

Teacher Recruitment in Design and Technology: Food Technology

Abstract

This paper presents an update of the findings of a research project carried out by the National Association of Teachers of Home Economics and Technology (NATHE) in the spring of 1998. The research explored a perceived national shortage of teachers available to teach food and textiles technology within design and technology. The findings were presented and published in 1999 as a paper at the International Conference on Design and Technology Educational Research and Curriculum Development (Rutland, IDATER 1999). This paper focuses on food technology as the problem is considered to be particularly severe in this specialism of design and technology.

A number of issues appeared to be relevant, including changes in the traditional routes into secondary teaching, a change of focus in some degree courses, the introduction of National Curriculum design and technology in 1990 and regional differences in teacher shortages. NATHE decided to research into the problem of recruitment of food technology teachers to try to identify ways of improving the situation. A range of higher education institutions were asked to complete a questionnaire for information of relevant courses, together with examples of posts gained by their graduates.

The paper presents a review of the data collected related to food technology and the current situation. It draws some conclusions and makes recommendations for the future.

Background to the research

Design and technology was introduced in 1990 as a National Curriculum compulsory subject for pupils aged 5 to 16 years in England and Wales (DES, 1990) with a distinctly different curriculum for Scotland and Northern Ireland. Today, following two revisions, one in 1995 and the last one in 1999, England and Wales have their own National Curriculum for design and technology. However, this research was carried out nationally across England, Northern Ireland, Scotland and Wales.

Up until 1990 it was common in the UK to find the 'craft based' subjects of home economics, including food and textiles, taught to girls and craft design technology (CDT) to boys. Traditional barriers had begun to breakdown during the 1970s, when equal opportunities legislation made it illegal to restrict subjects based on a gender divide, but it was the introduction of National Curriculum design and technology which provided an opportunity for the two subjects to work

together under a common umbrella. The early years were not easy. Home economist teachers felt threatened, as it seemed that their subject was fragmenting and no longer valued. Despite this, considerable progress was made during the 1990s by many secondary design and technology teachers in schools to form coherent departments based on the design and technology fields of resistant materials, food and textiles technology and systems and control as outlined by DATA (1995). The term 'home economics' is now rarely heard in certain areas of the UK either as a title for a teacher or a subject. Experienced and new teachers entering the profession think of themselves as design and technology teachers with relevant specialisms, including food.

Before the introduction of the National Curriculum, the most common route for food and textiles teachers (and for CDT) to join the profession was through four year courses which combined a relevant education related degree with a teaching qualification and immediate entry to teaching. Pupils leaving school with A' Levels were able to follow courses which included the title 'home economics', for example a BEd home economics from Roehampton Institute, a BEd home economics or dress and textiles from Bath College of Higher Education. Pupils could also take a limited number of three-year BSc courses in Home Economics at, for example Bath, or a four-year BSc home economics at Surrey University, with a one year industrial placement, and a postgraduate certificate in education (PGCE). The majority of students on the BSc courses went into posts within the food and retail industry or welfare/social services with some completing a PGCE and all BEd students normally went into teaching (Rutland, 1984). The routes for intending teachers of food and textiles in schools were very clear.

Problems in recruiting design and technology teachers in schools has been an ongoing issue for schools in recent years, with particular difficulties in areas such as the south east of England. For example, the PGCE design and technology secondary course at the University of Surrey Roehampton has since 1993, recruited specialists in one of the fields of resistant materials, control systems, textiles or food technology. By the end of the course the students are also able to teach one other field at Key Stage 3. The course is devised to have common elements for all students and sessions for each specialist field. Generally, students have found no difficulty in securing a teaching post at the end of the course. In the early years the number of food technology students on the course was very low, despite the fact that Roehampton was the only PGCE

Marion Rutland

*Senior Lecturer in
Design and
Technology
Education, Surrey
University
Roehampton*

design and technology course in the London area recruiting food specialists. These students very quickly found teaching posts, but it became increasingly frustrating to know that it was not possible to satisfy all the phone calls and letters from schools requesting food technology specialists.

