be an extremely valuable resource for increasing my knowledge and understanding. For example, if some literature I read introduced concepts but didn't expand to the depth I required or didn't answer all my questions, I could find additional information from websites. The websites also offer illustrations, online videos such as, a virtual trip to Hajj and respond to religion in modern society which has all been of great assistance and highly beneficial to my progress this year.'*

*'Business and Economics and Parliament and democracy were on my list. I began reading the business sections of the broadsheets before they ended on the cat litter tray and increased the viewing figures for Question Time and Newsnight by one...'*

3. Get involved in various teaching and non-teaching opportunities during and after school.

*'My mentor made arrangements for me to participate in the year 7 residential trip to Ingelborough Hall, this allowed me to get to know the pupils better and improve my subject knowledge in a range of outdoor and adventurous activities including climbing, hill scrambling, orienteering and caving.'*

*'I was asked to work with the Regional and National Partnerships Coordinator for Sheffield Galleries and Museums Trust. Miss D, Ms B., and I organised for a group of our students to attend the Galleries' National Portrait Project...I attended the first session and many of the subsequent workshops.'*

*'By visiting (health and social care) service providers, organising visits for students.. and compiling a Service Directory for student use it has provided me with a large amount of subject knowledge that I have been able to take back into the classroom. It has allowed me to understand how different organisations work. The extent to which the client needs were considered was something I did not fully appreciate beforehand.'*

4. Maintain/ update own subject knowledge :

*'I read Spanish literature at home thereby maintaining a high level of Spanish...'*

*'I sat the Geography GCSE myself along with the students...'*

*'I have been studying AS level French at Hillsborough College..'*

*'Topics in which my knowledge is strong have been easier for me to teach as I have been more confident and relaxed have also been able to challenge the students more and push them to their full potential. It is because of this I have tried to revise or gain new knowledge in all the subjects I have taught.'*

## **Pedagogical knowledge**

Whilst endeavouring to enhance their subject knowledge, many trainees soon realised that they also had to consider pedagogical perspectives. This extract reflects a fairly typical response at the beginning of the course:

*'... it wasn't just what I knew about the subject, but how I could convey this information to students in an appealing and comprehensive manner which would allow students to develop enthusiasm, insight, and skills from a positive learning environment.'*

The process of becoming fully conscious of how essential and difficult subject pedagogy is first becomes apparent whilst teaching in the classroom.

*"When I first began teaching at the start of my GTP placement, I very much considered myself to be an expert in the field of sociology. Not only did I have an honours degree in the subject, built also an A Level (grade A) and GCSE (grade A\*). My knowledge and understanding in the area was second to none,*



*and after studying the subject for a total of seven years, I felt I not only possessed the enthusiasm, but also the confidence to be able to teach the subject as my specialism. However, as time developed and I progressed through the year, I quickly began to realise that teaching sociology as a specialist subject, particularly at Post-16 encompassed much more than having a sound knowledge and subject base... I had to work hard on which level to pitch the levels and subject content on. Having just finished a university degree, I was used to a much higher level, and bringing my knowledge down, and the subject content down to a level that was accessible to a group of 16 to 18 year olds was something that took time to develop. I soon realised that in teaching, you cannot take anything for granted. Students struggle to transfer knowledge from other areas and subjects... I learnt a valuable lesson that everything must be explained in great detail, and that you can't assume students will understand something."*

Research has shown (e.g., Zeichner, Tabachnick, & Densmore, 1987; Leinhardt. 1988) that student teachers' ideas about teaching are also moulded by their own experience of education and this was supported in some texts. Some students found their own experience unhelpful in their new role.

*'At the start of my placement, my lessons were very much structured in a lecture format, probably because this was what I had become accustomed to and it was the only way I had experienced sociology in the past.'*

Armed with the above knowledge, trainees thereafter started their quest to improving their pedagogical knowledge.

(i) Observing other teachers teaching to deepen understanding:

*"After spending several hours observing the staff in my department, I picked up some key points about language teaching: the most important was core repetition. Every teacher had their own way of 'drumming in' the grammar and vocabulary they were aiming to teach, but it became very clear that rote learning was the most effective way of embedding a foreign language in the learner. There are several ways of doing this, but the aim is always the same: repetition is key!"*

(ii) Approaching school mentors and external teacher training consultants/ guest lecturers for 'tips' and ideas on how to put ideas or theory into practice.

*I took the opportunity to speak informally to specialist trainers about the planning and delivery of specialist content like Sex and Relationships and Drugs education. This proved extremely helpful..."*

*'In mentor meetings methods of keeping students engaged were discussed. I developed questioning skills and strategies to keep everyone involved. I used timed tasks and set a timer..demonstrations were carried out in stages..'*

However, not all trainees found that tips given were useful. It is possible that they were perhaps a mismatch to students' needs or trainees' teaching style and beliefs, circumstances, and environment. Korthagen and Vasalos, 2005 and Feinman-Nemser, 2001 claim if 'tool kits' are thoughtlessly offered to trainees without encouraging them to examine how their beliefs and theoretical knowledge shape their understanding of these tools in action, they are likely to be a short fix or no use whatsoever.

(iii) Consulting the internet, teacher forums and other published materials (e.g. PED pack) for teaching resources and adapting them to suit their students' diverse needs and level of learning.

*..I had seen a lot of internet resources used to help reinforce vocabulary so I decided to subscribe to two well-established internet language learning programmes: Linguascope and Oye! I took out a personal subscription but share my password with my language department because many of the more experienced teachers had never considered using the programmes before, and I felt they were really useful..'*

*"Having studied some bio psychology at A-Level but not at undergraduate level, I have felt thrown in the past by the odd student question relating to the function of different parts of the brain. Therefore, I borrowed a colleague's medical textbooks and together with the help of the Internet and Wikipedia I produced a resource relating to the brain map from my model. I made it far more student friendly and included information related to the A Level course... Despite being time consuming, I found this activity highly rewarding, not only from the point of view of personal interest but also from a professional point of view. I am now able to answer students with a brain interest, give kinaesthetic learners something to complement their learning style and of course this has also helped develop my own knowledge base."*

*'I subscribe to Phillip Allan Review Journal Psychology Review. I trawl this journal for relevant articles, items and activities that are useful for the students and help to supplement the topic packs. This is a particularly good little resource bank, for instance, it contains crossword puzzle in every issue; ideal for plenaries or revision. Also, there are great articles written by psychology 'celebrities' that enable the students to take part in University style reading activities and of course keep me, as a tutor, fairly up to date with the latest research.'*

This was the most popular method of generating resources for teaching. Books were considered of use when they combined theory with practical application.

*'I read books regarding specific pedagogies for MFL, which I found useful and informative, especially when theory was combined with practical examples that I could adapt to fit in with my classroom practice. In some cases I found that books offered a lot of theory but not as many ideas which could be put into place in the classroom.'*

Published packs, such as the 'Pedagogy and Practice' pack were highly rated by trainees because it had bite sized chunks of guidance and advice on various aspects of pedagogy such as 'Explaining', Questioning techniques, Behaviour Management ' and 'Inclusion'

(iv) Trialling ideas within the specific learning environment; evaluating and reflecting; revising teaching methods to result in a good student response;

*'I have reviewed my topic packs... updating research and incorporating improvements as needed. Often student assimilation has been the primary motivator behind these improvements, resources that have worked tend to*

*remain or be lightly modified, whereas those that have not, or prove difficult to assimilate, are more radically modified, discarded or replaced. An example of this is an aspect of the Stress topic in PYA 2- the bodily response. The areas in question are known as the Sympathetic Adrenal Medullary (SAM system) and the Hypothalamic Pituitary Axis (HPA system), and are both areas that I originally included in the packs as descriptive prose. However, student assimilation tended to be poor with consequent difficulty in answering examination questions on these areas. Therefore, in a later version of the pack, 2006, I brought in a less abstract, more concrete resource that took the form of a gapped diagram. This improved student assimilation and enabled improvements in examination practice.'*

*'... I soon came to realise that being inside a classroom was a whole different place to when I was out on the sports field. The confined environment meant that my planning had to be more precise than when teaching practical physical education where if an idea is not working, you can soon change your ways and change your drill; however, when in a classroom you have to be on the ball with everything ready and at your disposal as soon as you require them.'*

Some trainees also gave examples of how they sought feedback from pupils by administering a questionnaire asking their students to assess the quality of their learning and to identify their strengths and weaknesses.

