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# Design and technology: initial and in-service teacher training in England

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## **Abstract**

*This paper is based on a survey of design and technology initial and in-service teacher training in England. The survey was devised by the members of the Design and Technology Association (DATA) Initial Teacher Education (ITE) Advisory Group and sent to design and technology initial teacher training (ITT) providers.*

*The aim of the survey was to build an overall picture of the situation for design and technology to identify ways of supporting ITE at a time when recruitment for future design and technology teachers is a key issue in schools in the UK. The data requested included the name of provider, contact name and specific course details, backgrounds of trainees entering the courses, staffing, resources, planned changes and INSET for staff, partnership schools, the impact of Ofsted/HMI inspections and any additional comments.*

*Reference is made to recent developments and government initiatives resulting in changes in the school curriculum, in-service training and teacher training. The results of the survey are presented, a number of key issues discussed and recommendations made for ways forward.*

Keywords: design and technology, ITE, ITT, INSET, resources, Ofsted

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## **Context of the research**

Initial and teacher training (ITT) and in-service training in design and technology, as with other subjects of the curriculum, have gone through considerable changes in recent years. The first government document highlighting future changes was concerned with the accreditation of ITE courses (DES, 1989) and required providers to form partnerships to ensure a more effective school-base for training of future teachers. This was followed by the Circulars 9/92 (England), 35/92 (Wales), 14/93 (Primary) and 10/97, which introduced the first National Curriculum for ITT. To successfully complete a course of ITT and be eligible for qualified teacher status (QTS), a trainee was to be assessed against a set of 'Standards'. This requirement was further clarified in Circular 4/98 (DfEE, 1998). The key objective was to give schools a central role in ITE with students required to spend more time in school.

The changes begun in the early 1980s have led to a new pattern of initial teacher training. The Government, through the Teacher Training

Agency (TTA) established in September 1994, made use of Ofsted inspections of ITT establishments to hold providers accountable for their training and in some extreme cases close down courses (DfEE, 2001).

These changes have had considerable implications for ITE course planners. Research into partnership arrangements in a number higher education institutions (HEIs) and school centred initial teacher training (SCITT) schemes concluded that:

at its best, partnership encourages teachers in schools and HEI tutors to reflect on their practice, with a frank and free exchange of ideas of practical teaching in the classroom. Design and technology teachers can gain a better understanding of changes taking place in their curriculum area at the same time as being directly involved with the development of a new generation of design and technology teachers (Rutland, 1999a).

However, the shortened period of time at the HEI does mean that, particularly on one-year PGCE courses, there is very limited time to provide in-depth specialist sessions (Rutland, 1996).

Prior to the introduction of the National Curriculum in 1990, secondary schools taught the 'craft based' subjects of home economics, including food and textiles, and craft design technology (CDT). The primary curriculum has always included designing and making activities with materials such as card and paper, but the National Curriculum introduced a wider design and technology curriculum. Considerable progress was made during the 1990s to form secondary coherent departments based on the specialist design and technology fields of resistant materials, food and textile technology and systems and control as outlined by DATA (1995). Today, experienced and newly qualified teachers consider themselves 'design and technology' teachers with relevant specialisms.

Before 1990, the most common route for design and technology teachers was through a four-year BEd course, combining a specialist degree with QTS. In recent years the trend has been to complete a first degree followed by a postgraduate certificate in education (PGCE). These degrees have an industrial and business base with an industrial placement and are ideally suited for teaching the new design and technology courses in schools. However, the range of, for example, food and textiles degree courses and possible careers (Rutland, 1999b) means that employment in industry is an attractive option. Research shows that many course tutors assume that students will follow a career in industry and know very little about design and technology in schools

or routes into teaching (Kimbell and Miller, 2000). Before 1990, design and technology was not part of primary ITE courses, but today the majority of courses include a small design and technology input for all students, with a growing number offering a specialist route for design and technology.