Research

So why was Roehampton finding it so difficult to recruit food specialists? For many years NATHE provided course information for prospective higher education students and teachers in schools. During my presidential year of 1998/9, NATHE became aware, due to an increasing numbers of requests, of a national shortage, particularly in the south east of England, especially food technology teachers. The situation appeared to worsen as schools were looking for teachers to teach the new food and textiles technology GCSE design and technology courses introduced in 1996. In July 1998 NATHE, in conjunction with the Teacher Training Agency (TTA), held a conference on teacher supply in design and technology and specifically food technology. The attendance and input from professionals in the world of education and industry was very encouraging and positive.

NATHE were also concerned by the number of enquires they were receiving from home economists with degrees who wanted, but did not know how, to enter the teaching profession and from teachers unsure how to advise their pupils. A quick survey of the courses at traditional higher education institutions offering suitable courses appeared to indicate considerable changes in course names, emphasis and content.

In the spring of 1998 NATHE decided to develop the research further. Nicola Johnston, the Association's Assistant Editor, and I, compiled and piloted a questionnaire which was sent to 65 higher education institutions, including those previously listed in their guide and new ones identified through the UCAS handbook. Forty-nine completed and returned the questionnaire. Each was asked to provide course data including a) the level and name of the course e.g. HND, BA, BSc, PGCE, QTS or Masters in, b) their duration and c) the

core and optional elements using headings listed in Table 1 and finally d) typical posts taken by students on completion of the courses.

Results

I have only included here the results for the food-related courses, but the results for textile courses are also available.

Nicola Johnston collated the results for the food courses under six sections, five food and one education related courses. They were:

- **Food industry management/production** (16 courses) – contain an understanding of the principles of food and the effects of processing. Figure 1 shows an emphasis on food product development, business, resource management, ICT and microbiology.
Career opportunities include: industrial management, retailing, design and development and consumer protection.
- **Food technology/science/studies** (15 courses) offer a more disciplined approach to the study of food with a focus on the scientific or technological aspects of food and the effects of processing.
Career opportunities include: consumer protection, design and development (flavouring and additive development, sensory analysis, biotechnology, ingredients engineering), retailing and teaching. Figure 2 shows that such students favour careers in consumer protection, design and development and, joint third, retailing and teaching.
- **Nutrition** (15 courses) includes the study of processes in plants and animals involving the assimilation of nutrients for energy, growth, and resistance to infection and repair.
Career opportunities include: health education and advisory (hospitals, GPs' surgery, community services, new product development, consumer advice and media), teaching. Figure 3 indicates that nutrition students tend to go into health education and advisory positions followed by teaching a strong third.
- **Hospitality and catering** (21 courses) prepare students for the hotel and hospitality industry including business travel, weekend breaks, exhibitions venues, theme parks and overseas tourism. Industrial catering covers large-scale organisations such as hospitals, prisons, schools, airlines and the armed forces.
Career opportunities include: hospitality industry, retailing, industrial management

Table 1: Core and optional elements of courses.

1 Design	9 Nutrition
2 Food science	10 Hospitality
3 Food product development	11 Consumerism
4 Textile science	12 Resource management
5 Textiles design/development	13 Life skills
6 Health	14 ICT and communications
7 Welfare	15 Microbiology
8 Business	16 Psychology