(v) Adopting the role of an apprentice: seek reassurance, guidance, clear direction from school mentors, teaching staff, and specialist consultants and work collaboratively with experienced practitioners.

*'Initially, I felt panicked by the programme (GTP), as there was so much to learn and digest. It was like entering a giant maze and my confidence began to dwindle. It was only after a discussion with my subject mentor that I realised I needed to take a more realistic and calm approach to the programme.'*

*'Initially, this (the national curriculum framework for English) was a minefield for me, as I never seen anything like this before... My mentor explained how the framework guided lesson planning and should be used as a checklist rather than a starting point.'*

*'I have found the most useful, reliable and effective way of improving my subject pedagogy and knowledge has been to ask more experienced members of the department.'*

*'Crucial was close collaboration with specialist staff both in and outside school. Together, we have planned lessons for specific units within the curriculum and have team taught several lessons in KS4 and KS5. Both strategies have taught me how to effectively structure and pace a three part lesson that is personalised to meet the needs of all students, whilst team teaching has introduced me to a wide range of effective, and occasionally less effective, teaching and behaviour management strategies.'*

Departmental discussions and Inset are also quoted as useful ways that trainees learn more about subject pedagogy eg. marking, translating mark schemes back into teaching content, moderating and assessment for learning.

(vi) Enhancing subject knowledge and pedagogy as a result of undertaking alternative school placements in other educational settings and key stages.

*...teaching KS2 a student in 2 of my 4 placements has helped me to understand how important personalised learning is. ... I also gained experience of working with EAL students, something that my principal training school did not offer me and was invaluable in highlighting the importance of differentiation.*

In preparation, trainees also read around how subjects are taught and how subject specific skills are taught (and their impact on the next key stage) and find this valuable in their understanding of progression.

Additional key features in trainees reflective accounts reflect categories not covered by the TDA Model

(vii) Knowledge of self in relation to subject knowledge and pedagogy

As the trainee learns to combine the 'personal with the professional' the role is seen as offering a chance for a trainee to reach their personal and professional 'potential'; to help a trainee to realise their 'dream' of teaching; to meet a need for 'wanting day to day challenges'; to further develop confidence and belief in themselves in their new role; to 'observe an end product; to see (and enjoy) the effect that learning has had on my students.' to feel 'a sense of pride in lessons and results' to gain an insight into how pupils learn and the role of the teacher.

The training is seen, in part, as a process of developing knowledge of self with knowledge of children; deciding what is important about teaching and a deeper awareness of the potential of the teacher to influence the learner. For each individual trainee and this will often depend on the nature of the subject itself. The PE teacher below values his role beyond the classroom in developing extra curricular activities; as does the Health and Social care teacher.

*'Where I look for any opportunity to make the subject and teaching into a reality I have found that some teachers never look beyond their classroom. This is very important to me...to start linking all my work to real life.. I have worked hard to build a comfortable and open classroom environment where I feel my students feel safe in telling me what has been successful and what could be improved. Students are precious resources that I feel some teachers do not draw upon.'*

*'Being a subject specialist teacher extends much further than your subject specialism, in my case sociology and health and social care. It often involves teaching basic literacy and numeracy skills as well as ICT skills, communication and social skills.'*

A number of trainees indicate significant milestones in their changed understanding.

*During my reading I came across an interesting journal containing the following quote... this along with university training and teaching and learning meetings I was attending made me realise that the focus had totally switched*

*and lessons were expected to be student centred. I then started to consider much more what students were doing...*

*'Having had a refresher into pedagogical theories I am now interested in developing this further and investigating ways in which a number of theories can be combined.... trying to consider how my teaching can be influenced by these theories.'*

The centrality of the novice self image is very strong in the reflective accounts. Another aspect that arises is the need to confront and deal with personal negativity

*'I have allowed this negativity to determine my overall opinion of how successful the lesson has been; thereby overshadowing the many good points of the lesson.'*

*'I feel that I am very self- critical...'*

For the majority of students the 'learning journey' is felt profoundly

*'When I think about the initial few weeks, feeling slightly out of my depth, wondering if I could cope with this new challenge I had embarked upon, particularly as I was training to teach Religious Education and I wasn't a 'specialist' in this area, I am amazed how far I have come, the skills and subject knowledge I have gained and the passion I now have for the subject.'*

*'Not only have my skills developed and adapted as I have taken on board the training but my views and attitudes about what it is to be a specialist subject teacher have also changed.'*

(viii) Knowledge about educational ends, purposes and values

A small percentage of trainees wrote about the wider socio-moral dimension of subject teaching.

*'Not only are you passing on knowledge and understanding of your subject specialism... but you are also helping to create well rounded individuals, who are creative thinkers and who are ready to face the adult world.'*

Another trainee talks about the socio-moral purpose underpinning her beliefs about her subject and how that was so difficult to realise in practice

*'I had so much wanted Citizenship to succeed. I believed that it was an opportunity to engage pupils who were in danger of becoming alienated and disenfranchised from the system. (I wanted them) to see themselves as part of it, not outside it, to show that it was relevant to them why its underlying values and concepts were important and to visualise what our society might be like without values such as justice, respect and tolerance to sustain it. So like many, my initial experiences of citizenship were off to a shaky start.'*

and the perceived importance of her subject within current educational thinking

*'Does anyone ever ask a Maths or PE teacher what their subject is about or what is the point of it or imply its some state vehicle to indoctrinate the future'*

*generation of voters? Any or all three of these responses seem to be pretty much a standard response to the subject of Citizenship as a specialism.'*

This is also echoed by the drama teacher

*'I feel that drama is still very much undervalued in schools'*

### **How well prepared are school based tutors to undertake the role of developing subject knowledge and pedagogical content knowledge (PCK)?**

We explored this from the perceptions of ITTCs , mentors, final assessors and trainees.

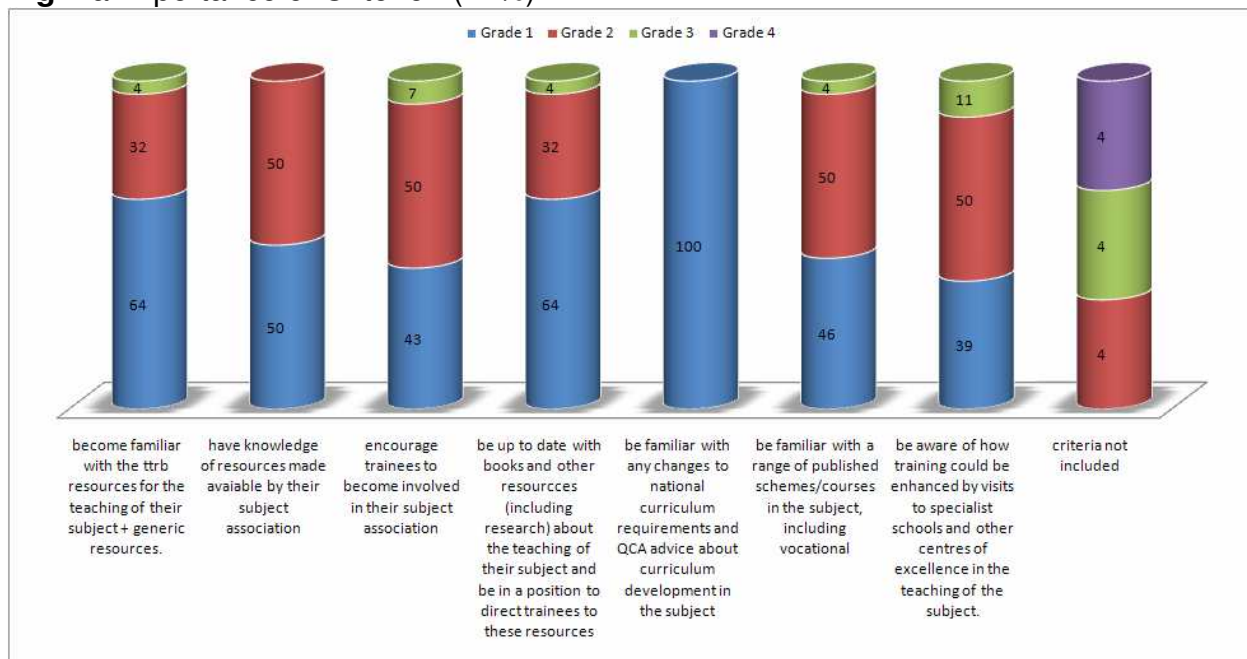
### **Results from the survey of 26 Initial Teacher Training Co-ordinators (ITTC)**