Other changes include additional routes into teaching through school centred initial teacher (SCITT) schemes, the graduate teacher scheme and training schools. (DfEE, 2001). Traditionally, LEAs ran in-service training for teachers, but inspectors and advisors have decreased in number and their role has increasingly emphasised inspection rather than advice. In-service training is generally delivered by independent groups and consultants.

It was within the context of the wide range of developments that the Design and Technology Association (DATA) ITE Advisory Group decided to attempt to gather data to evaluate the situation for initial teacher and in-service education.

## Research

A questionnaire was sent to 40 design and technology ITT providers in the spring of 2000. The term ITT was used as the survey included both HEIs and SCITTs. The initial response was disappointing and the questionnaire was sent again in the autumn of 2000. In total, 15 HEI and four SCITTs replied (just under 50% of the total

<i>HEI providers</i>	<i>SCITT providers</i>
Bath Spa University College Bretton Hall Goldsmiths University of London Middlesex University Loughborough University Nottingham Trent University Sheffield Hallam University The Open University Trinity and All Saints College University College Worcester University of Exeter University of Manchester University of Sunderland University of Surrey Roehampton. University of Wolverhampton.	CfBT North London Consortium North West Kent Teacher Trainers South West Teacher Trainers

*Table 1: HEI and SCITT providers.*

Secondary (11–18 years)	BEd/BSc/BA (Hons), BEd/BSc/BA (Ord), PGCE 1 year; PGCE 2 year
Primary specialist (5–11 years)	BEd/BA (Hons), PGCE
Key Stages 2/3 specialist (7–14 years)	BEd/BA (Hons), PGCE
INSET	Postgraduate certificate, postgraduate diploma, BEd/BA part-time, Mphil, MA/MEd

*Table 2: ITE courses.*

providers) and the survey was analysed in the spring of 2001. The aim of the survey was to build an overall picture of the situation for design and technology to identify ways of supporting ITE at a time when recruitment for future design and technology teachers is a key issue in schools.

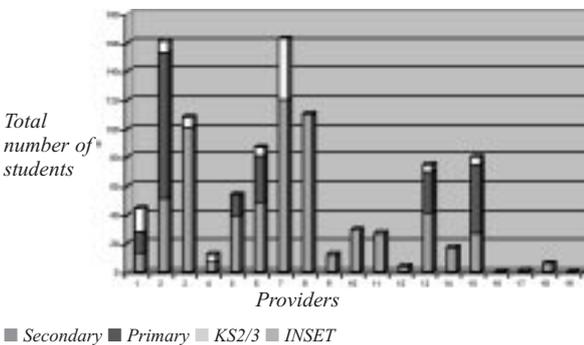
The 15 HEI and four SCITT providers who responded to the survey are listed in Table 1. It is noted that some major ITE providers did not reply and are not included.

The questionnaire consisted of 40 questions. Data requested included the name of the provider, contact and specific course details (Table 2), backgrounds of trainees entering the courses, staffing, resources, planned changes and INSET for staff, partnership schools, the impact of Ofsted/HMI inspections and any additional comments.

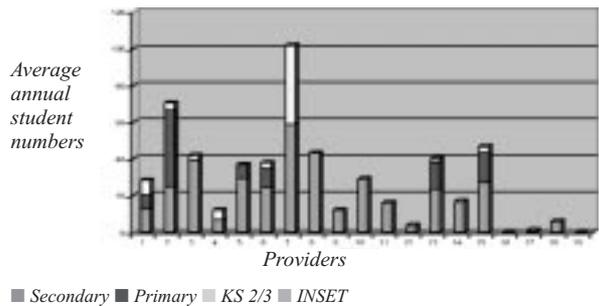
**Results**

*Courses and student details*

- There were a total of 654 secondary students across the providers (Figure 1). Six of the 19 providers had primary design and technology specialist courses with a total of 241 students, three have Key Stages 2/3 specialist courses with 29 students. Five providers run INSET courses.