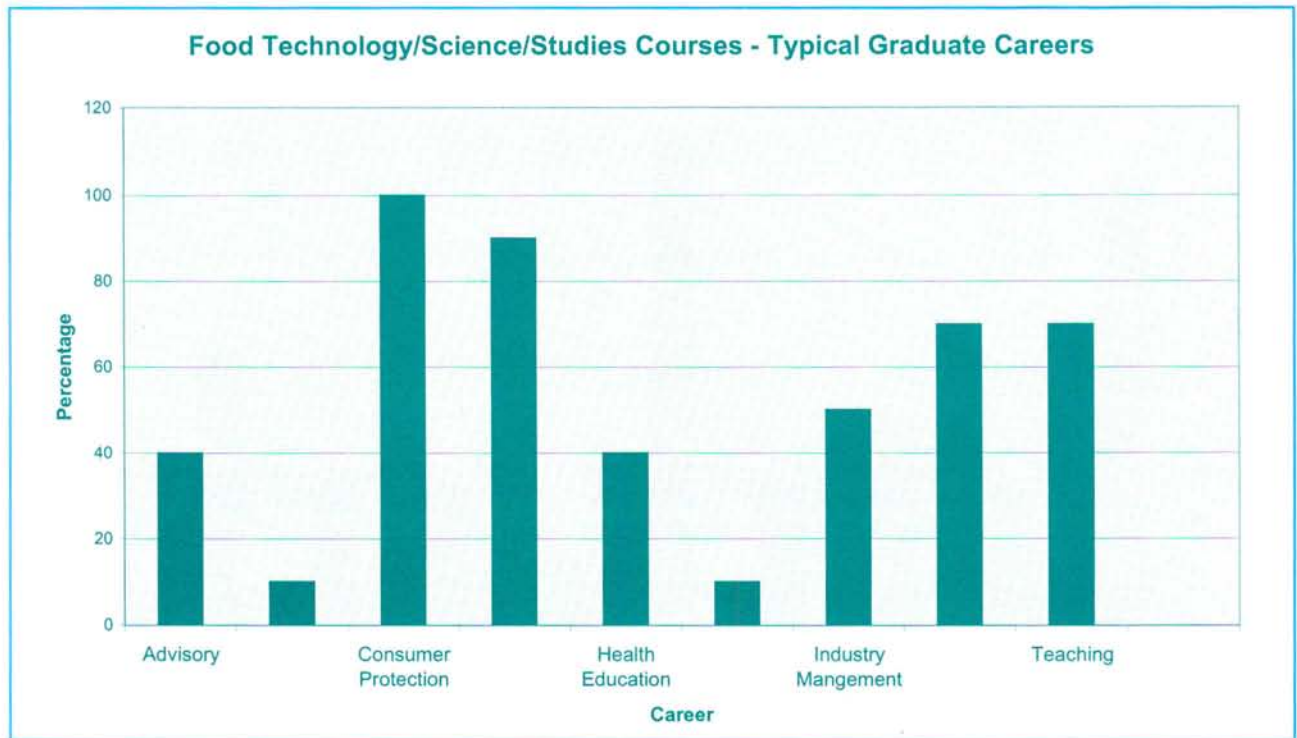


Figure 1: Food technology/science/studies courses – typical graduate careers.