#### **The Responsibility for Selecting EBITT Mentors**

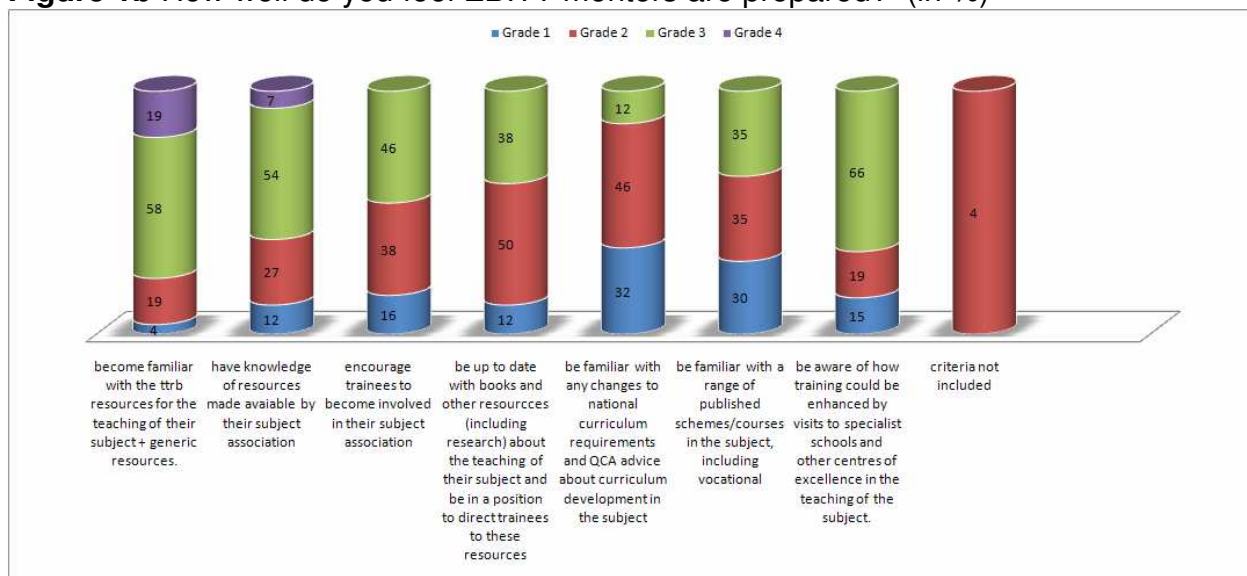
The majority (68%) of ITTC said they were responsible for the selection and quality assurance of EBITT mentors (See Fig. 1). However, almost a third (32%) was not, which may suggest that either someone else had this responsibility or that the mentors were self selected or had the responsibility due to their managerial role within the school. ITTCs were next asked whether the quality assurance of selecting a teacher as an EBITT mentor was the role of the Initial Teacher Training Co-ordinator. The majority (78%) of mentors view the quality assurance of selecting the EBITT mentors as part of their role.

Our second question asked ITTCs to consider their views about particular criterion. We sought to find out how important they rated *particular roles* of the mentor on the following scale: 1 (very important) 2 (important) 3 (neutral) and 4 (not important). Against this, *how well prepared they were* using a scale of 1 (well prepared), 2 (quite well prepared), 3 (requires further preparation) to 4 (not at all prepared).

**Fig. 1a Importance of Criterion (in %)**



**Figure 1b How well do you feel EBITT mentors are prepared? (in %)**



Our findings demonstrated (see Fig. 1) that the majority (64%) of ITTCs thought it to be important that EBITT mentors were familiar with the TTRB resources. However, over half (58%) thought that this was an area requiring further attention in terms of preparation, giving it a grade of 3. So there is some degree of mismatch between the value placed on the use of these resources and the preparedness of mentors for using them with trainees. All of the ITTCs thought that subject association resources are either important or very important. Again there was some mismatch in that over half felt some further preparation was required of their EBITT mentors in this area.

The majority (93%) thought it was important to encourage trainees to become involved in their subject association through attendance at courses/conferences and meetings (giving a grade 1 or 2 to this criterion). 46% (graded 3) of the ITTCs thought more preparation was needed for EBITT mentors to encourage trainees to utilise their subject associations. However 54% (grades 1 and 2) felt that EBITT mentors were either well prepared to do this or quite well prepared.

The majority of ITTCs, 96% in total (64% grade 1 and 32% grade 2) felt that it was very important or important to be up to date with books and resources (including research) and be in a position to direct trainees to such resources. A total of 62% felt that their EBITT mentors were either well prepared in terms of using books and other resources (12% - grade 1) or quite well prepared (50% - grade 2). 38% (grade 3) require further preparation.

All ITTCs felt it to be very important for EBITT mentors to be familiar with changes to curricula and the majority (78% in total) felt that EBITT mentors were well prepared (32% - grade 1) or quite well prepared (42% - grade 2). Only 12% required further preparation. This may be that this small number have made some preparations towards the new curricula to be introduced in September 2008 but felt more was required at this stage.

96% (in total) of ITTCs stated that they thought that being familiar with a range of published schemes and courses was very important (46%) or important (50%). However there was a fairly even split across how well prepared EBITT mentors are with approximately a third in each grade saying that mentors were well prepared, quite well prepared or required further preparation. This may be because at the current time there is much change in the curriculum at Key Stage 3 and Post -16 and planned changes for GCSE from September 2009.

EBITT mentors should be aware of how training can be enhanced by visits to specialist schools or centres of excellence. The ITTCs felt this to be important (50% - grade 2) or very important (39% - grade 1). However 66% felt further preparation was required for this. From comments made, it may be that they needed a data base of where the centres of excellence were and what their specialisms were. The ITTCs felt this to be the role of the HEI in providing this.

### **EBITT Mentors' Title**

We asked ITTCs if the title "mentor" should be changed to "school based tutors" to reflect the new requirement of the GTP route. The majority (62%) felt that the title should be changed to 'school- based tutors', (the term used by the TDA for ITT) to reflect the new requirement of the GTP route. The For the GTP route mentors have a specific requirement to enhance subject knowledge and pedagogy.

### **Subject Mentor Feedback**

#### **Views on Trainees' Progress**

In an 'end of year' survey Subject Mentors were asked if their trainees had made appropriate progress. All subject mentors said they had and commented about how this had been shown.