- One provider had a noticeably large average annual number of students on INSET courses and two of the four SCITT providers have no



*Figure 2: Average annual student numbers for each provider.*

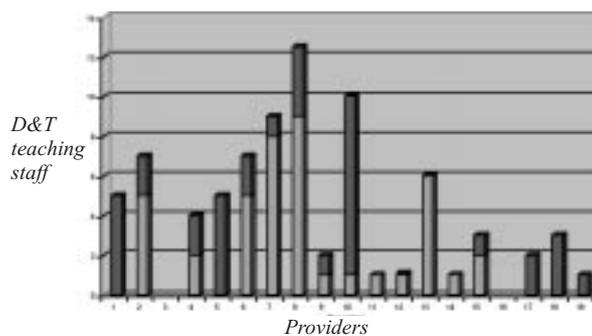
- design and technology students (Figure 2).
- There was an even gender balance on secondary courses, but primary students were predominately female.
- Primary courses were planned to cover all design and technology specialisms.
- Two Key Stage 2/3 courses produced resistant materials and system and control specialists and one covered all the specialisms.
- The data on specialisms on secondary courses indicated that combined degrees and QTS courses almost exclusively produced resistant materials and systems and control specialists (Table 2). The balance was better on one-year PGCE courses with approximately 50% of the number of resistant materials specialists specialising in each of systems and control, food and textiles technology.
- Generally secondary but not primary students had industrial experience.

**Staffing issues**

- The data on the number of design and technology teaching staff for each provider (Figure 3) was unclear as part-time could indicate staff who are full-time but teach on other courses, for example a design and technology undergraduate non QTS course.
- HEIs generally had a lower number of part-time staff, but part-time staff taught all SCITT schemes.
- A large majority of the design and technology staff were in the age range 41–60 years, with one provider with all staff in the 51–60

Courses	Resistant materials	Systems and control	Food technology	Textiles technology
BEd/BSc/BA (Hons)	79	75	1	3
BEd/BSc/BA (Ord)	13	11	0	0
PGCE 1 Year	114	52	49	46
PGCE 2 Year	11	9	0	0

*Table 3: Major specialist student numbers on secondary course.*

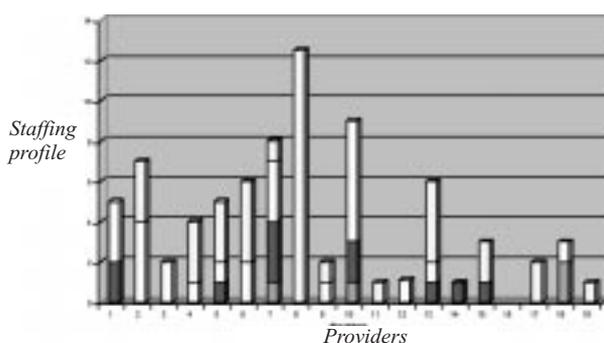


■ Full-time ■ Part-time

Figure 3: Numbers of design and technology teaching staff.

age range. Eight providers had staff in the age range up to 40 years.

- Generally staff had both design and technology and school teaching experience.
- Technician support staffing ranged from three providers with none to two with five.



■ Under 31 ■ 31-40 ■ 41-50 ■ 51-60

Figure 4: Age profile of staff.

- Figure 5 indicates that all but three of the design and technology co-ordinators has been in post less than 11 years, with one in post for 20 years. Some institutions had no overall design and technology co-ordinator but separate course leaders e.g. primary and secondary.