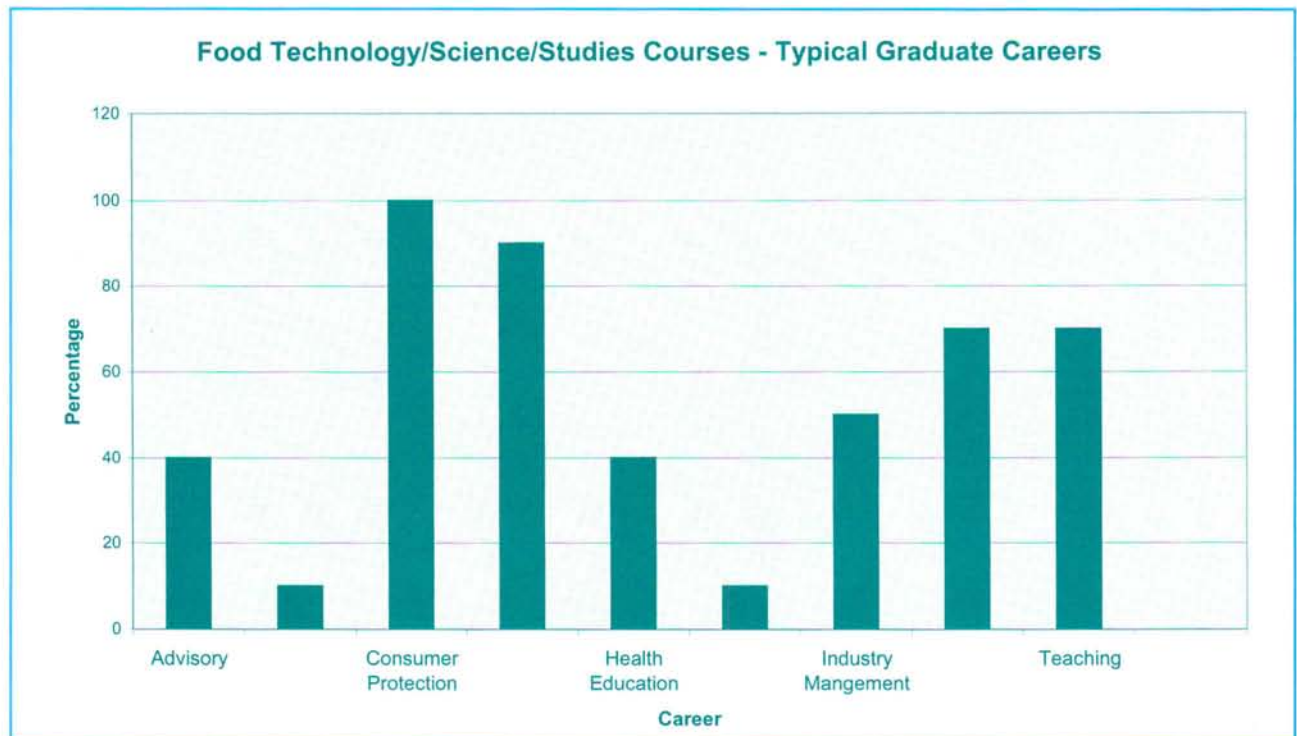


Figure 2: Food industry management/production courses: core and optional aspects of courses.

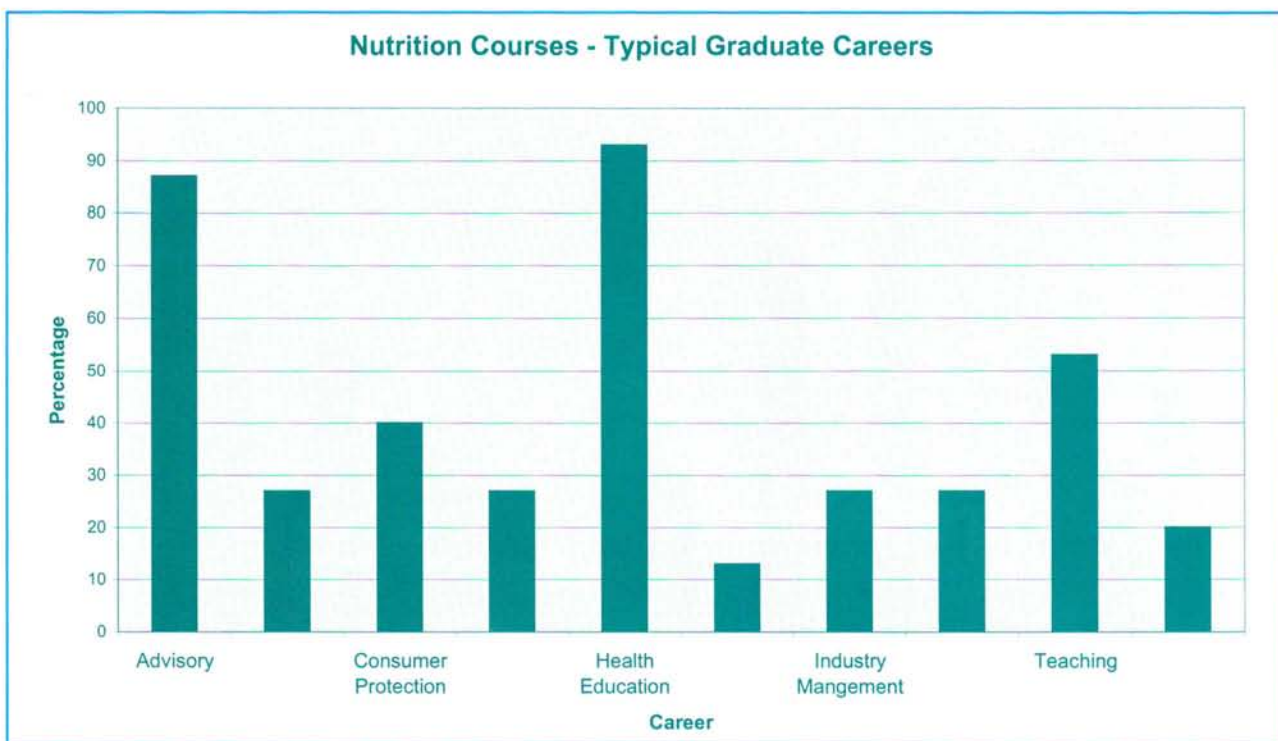


Figure 3: Nutrition courses – typical graduate careers.