In their comments about this 34 respondents noted that reading had contributed to trainee progress. In a couple of cases this reading had been brought to discussions at department meetings and thus impacted on the development of other members of the department also. – *"..... brought in relevant articles for discussion at department meeting"*



They commented that trainees made progress *“in areas that needed development e.g. music, drama, dance”*; *“she gained confidence in areas she was unsure of e.g. sex and relationships”*. Although trainees made progress it was recognised that they also need to continue to develop further *“...needs to continue updating with new depth in Science.”* Trainees demonstrated their *“commitment to personalised learning”* by focussing on subject specific elements of their pedagogy. In weekly mentor meetings one took a *“reflective approach”*.

One comment related to assessment for learning and how the trainee had made progress in developing *“innovative approaches”* to this.

### **Mentors’ Use of Resources**

Asked if they had made use of the resources from the TTRB or subject professional associations, only 11% of the subject mentors had done so, 63% had not used them at all and a further 26% gave no response. Comments made by subject mentors were quite limited. In one case extension art work was mentioned, but no indication of what this was or how it related to either pedagogy or the development of subject knowledge; in a further case the mentor stated that they had *“access to the resources that the trainee had found”*; another mentor *“referred to many of the resources I had used five years ago when I was doing a PGCE”*. Only one subject mentor related their comment to the TTRB. *“I have introduced the TTRB to all GTPs”*.

These findings link with the ITTC views about lack of awareness of mentors of the use of trb materials and few ITTCs knew whether their mentors were members of subject associations. So is it that subject mentors do not have enough time to research their own subject pedagogy? Or is it a resources issue – is there money to purchase books? Or is the issue related to how they decide to allocate funding.

### **Supervisions’ Role in Enhancing Mentors’ Subject and Pedagogical Knowledge**

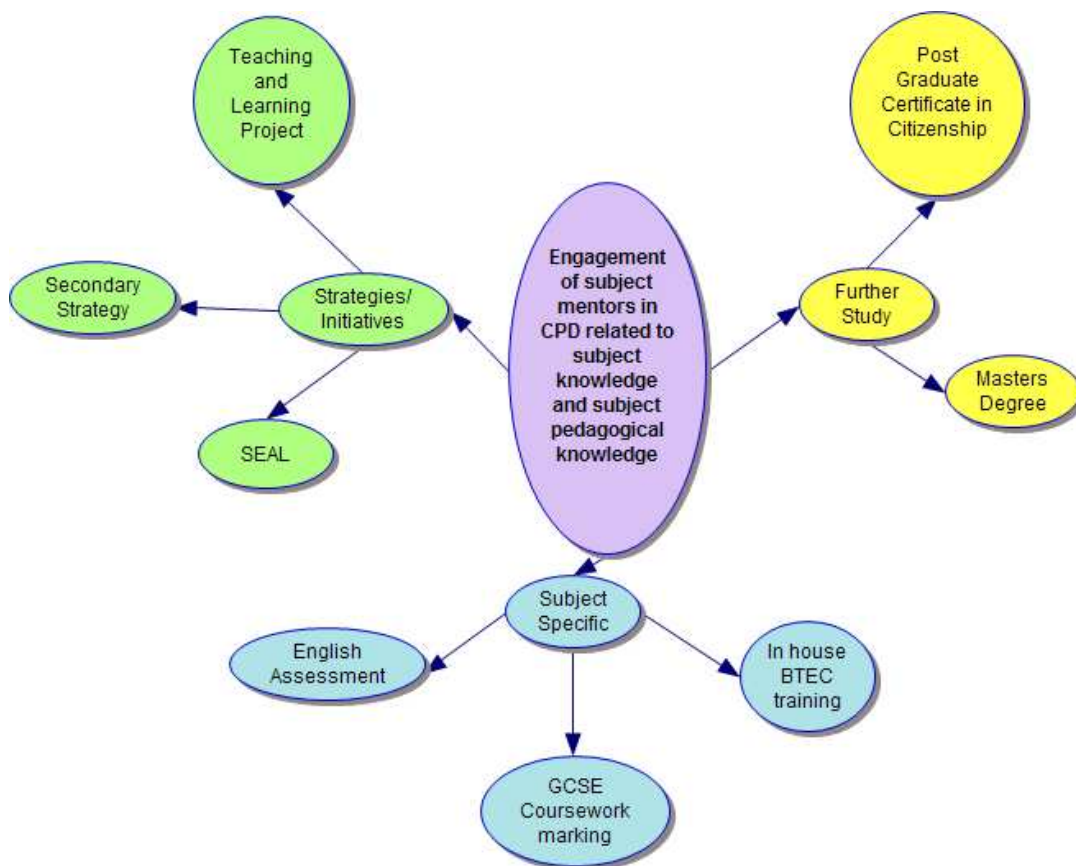
When asked if supervising a trainee had increased either their subject or pedagogical knowledge, 61% of the subject mentors said it had. 33% stated it had not, one who said it had not was an ITTC well as a subject mentor; a further 6% gave no response. What was characteristic of the examples given to substantiate their response was that many did not give examples that related at all to developing own subject knowledge and pedagogic knowledge and therefore were not counted in the ‘yes’ category.

A range of examples that were related to subject knowledge and pedagogy

- Being able to articulate own knowledge
- Cross-curricular knowledge has added to department skills and knowledge
- It made us consider our coursework lessons
- It gave us new approaches to teaching
- In particular assessment for learning – I was asked to prepare some training and took ideas from observing a GTP in terms of content and approach
- It has kept me up to date with pedagogical knowledge
- It made me reflect on my own practice
- It gets you to think, takes you back to basics and you become more reflective about your own teaching methods.

## Mentors' Engagement in CPD

Mentors appear to find it difficult to identify and articulate this aspect of their work. The majority (54%) of the subject mentors have been involved in some type of subject knowledge CPD which has impacted on their role as a mentor. 20% had not been involved in developing this aspect and a further 26% gave no comment. Many mentors pointed out CPD in relation to other aspects of their mentoring work. Eg 7% had developed general mentoring and coaching skills through further CPD and a small number had attended briefings on the Secondary Strategy. Where subject and pedagogic knowledge is specified 45% either gave no comment or had not worked on this aspect of their CPD. This supports the finding of the previous question that a significant number of mentors appear to not be able to articulate this aspect of their practice. Where mentors had undertaken development in this area some have undertaken training related to specific strategies (teaching and learning, SEAL, Assessment for Learning and materials). Others have undertaken study at higher levels including Master's degree, Leading from the Middle and Post-Graduate Certificate courses. A quarter of those who said they undertook CPD to enhance their mentor role stated that they had done some degree of reading around either their subject or related to developing the trainee further. (Fig 2)