### Resource issues

- Capitation ranged from £400–£26,000. Nine providers thought funding was adequate and five did not.
- Generally money was not allocated to specific specialisms of design and technology, though

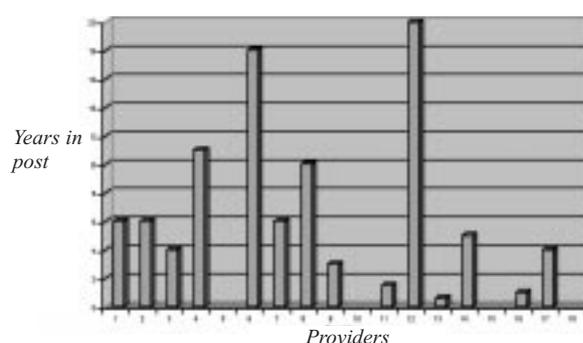


Figure 5: D&T co-ordinator – years in post.

it is sometimes allocated to different courses.

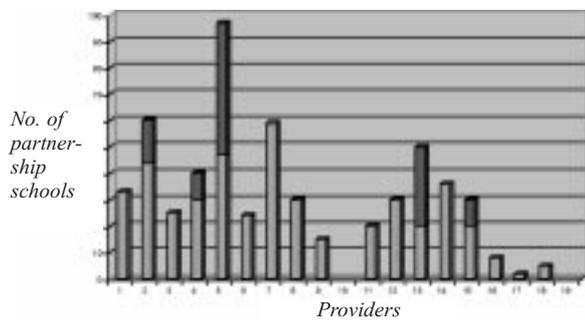
- Charging trainees and industrial funding were not popular as sources of additional funding. Consultancy and INSET courses proved the most common approaches.
- Accommodation was the highest priority for new resources followed by storage, electronics, control and CAM.

### Planned changes and INSET for staff

- 12 providers said they did not, and seven providers said they did, plan to change the number of courses offered.
- Staff development days during the previous 12 months ranged from 29 to an average of 5–6 days.
- Seven providers had recruited staff in the last two years, 12 had not. Only two London based providers reported difficulties in recruitment.

### Partnership school

Providers (Figure 6) used 20 to 60 secondary partnership schools. A large number of primary schools were used for a relatively small number of students. Secondary schools and mentors presented no problems and were involved in assessing trainees. The quality of primary mentors was more varied and they were not always involved in assessment of trainees.



■ Secondary D&T placement schools ■ Primary D&T placement schools

Figure 6: Partnership schools used for school placements.

## Impact of Ofsted/HMI inspections

Generally the providers' response was positive with comments such as:

- a positive report and no changes were needed
- more detailed documentation produced plus some minor refinements
- report highlighted areas for development, and it was used as a basis for changes to course structure and selection procedures
- monitoring of students improved
- report backed up requests for resources, particularly ICT, and improved staffing levels
- comments on professional year helped focus attention resulting in considerable change and improvement
- inspection resulted in improved standards but it is very difficult for schools to give ITT a priority.

Other comments included:

- comparison of Ofsted performance with other courses may affect funding
- caused staff illness and early retirements and probably hastened closure
- led to a new course leader and a major course overall
- difficulties matching trainee's previous qualifications and experience to training opportunities and identifying two fields of specialism.

## General comments from providers

### Courses

- It is difficult to give a percentage of the total hours, contact or learning, allocated to design and technology as these may be part of the subject programme or the professional year.
- The closure of the education department in the university caused problems for ITE in the design and technology department. The result

is a smaller teacher education unit including design and technology and two other secondary subjects.

- The DfEE conference in 1999 was used to bring course into line with 'best practice'. The DATA skills audit on entry was used for monitoring progress.
- Design and technology teaching time is too limited to organise significant training to address 'gaps'.
- Education courses are taught alongside other undergraduate non-QTS design and technology courses.

### Staffing

- Staff teach on ITE and undergraduate programmes.
- Difficulties when combining classroom experience with design and technology expertise for primary staffing.

### Recruitment

- A recent small reduction in recruitment due to an inability to take risks with certain candidates with potential.
- Partial funding of unfilled secondary design and technology places is likely to result in courses being closed. They will be difficult to reopen when recruitment improves.
- In school-based schemes trainees may be teachers employed in the schools.