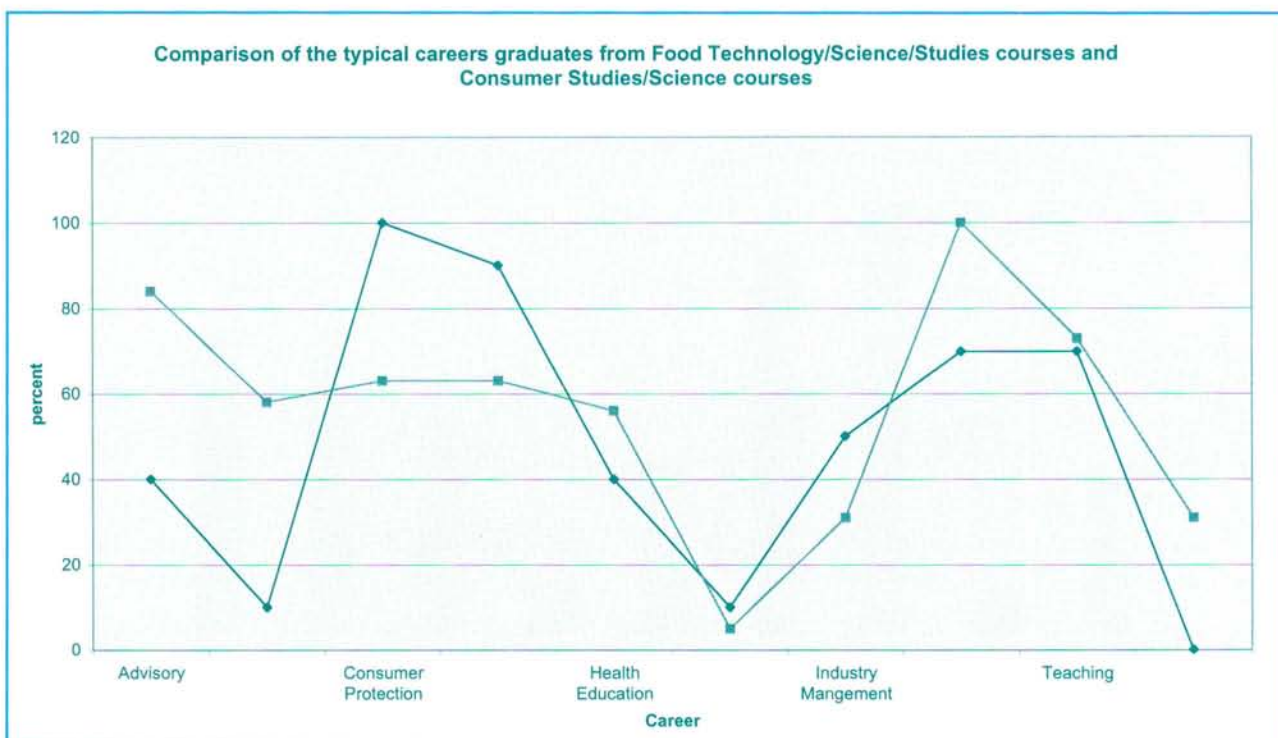


Figure 4: Comparison of the typical careers graduate from food technology/science/studies courses and consumer studies/science courses.