**Fig. 2** Subject Mentor Engagement in Subject Knowledge and pedagogic knowledge CPD

## Trainee Feedback

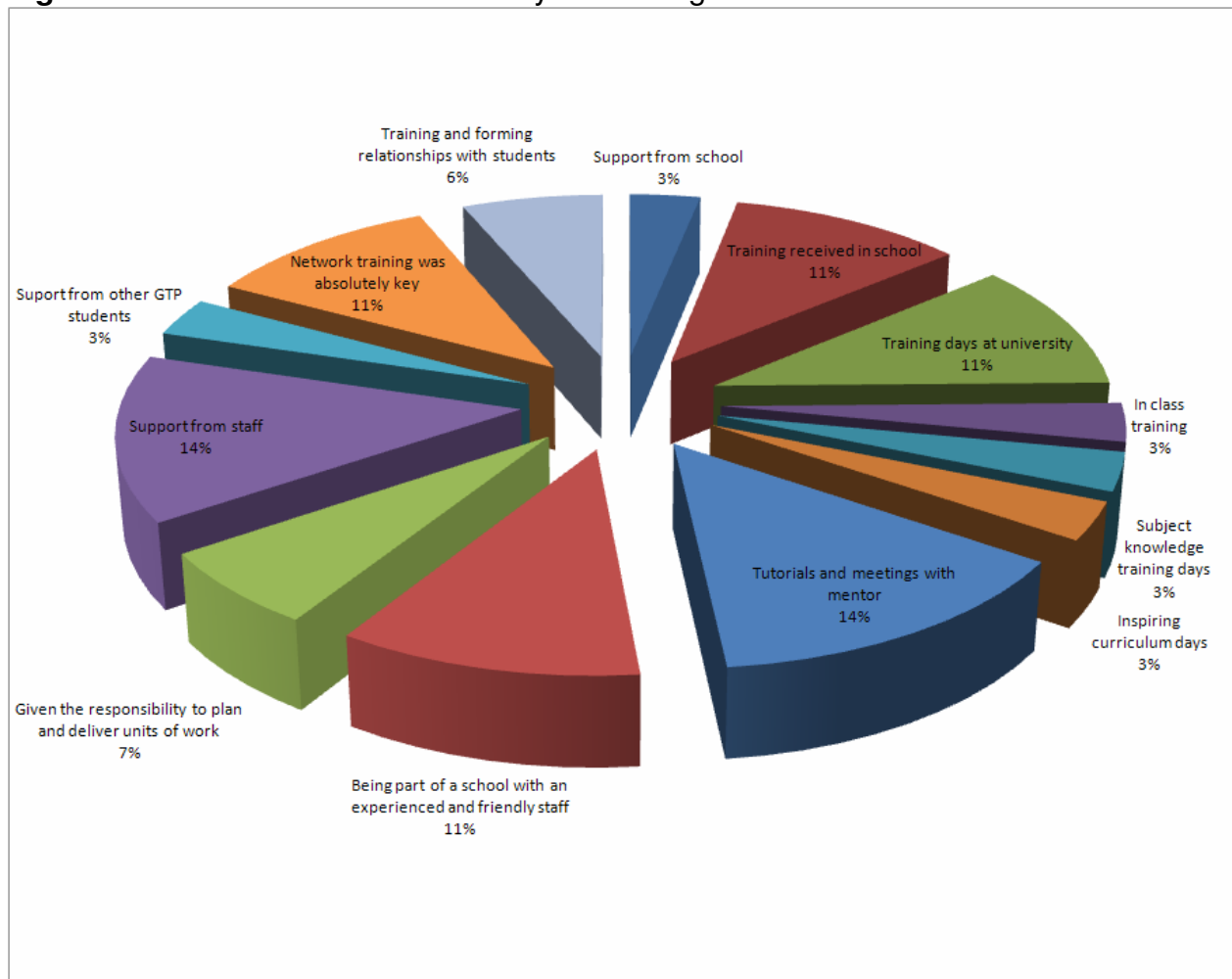
### ITT Subject Knowledge Preparation

Trainees are asked to give feedback about their course. In terms of subject knowledge, including pedagogy, 38% rated this as excellent with a grade 1 given; a further 52% thought it was very good. In comments given 10% felt some improvement was required in terms of pedagogy. However, most aspects for improvement were related to organisational and administration aspects of the course.

### Best Features of Trainees' Training

For most trainees, the best features of their training were either support from staff or the tutorials and meetings they had with their mentor (13% in each case). This was then followed by training days in university, network training and the training days received in school, along with being part of an experienced and friendly staff (10% in each case). So it would appear that for EBITT trainees, formal training elements develop their subject knowledge and pedagogy along with day to day practices of working alongside experienced staff.

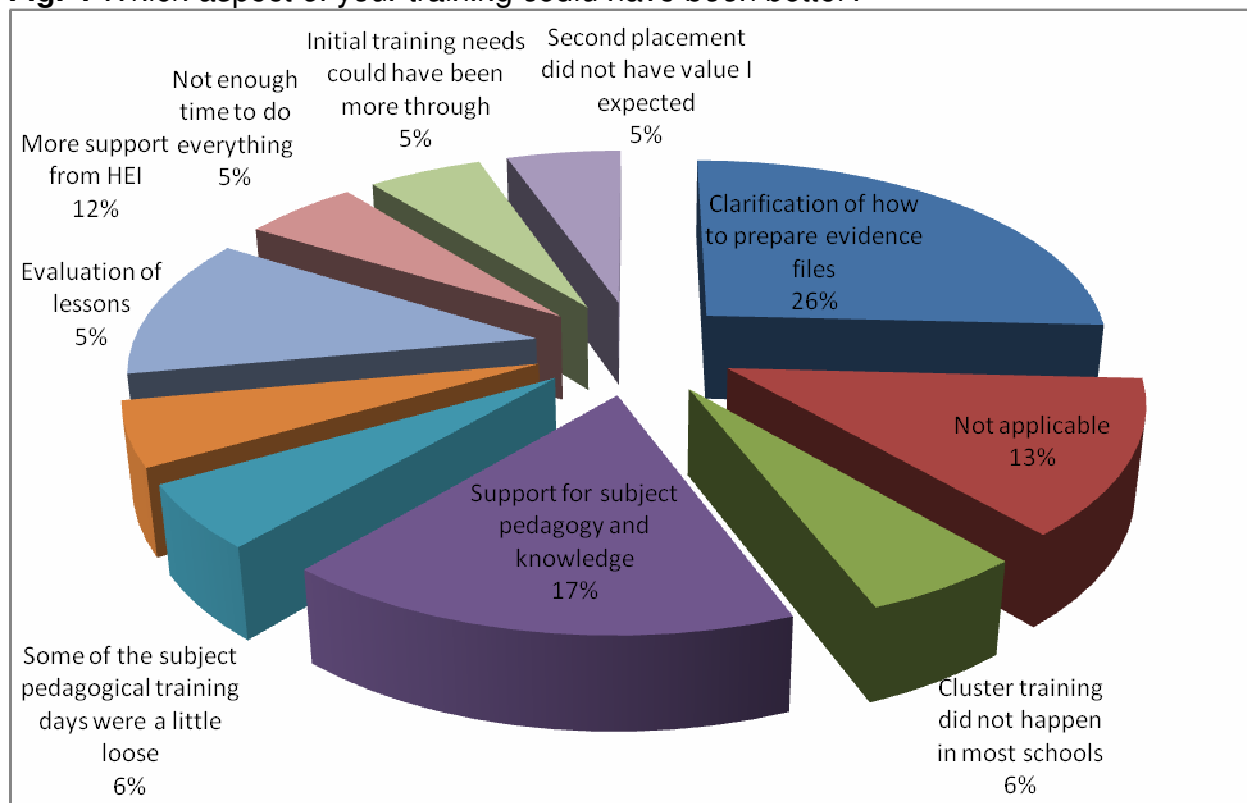
**Fig. 3** What were the best features of your training?



## Suggestions for Improvement

Many of the responses focussed on how the training could have been better related to administrative issues. There were 24% of trainees who felt that the subject pedagogy and subject knowledge required more support.

**Fig. 4** Which aspect of your training could have been better?



## Assessor feedback

Seventeen of the assessor reports commented on the provision of subject enhancement. In all but one case (where the initial teacher training coordinator was acting as mentor and this aspect of training was limited) it was judged to be sound or better. The mentor was often supported by other department staff. Positive responses were restricted to referring to the tasks set or reading. Five assessors commented that mentors set good subject tasks although in one case one task was not subject related. Two examples were given of encouraging reading - in one case two 'reading' weeks were allocated to the trainee. Only one mention was made of subject association and use of ttrb resources and that was because the trainee had not made use of these resources.

In answer to the question of whether the mentor has a good knowledge of subject pedagogy there was a positive response in most cases. Three out of 17 assessors did not answer the question. There was very limited detail in terms of examples given in relation to subject knowledge and pedagogy. Where examples were given they included the mentor's other responsibilities e.g. / subject coordination or being engaged in middle management roles or being a good teacher/mentor. No mention was made of whether a mentor was involved in a subject association or used ttrb resources. This may suggest

the assessor's reluctance to make a judgement or lack of time/ opportunity/ willingness to question the mentor in relation to this aspect of their knowledge.