### Funding

- Design and technology courses are considered expensive to run e.g. specialist staff and accommodation.
- Capitation for design and technology education depends on a bidding system with income generation supporting ITE courses.

### New developments

- Major changes to ITE structure e.g. 3-year non-QTS programme with an option to continue onto a PGCE. A secondary access course beginning September 2000. An additional modular course is being considered.
- Teachers are to be involved in centre based training of secondary teachers.
- Is there a hidden agenda to make HEIs give up ITE?

## Conclusions

The findings are based on a limited number of providers and the questionnaire was complex. However, it is the first time an attempt has been made to gather an overview of the situation in ITE following the major changes of recent years.

### *Courses*

- The growth of the PGCE route is positive in that it allows mature candidates to enter the teaching profession with industrial experience. However, this should not be the only route as industry is a strong attraction for such students. It is disappointing that there are few opportunities for students to enter teaching through a degree with QTS. Such courses would attract A' Level pupils committed to teaching.
- The lack of balance between the specialist areas on the degree plus QTS courses is a cause for concern. It is not clear why there are no such courses for students specialising in food and textiles technology. The situation on the one-year PGCE courses is better but the lack of balance remains.
- The findings indicate that secondary PGCE students are the most likely to have industrial experience, which is positive for teaching the new design and technology courses in schools. However, this has implications for combined degrees and QTS courses to include such experience.
- The increase of primary design and technology specialist courses is very encouraging as such students have an important role to play in developing and supporting design and technology and teachers in primary schools. Again, Key Stages 2/3 courses produce specialist design and technology teachers able to strengthen and lead design and technology.
- Female primary ITE students, especially PGCE, and experienced teachers will continue to need to strengthen weak areas of their subject knowledge. The specialist female design and technology ITE students have a supportive role model for these teachers, together with in-service courses run by providers.
- Only a small number of providers run in-service courses, which is a cause for concern when teachers in school require good quality provision as part of their continuing professional development (CPD). If resources were matched to local needs, providers could pro-

vide this support and development for teachers and design and technology mentors.

- The SCITT courses continue to have very small numbers of design and technology students reflecting issues related to group size and the need for experienced staff to plan and deliver such courses.
- If providers have different design and technology course leaders, there is a need for a coherent overview of the design and technology courses to make the best use of expertise and resources.
- Providers indicate a willingness to consider new types of course structure, but there are funding and resource issues to take into account.

### *Resources including staff, equipment and accommodation and partnership schools*

- Staff teaching on ITE and undergraduate courses is seen as a positive factor as both courses benefit from good specialist input. This has implications for the joint planning and teaching of these courses.
- The staff age profile is a concern for the near future. There could be difficulties attracting experienced staff from schools to teach and organise these courses due to lack of parity in salaries.
- The variations in capitation and the need for income generation have implications for funding resources, the time required to manage these activities and the need to carry out research.
- The general satisfaction with secondary partner schools and mentors reflects the efforts of HEIs and schools in recent years. The situation in primary schools continues to require attention.
- Ofsted has had a general positive impact on the development of the courses, staffing and resources. However, there is concern that it may be difficult to reopen courses that have closed in recent years.

### *Recommendations*

The survey was completed for 1999/2000 and further changes have taken place. Initiatives have been introduced as the general teacher recruitment situation has become increasingly severe, for example, 'training salary' with an additional sum of money for shortage subjects, including design and technology, for PGCE students in their first year of teaching.

### *Suggestions*

- The ITE Advisory Group has initial discussion on the finding of the survey in the Spring of 2001.
- The findings are made available to all providers through conference proceedings papers and discussions in order to implement a plan of action to support ITE in design and technology. Strategies are established to communicate the issues highlighted in the survey to the appropriate people and organisations.
- The survey is refined in the light of suggestions and completed on an annual basis to develop a coherent ongoing picture of design and technology initial and in-service teacher training. More providers are encouraged to take part in future surveys.

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