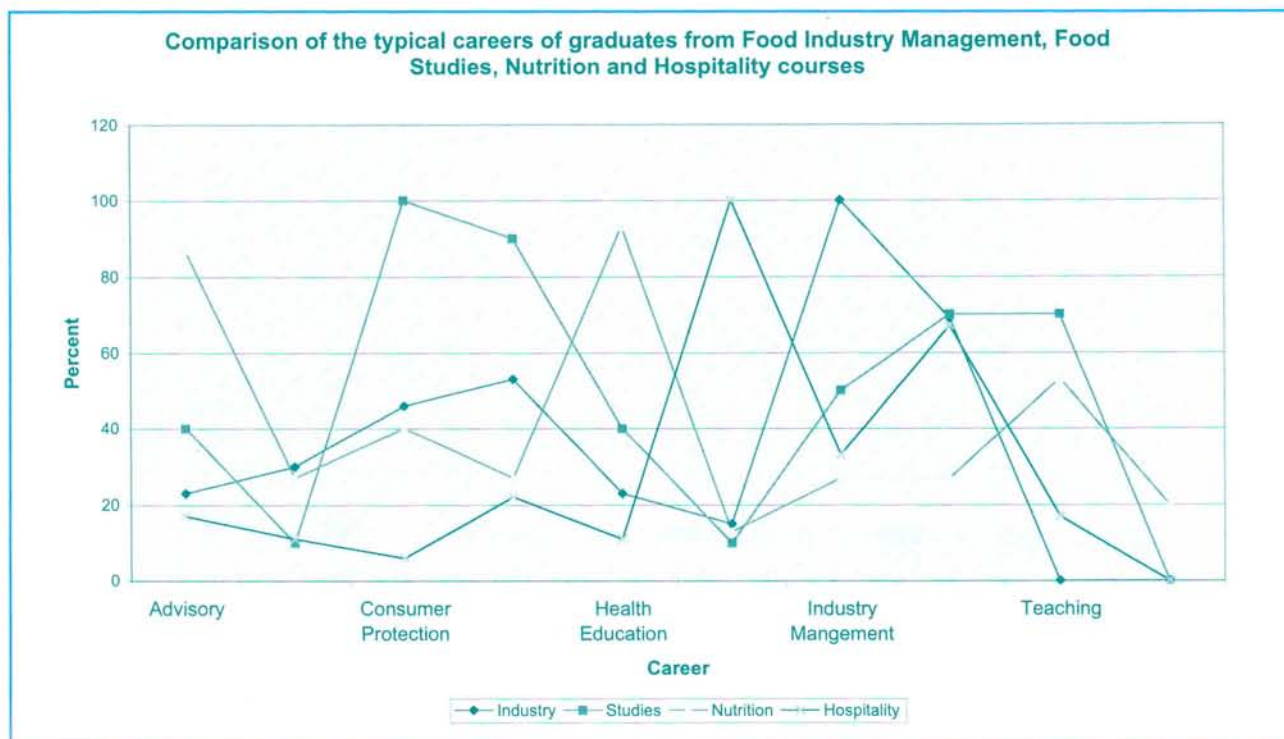


Figure 5: Comparison of the typical careers of graduates from food industry management, food studies, nutrition and hospitality courses.

- **Consumer studies/science** (19 courses) examines the interface between the consumer and the service or product provider.

Career opportunities include: consumer protection, design and development and retailing. Figure 4 indicates that consumer studies students are more likely than food technology students to go into retailing and consumer protection, but that teaching is a joint popular third.

However, when there is a comparison of careers in Figure 5 across food industry management, food studies, nutrition and hospitality there are some interesting points. Retailing is a popular career for all such students. The hospitality industry is not a popular focus for most students except ones specialising in this area. Teaching is most popular for food studies students, followed by nutrition and hospitality. It was very disappointing to see no food industry manufacturing students entering the teaching profession.

- **Teacher education** (PGCE in D&T) (32) These are listed in Table 2 for graduates with relevant degrees.

Career opportunities include: teaching design and technology food in secondary schools, middle and senior school management, lecturing, publishing.

Examples of food related degree courses

- Bath Spa University College – *BSc Food Management, Food Nutrition and Consumer Protection*
- King's College London – *BSc Nutrition, Dietetics*
- Liverpool John Moores – *BA Home Economics, Consumer Studies, BSc Food and Nutrition*
- Manchester Metropolitan – *BSc Consumer Product Sciences, Food and Nutrition/Technology*
- Sheffield Hallam University – *BSc Food and Consumer Studies, Nutrition and Health*
- South Bank University – *BSc Food Science and Technology, Food Nutrition and Health*
- Roehampton Institute London – *BSc Applied Consumer Studies, Retail and Product Management, Nutrition and Health*
- University of Brighton – *BA Food Retail Management*
- University College Cardiff – *BSc Biological Science*
- University of Humber – *BSc Food Science*
- University of North London – *BSc Human Nutrition, Food Science*