In response to whether the ITTC checked the quality of subject enhancement training there were 12 positive responses. When asked for recommendations about future training that the partnership should provide for mentors, 4 requested more 'in depth' explanation for 'first time' mentors about the role of the mentor, files and documentation; 3 wanted an additional further training sessions part way during the academic year; and some felt that the partnership should find a way of developing of a 'community' of EBITT mentors through the training events.

## **Conclusions**

### **How do trainees enhance their subject knowledge?**

The TDA model of developing subject knowledge was a useful starting point for the research providing a way to view the data from the trainees' accounts of their experiences. However we found the model to be limited. It is a partial model which relates specifically to the QTS Standards in England that need to be achieved by a trainee in order to qualify as a teacher. In this model, knowledge of self is missing along with knowledge of one's own personal attributes and progress and self evaluation of whom and what we are. The TDA model only partially explains how teachers enhance their PCK.

Our research focuses on two aspects of the TDA (2007) model (subject knowledge and pedagogy) and the reflective accounts views the process from the beginner teachers perspective while training in a school based context. In trying to conceptualise our model we acknowledge the fact that each trainee comes to the EBITT year with different knowledge bases which are personalised.

Our findings suggest there are eight distinct ways in which trainees enhance their subject knowledge and pedagogy on the EBITT route

- Reflection on previous knowledge gained in degree or prior experience
- Initial needs Analysis identifying gaps in knowledge
- Reading
- Accessing web based resources
- CPD courses
- Working with colleagues
- Practical application
- Knowledge of self

We discovered that knowledge of self in relation to subject knowledge and pedagogy and knowledge of educational aims, purposes and values are intrinsically tied up in the linkage between subject knowledge and pedagogic knowledge whether this is recognised by the trainee overtly or not. The perception of self is evident in identifying, valuing and selecting particular opportunities for developing subject and pedagogic knowledge. The self is engaged in reflection and evaluation on the effectiveness of subject knowledge and pedagogy in practice. Our findings support the work of Kagan (in Turner-Bisset 2001) who identified the central role played by the novice's self image 'Indeed without a strong image of self as teacher, a novice may be doomed to flounder'.

There was some clear evidence that trainees were developing an understanding of educational aims, purposes and values through the process of developing their own subject knowledge, selecting teaching content, teaching strategies and approaches to PCK. This also supports the work of Turner-Bisset (ibid) who includes these discreet aspects within her eleven knowledge bases for teaching. She finds that in beginner teachers only some of the knowledge bases are combined but that all the knowledge bases are essential for PCK in its most comprehensive form. We found in the trainee accounts a variety of knowledge bases for PCK being addressed in a highly individual fashion depending on the nature of the subject and the trainee themselves.

The role of the mentor in terms of promoting discussions about educational aims, purposes and values and how they interweave with subject knowledge and pedagogy is an important aspect of teacher development.

Turner- Bisset (ibid) points out:

*For many teacher working at the chalkface, the day- to -day business of teaching is so all consuming, that they may have little time to consider the long-term aims of education. They may have aims, but these might not be explicitly expressed or discussed. However in truly expert teachers educational ends should be explicit in their thinking and planning.*

In our research, there was very little *evidence* of mentors specifically supporting trainees in the development of *this* aspect of their work and it would be interesting to highlight this aspect of PCK during training. It would also serve to detail the wider and distinctive role of the EBITT mentor.

We believe this model may be useful in helping students, mentors and ITTCs to become acquainted with the complex processes by which PCK is developed and intend to use this model to promote discussion in future training events for mentors, ITTCs and Assessors. Trainees using the model are able to see the distinctive features of each aspect of their PCK development to enable them to value and work on each relevant aspect in a more coherent way and make more rapid systematic process. The TDA model shows a wider view of subject knowledge development in terms of most of the features needed to ensure successful teaching including the pupil perspective and this model can be usefully linked with our model.

Ultimately what is important is the impact of the enhancement of PCK in the classroom. Previous models of implementation (Wragg, 1973) of teaching include the concepts of:

- *presage variables* such as the teachers personality or the child's ability influencing
- *process variables* such as the decisions taken by the teacher about methodology to use
- *product variables* for example learning achieved, attitudes or values developed

Teachers training in school based routes are continually reflecting on classroom practice and it is to be expected that they will reflect on the above three dimensions while they teach and so inform the model (Appendix 6) that we propose for how they enhance their subject knowledge.

## How well does our employment-based route match up to the implementation of PCKg as defined by Cochran et al (1993)?

Do teaching staff have the required subject and subject knowledge? What additional training might be required? What quality assurance procedures are necessary to ensure high quality subject knowledge and subject pedagogic training? Findings came from a number of perspectives to answer these questions. The increased emphasis on subject knowledge and pedagogic knowledge this year through the various training events and the setting of subject tasks has raised some awareness of the distinctive nature of this aspect of teacher development. This is evidenced in the trainee reflective accounts in 2008 where there were more specific examples of PCKg development showing much greater awareness of this aspect of their practice and the subject specific tasks set by the mentor. From this evidence, mentor evaluations of trainee progress, the assessors and ITTCs reports we can see that the PCK of trainees is improving. However there is still work to do if we wish to know more about the specific ways in which mentors are supporting trainees and the extent to which they have the appropriate up to date and in depth knowledge to undertake the tutoring required at this level.

Whilst trainees found their mentors to be very useful in their general development there is less evidence of the specific nature of that support for PCK enhancement. In particular whether this was a result of general encouragement for the trainee to learn independently and bring back updated ideas to the mentor or the mentor directing the trainee towards high quality resources in conjunction with specific tutoring. It seemed from the evidence that trainees appear to be taking a lead in directing their own professional development including subject knowledge. There appears to be limited evidence that mentors belong to their subject association or access resources themselves from the ttrb. The fact that mentors were not able to be precise in answering questions about subject knowledge and pedagogy, suggests that many find it difficult to articulate their understanding. The ITTCs who are responsible for selecting and quality assuring their mentors are also not very confident of the mentors' capability of tutoring PCK. This is a clear area for development in the EBITT partnership which will require more emphasis on making the *practical* and *personal* conceptual models of teacher education accessible to school based trainers. In identifying their training needs mentors are very pragmatic and do not consider the need for further input on the academic and critical aspects of PCK. This confirms the findings of Loughran et.al (2004), who found that the day to day work of school teachers - e.g. planning and assessment tend to create a focus more on doing teaching, rather than explicating the associated pedagogical reasoning. However it could be argued that you don't know the potential value of something until you understand it and there is substantial evidence (Abell, 2008) that after 20 years PCK continues to be an important concept. As Berry et al (2008) point out, PCK tends to invoke arguments around the so called theory practice divide.

Certainly mentors say they would like further information about the specific expectations of the PCK school based support role and the partnership is now more informed about what the focus of future training should be.