- University of Plymouth – *BSc Food Production/Food and Hospitality Management*
- University of Salford – *BA Applied Consumer Studies, Food Industry Management*
- University of Surrey – *BSc Nutrition, Nutrition: Dietetics, Nutrition: Food Science*
- University of Reading – *BSc Food Manufacturing, Management and Marketing, Food Science, Food Economy and Marketing*
- University of Ulster – *BA Consumer Studies*
- University of Wales – *BSc Consumer Science, Food Technology/Studies/Science and Technology*

Conclusions

Findings from the research indicated that there have been considerable changes in recent years in food related higher education courses suitable for prospective teachers. However, it can be argued that they are more suited to teaching the new National Curriculum design and technology courses. The increased emphasis on industrial practices, retailing and an understanding and ability to use modern technology are well suited for future teachers. The move away from the traditional 'home', 'meals for the

Table 2: PGCE design and technology courses.

Only the highlighted courses (11) take food technology specialists and few of these are in the south east.

Bath Spa University College

Bretton Hall College (*textiles*)

Brunel University (resistant materials and control)

Cheltenham & Gloucester College of HE (resistant materials and graphics only)

College of Cardiff, University of Wales

De Montfort University, Bedford (resistant materials & graphics only)

Edge Hill University College (resistant materials & graphics only)

Goldsmiths College, University of London (resistant materials, graphics, textiles)

Leeds Metropolitan University

Liverpool John Moores University (all specialisms)

Loughborough University (resistant materials and graphics only)

Manchester Metropolitan University

Middlesex University (resistant materials and graphics only)

Nottingham Trent University (textiles)

North London Consortium (SCITT)

University of Brighton (resistant materials and graphics only)

Roehampton Institute London – *now the University of Surrey Roehampton* (all specialisms)

Sheffield Hallam University (resistant materials and control)

The Open University

University College Chester (textiles)

University College of St Mark & St John, Plymouth (resistant materials and graphics only)

University College of Ripon and York St John (resistant materials and graphics only)

University College Worcester

University of Exeter (resistant materials and graphics only)

University of Huddersfield (textiles)

University of Leeds

University of Manchester (resistant materials and graphics only)

University of Northumbria, Newcastle

University of Wales Institute, Cardiff

University of Wales College, Newport (resistant materials and graphics only)

University of the West of England, Bristol, (resistant materials and graphics only)

University of Wolverhampton (resistant materials & graphics only)

family' or 'domestic activities' focus of many BED food and textiles courses is appropriate as preparation for a career in industry or retailing as well as teaching in schools.

The findings of the research indicated that:

- the range of food courses available for pupils leaving school at 18 has increased and the increased variety of possible careers is impressive
- the content of many food related courses have a strong industrial and business bases. Food degrees are predominately BSc courses and include a high element of food science, food product development, microbiology, nutrition, ICT and communications.
- the research found only two courses that included 'home economics' in their title. These were a BA (Hons) home economics from Liverpool John Moores University and a BSc (Hons) consumer and management studies: home economics from Glasgow Caledonian University. However, the title 'consumer studies' is frequently used. These courses, though updated, appear to have more in common with the home economics courses of the past.
- food related courses have increased in number and are widely spread across the UK. There appears to be no shortage of food degree courses in the south of England, where the greatest shortage of food technology teachers is to be found.
- there are no three or four-year food BA or BSc degree courses that include qualified teacher status (QTS)
- not all PGCE design and technology courses take food technology specialists. The number taking food specialists is even smaller, especially in the south east of England where the teacher shortage is greatest.

The present situation

It is three years since this research was completed and there have been changes in the courses available. Some courses have disappeared and new ones have been introduced. The latest course guide information was published by DATA in September 2000. Food technology continues to be a very popular course at GCSE and new A' Level courses have been introduced. The shortage of teachers is now not only in food technology, but also across design and technology and other subject areas. Design and technology is now recognised as a shortage subject at secondary level with additional funding for PGCE students in training. In this academic year 2000/2001

there is a 'training salary' for all trainee teachers as the general recruitment situation has worsened, with additional money for students in shortage subjects, including design and technology, when they start teaching.

However, this funding is not available to three or four-year students following design and technology degree courses including qualified teacher status (QTS). Other routes are available for mature entrants to teaching, for example through the graduate teacher route where trainees gain their QTS while teaching in a school. Funding is available for these students during their training. Degree courses including QTS have in the past been a traditional route for design and technology teachers. Some schools would argue that this is an ideal route, as it allows time for students to develop the wide range of knowledge, skills and classroom strategies required by teachers of design and technology. At least, it could be argued, this option should be available. It is likely that there always will be pupils leaving school or people changing careers who prefer such a course. Courses that combine a degree with the professional aspects of teaching would be such an alternative. Some universities do already provide them for other specialisms in design and technology, but the lack of any such courses that include food technology is of concern.

This academic year the PGCE secondary design and technology course at the Surrey University Roehampton has nine food technology specialists and two textiles students with food as their second specialism. Not high numbers you might think and I certainly would like to see this increase, along with the other specialisms in design and technology. Nevertheless, I am very encouraged that the food specialists are well qualified. For example, they have home economics, consumer studies, consumer science, nutrition, human nutrition, food management and food technology degrees. Though some have just completed their degrees, many of them have experience of working in the food industry and with large companies. They all have areas of expertise they bring with them and we, and the schools we work with, help the students to learn how to use their knowledge and skills in the classroom. Students are now coming to us who were taught design and technology at school, but many of the students were at school pre-National Curriculum. They need to develop an understanding of design and technology and the food technology curriculum. There are other PGCE design and technology courses that include food

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technology specialists, but they are very limited in number.

We still have a long way to go. Before NATHE carried out their research, because there were so few food specialists in training, I began to think that there were no degree courses that would prepare future teachers of food technology. This is obviously not true. The shortage of prospective food technology PGCE students I now suggest was, and continues to be so, due to several factors.

- The change of name from home economics to food technology still causes confusion for some prospective mature applicants. I have, on many occasions, spent time on the phone assuring them that their degree is very suitable and relevant. In one recent case an applicant had a BSc in food science and technology and an MSc in food safety and control and she had applied to do a PGCE in science. It was only the knowledge of our science tutor, gained from working with myself, that led to the student becoming aware that she was very well qualified to be a food technology specialist within a design and technology PGCE. She had no understanding of the changes that had occurred in schools in recent years, which could account for the findings (Figure 5) where there were no students with food industry based degrees entering the teaching profession.
- The content of the new degree courses is strongly linked to industry, including an industrial placement. They are highly suitable for teaching food technology, but on completion many of the students opted to go into the food industry.
- The food industry is one of the biggest employers in the UK and offers good opportunities for the students. Industry can absorb the food specialists leaving university and wants more. In recent months a nutritionist has approached me from a large food company, she has been asked to look at what can be done to address a shortage of nutritionists in industry.

The future?

Based on the research and personal experience I would make the following recommendations.

- There is an increase in the number of first degree with QTS and PGCE courses specialising in food technology to take into account the needs of industry and education.
- Links are developed between higher education institutions offering food

degrees and PGCE courses to ensure newly qualified food specialists are aware of the potential of a route into teaching. Some higher education institutions might consider setting up schemes where a PGCE is an optional part of the degree course.

- Male, ethnic and mature students are targeted.
- Returners courses are provided for home economics teachers wanting to return to the teaching profession. More courses are set up, with relevant funding, where applicants with food related diplomas can 'upgrade' to degree level. Distance learning courses, as run at Sheffield Hallam, would be particularly suitable for mature students.
- The problems and long term implications of a shortage of food technology teachers are highlighted with industry. Their support is gained to develop new courses.
- Professional associations, schools, higher education, industry, local and national careers services develop a stronger network to share information.

Some of these suggestions will take time and effort to implement, but the problem is cyclical. The example of Roehampton, now the Surrey University Roehampton, reflects the situation in the south east England where teacher shortages appear to be one of the most severe. However, the research was national and the issues highlighted are of concern to schools around the UK. If there are insufficient teachers of food technology, the subject will suffer in schools and there could be fewer pupils interested and motivated to follow a career in the food industry or go into teaching. This is not just relevant to food technology, recruitment of teachers is important for all specialisms in design and technology. We have made progress, but we still have some way to go. NATHE is now amalgamated with DATA, which represents a unified body of design and technology teachers. Teacher recruitment is a key issue and it would be very interesting to see this work continued to evaluate the present situation and make plans for the future.