## Summary of Key Findings for the development of subject knowledge and pedagogy in EBITT routes

- Trainees learn subject knowledge and pedagogy in a highly individualistic way
- Few mention the ways that their mentors influence their subject knowledge and pedagogy
- Trainees take a lead in their own professional development including in subject knowledge and pedagogy
- Mentors find it difficult to articulate their understanding of subject knowledge and pedagogy
- Mentors need more knowledge and understanding of the potential of subject resources to improve the quality of their training
- Initial Teacher Training Coordinators (ITTCs) recognise the importance of mentors' subject knowledge and pedagogy but are less certain that mentors are prepared to fully undertake this responsibility
- ITTCs need to know more about the abilities of subject based mentors to enhance Pedagogical Content Knowledge and use this information to contribute to their selection/ deselection of and CPD support for mentors
- The majority of ITTCs recommend that the EBITT partnership should change the title of 'mentor' to 'school based tutor'
- The EBITT partnership needs to further support mentors in their training particularly for first time mentors, with more detailed information about role expectation, further support with subject knowledge materials/tasks design and aiming to create a community of mentors
- The TDA model is a partial illustration of a trainee's way of developing subject knowledge. The new SHU model developed from EBITT trainees actual experiences can be used to link with the TDA model, help teachers understand the complexity of acquiring subject and pedagogic knowledge and support training for all in the EBITT partnership



## Glossary of Terms

ITT	Initial teacher Training
EBITT	Employment based Initial Teacher Training
PGCE	Pg. Certificate in Education (1 year ITT route)
TDA	Training and Development Agency
GTP	Graduate Teacher Programme (1 year employment based route)
PCK	Pedagogical Content Knowledge
QTS	Qualified Teacher Status
Mentor	School based teacher responsible for training of trainee
SLT/ITTC	Senior Liaison Tutor (School based) ITT Co-ordinator
SEAL	Social and Emotional Aspects of Learning
ttrb	(TDA)Teacher Training Resource Bank (web based)

## References

Abell K.(2008) 'Twenty years later; does pedagogical content knowledge remain a useful idea?' *International Journal of Science Education* Vol. 30 No. 10 13 pp1405-1416

Berry A. Loughran J. Driel J. (2008) Revisiting Roots of Pedagogical Content Knowledge. *International Journal of Science Education* Vol. 30, No. 10 13 pp1271-1279

Bullough R. (2001) Pedagogical content knowledge circa 1907 and 1987: a study in the history of the idea. *Teaching and Teacher Education* Vol. 17.no6.p 655-666.

Cochran K.F., De Ruiter J.A., King R.A. (1993) Pedagogical Content Knowing: An Integrative Model for Teacher Preparation. *Journal of Teacher Education* Vol. 44 No 4 p263-272.

EPPI (2004) *What pedagogical practices do teacher educators use in Higher Education based elements of their courses?* Protocol for the Learning Theories Review Group. Social Sciences Research Unit, Institute of Education, University of London.

EPPI (2006) *Individual Teacher Training: A systematic map into approaches to making initial teacher training flexible and responsive to the needs of trainee teachers.* Social Sciences Research Unit, Institute of Education, University of London.

Feiman-Nemser S. (2001). 'From Preparation to Practice: Designing a Continuum to Strengthen and Sustain Teaching'. *Teachers College Record*, 103(6), 1013–1055.

Grossman P.L.(1990) *The Making of a Teacher: Teacher Knowledge and Teacher Education.* New York. Teachers College Press.

Hirst P. and Peters R. (1970) *The Logic of Education.* Routledge, London.

Korthagen F., & Vasalos, A. (2005) "Levels in Reflection: Core Reflection as a Mean to Enhance Professional Growth." *Teachers and Teaching*, 11(1), 47–71.

- Korthagen, F.A.J., & Kessels, J.P.A.M. (1999) 'Linking Theory and Practice: Changing the Pedagogy of Teacher Education'. *Educational Researcher*, 28 (4), 4–17.
- Lawson T, Harrison J. Cavendish S. (1999) Individual action planning in Initial Teacher Training: empowerment or discipline. *British Journal of Sociology of Education* 20; 89 - 105.
- Leinhardt. G. (1988) 'Situated Knowledge and Expertise in Teaching'. In J. Calderhead (Ed.), *Teachers' Professional Learning* (pp. 146- 169). London: Falmer Press.
- Loughran, J. (2003) *Knowledge Construction and Learning to Teach*. Keynote address for the International Association of Teachers and Teaching Conference. Leiden University, June 26–30, 2003.
- Mayotte G.A. (2003) Stepping stone to success: previously developed career competences and their benefits to career switchers transitioning into teaching. *Teaching and Teacher Education* 19: 681-695.
- Ryle G. (1949) *The Concept of Mind*. Hutchinson, London.
- Schon D.A. (1983) *The Reflective Practitioner: How Professionals Think in Action*. Basic Books, New York.
- Schwab J. (1964) 'The structure of the disciplines: meanings and disciplines' in Ford G. and Purgo (eds) *The Structure of Knowledge and the Curriculum*. Chicago : Rand McNally.
- Shulman L.S. (1986) Those who understand: Knowledge Growth in Teaching *Educational Researcher* 15 (2), 4-14.
- TDA (2002) *Qualifying to Teach: Professional Standards for Qualified Teacher Status and Requirements for Initial Teacher Training*. London.
- TDA (2007) *Developing Trainees' Subject Knowledge for Teaching*. London.
- Turner - Bisset R. (2001) *Expert Teaching*. David Fulton, London.
- Wragg E.C. (1973) 'A Study of Student Teachers in the Classroom' in *Towards a Science of Teaching* (Ed. Channon G.) NFER, London.
- Zeichner, K. M., Tabachnick, B. R., & Densmore, S. (1987). 'Individual, Institutional and Cultural Influences on the Development of Teachers' Craft Knowledge', in Calderhead J. (Ed.) *Exploring Teachers' Thinking* (pp. 21-60). London: Cassell.

## List of Appendices

- Appendix 1 TDA model: Developing Trainees Subject Knowledge for Teaching
- Appendix 2 Trainee end of year evaluation
- Appendix 3 Questionnaire for Initial teacher Training Co-ordinators
- Appendix 4 Mentor's final end of year review proforma
- Appendix 5 Assessor's end of year report proforma
- Appendix 6 SHU Model: How trainees Gain Subject Pedagogic Knowledge

**Pedagogy:**

**How does the subject training programme ensure trainees have:**

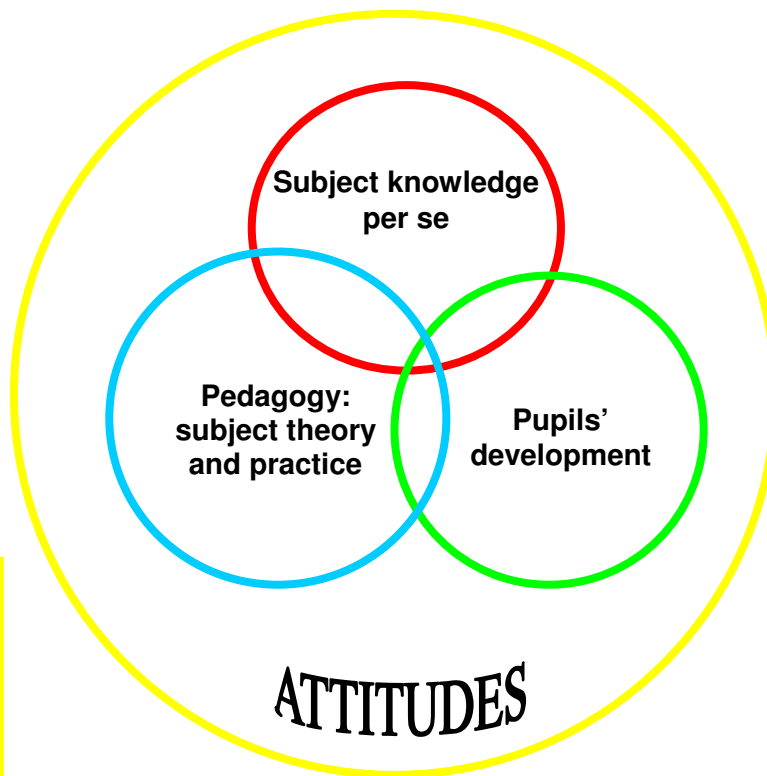
- a range of teaching skills and strategies to promote pupils' learning in the subject including behaviour management and those proposed by the national strategies
- the ability to plan lessons and sequences of lessons that are matched to pupils' needs, including opportunities for learning through homework
- the ability to make use of a range of resources including ICT
- skills in the assessment of pupils' learning and the ability to use the information to plan for teaching which meets pupils' needs
- the ability to make a subject accessible to pupils at different stages in their learning and development and to provide a supportive learning environment
- the ability to reflect on and improve teaching and learning
- high expectations of all pupils and skills in working to overcome barriers to their learning?

**Attitudes:**

**How does the subject training programme ensure trainees' commitment to and enthusiasm for:**

- the inclusion, achievement and well being of all pupils
- the subject or the curriculum area and for teaching it
- being creative in developing learning opportunities for all pupils
- continuing professional development within the subject or curriculum area
- working as part of a team, learning from others and contributing to the learning community?

**A way of looking at subject knowledge for teaching: subject review**



**Subject knowledge per se:**

**How does the subject training programme ensure trainees' knowledge and understanding of:**

- the key concepts, language, skills and topics that define the subject or curriculum area
- progression in the subject or curriculum area as defined by the national curriculum and other national expectations
- the relevance of the subject or curriculum area and why aspects of the subject or curriculum area are taught
- the connections across subjects or curriculum areas, including literacy, numeracy and ICT across the curriculum
- the relationships within the subject or curriculum area
- assessment of pupils' achievement in the subject or curriculum area?

**Pupils' development:**

**How does the subject training programme ensure trainees' knowledge and understanding of:**

- how pupils' learning in the subject is affected by developmental, social, religious, ethnic, cultural and linguistic influences
- the range of ways in which pupils learn
- how pupils develop as learners within the subject
- how the subject and curriculum area needs to be adapted to meet pupils' individual needs and contexts
- how parents and carers contribute to their children's learning and development?

**Extract from**  
**Yorkshire and Derbyshire Training Partnership**  
**GTP Trainee feedback July 2008.**  
**For completion during final assessment day.**

All questions refer to how well you feel that you are prepared for your first post.  
Please circle responses.

1 = very good    2 good    3 adequate    4 needs improvement

- |   |         |
|---|---------|
| 1 Assessment of individual needs at the start of the course                                     | 1 2 3 4 |
| 2 Did the training plan reflect your individual needs?  | 1 2 3 4 |
| 3 Did the training plan take into account previous experience?                                  | 1 2 3 4 |
| 4 The support (overall) to help you achieve QTS standards                                       | 1 2 3 4 |
| 5 Learning from the LA organised generic training days  | 1 2 3 4 |
| 6 Knowledge, skills and understanding to teach main subject (sec)<br>(NC Core Subjects primary) | 1 2 3 4 |
| 7 Knowledge of Every Child Matters  | 1 2 3 4 |
| 8 Planning to achieve progression in pupil's learning   | 1 2 3 4 |
| 9 Teaching children of different abilities  | 1 2 3 4 |
| 10 Teaching pupils from minority groups and EAL   | 1 2 3 4 |
| 11 The maintenance of a good standard of behaviour  | 1 2 3 4 |
| 12 Use of a variety of teaching methods to promote learning                                     | 1 2 3 4 |
| 13 Taking responsibility for own professional development                                       | 1 2 3 4 |
| 14 Monitoring and assessing the progress of pupils  | 1 2 3 4 |
| 15 Working with support staff   | 1 2 3 4 |
| 16 Knowledge of the National Strategy (primary or secondary)                                    | 1 2 3 4 |
| 17 Subject Knowledge (including pedagogy) overall   | 1 2 3 4 |

**Please write short responses to the following questions:**

Are you glad you followed an employment based route, and why?

What were the best features of your training?

Which aspects of your training could have been better?

Any other comments you would like to make about your training last year.

Appendix 3

The Enhanced Role of the Mentor for Employment Based Initial Teacher Training (EBITT) Routes: Subject Knowledge and Pedagogy

Questionnaire

1. Are you responsible for selecting and quality assuring the work of the EBITT mentors? Yes No (delete as appropriate)

2. We would like your views on each of the following criterion: complete the left hand column first *then* the right hand column

LEFT : <b>The EBITT Mentor should</b> ..... 1 = very important 2 = important 3 = neutral 4 = not important  RIGHT: <b>How well prepared are your EBITT mentors?</b> 1 = well prepared 2 = quite well prepared 3 = requires further preparation 4 = not at all prepared	<b>The importance of the criterion</b> Scale 1-4	<b>How well prepared are your EBITT mentors?</b> Scale 1- 4
..become familiar with the ttrb resources <a href="http://www.ttrb.ac.uk">www.ttrb.ac.uk</a> for the teaching of their subject + generic resources		
..have knowledge of resources made available by their subject association		
..encourage trainees to become involved in their subject association - through cpd courses / conferences/ meetings		
..be up to date with books and other resources (including research) about the teaching of their subject and be on a position to direct trainees to these resources		
..be familiar with any changes to national curriculum requirements and QCA advice about curriculum development in the subject		
..be familiar with a range of published schemes/ courses in the subject, including vocational		
..be aware of how training could be enhanced by visits to specialist schools and other centres of excellence in the teaching of the subject		
Are there criteria not on this list that should be included?		

3. In your view, is the quality assurance of selecting a teacher as an EBITT mentor the role of the Initial Teacher Training Coordinator? Yes/No

4. Should the title 'mentor' be changed to 'school based tutor' to reflect this new requirement for the GTP route? Yes / No

Please add further comments here on any of the above questions if you wish including any in house/ external CPD requirements may be needed

Optional: Your name: \_\_\_\_\_ Name of school: \_\_\_\_\_ Town: \_\_\_\_\_

EXTRACT FROM Mentor's end of year assessment

**Yorkshire and Derbyshire Training Partnership**  
**Graduate Teacher Programme**

**Evaluation of Graduate/ Registered/ Overseas Trained Teacher Programmes Sept 07 - August 08**

Please complete for each trainee mentored.

**Mentor Evaluation** (to be completed preferably during the final assessment visit and collected by the assessor)

**General Comments**

**Subject Knowledge Enhancement (please write a few sentences)**

TDA have identified subject knowledge/ subject pedagogical enhancement as a priority for development in EBITT.

Has your trainee made appropriate progress? e.g. with tasks set, reading, any example of very good progress?

In your own preparation did you make use of resources on the ttrb, or from your subject professional association? Any examples?

Has supervising an EBITT trainee increased your own subject knowledge/pedagogical knowledge?

Are you/ have you been engaged in any cpd in subject knowledge/ pedagogic knowledge that has helped in your mentor role? Any examples? e.g. exam board training, courses, personal reading, involvement with subject association?

**EXTRACT FROM Assessor's Report**

**Yorkshire and Derbyshire Training Partnership**  
**Graduate Teacher Programme**

**Evaluation of Graduate/ Registered/ Overseas Trained Teacher Programmes Sept 07 - August 08.**

**Subject Enhancement**

**This has been an area of development during the year, and is an ongoing priority for the TDA. The introduction of the 60 days training next year puts more emphasis on the school to provide high quality subject focussed training. We need to have evidence for Ofsted as to how prepared schools are to raise the quality of subject training. Please write a few sentences on the following:**

1/ How well has the mentor supported the subject enhancement development ( including subject pedagogy). eg in quality of tasks set, learning monitored, use of materials from ttrb and subject professional associations , encouraging trainee to read about the teaching of their subject(s)?

2/ Has the mentor /subject specialist a good knowledge of subject pedagogy through reading / involvement in subject association/ engagement in cpd?

3/ Has the SLT ( School IT Coordinator) checked the quality of subject enhancement training and are they aware of any possible professional development needs of future school based trainers?

4/Have you any recommendations about what training we should be provided for school based trainers and if one of the expectations of them is that they be engaged in relevant cpd?



**How trainees gain pedagogic subject knowledge**  
**The Pedagogic Content Knowledge (EBITT) Model - Hawksley et al 2008**

