Teachers' experiences of teaching young people about the food industry

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Teachers' experiences of teaching young people about the food Industry

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Abstract

In design and technology (D&T), pupils are expected to design for manufacture in quantity, and simulate production and assembly lines (QCA, 2005). This presents a professional challenge for teachers as they seek to help young people to develop industrial knowledge and understanding. This paper discusses findings from a research project exploring the relationship between food technology (which is taught within D&T) and industry. Data was generated through semi-structured interviews with teachers of food technology and a questionnaire completed by a sample of members of the Design and Technology Association (DATA). Key findings relating to teachers' experiences of teaching young people about industry are presented. Issues include teachers' views on the importance of keeping up-to-date with technological developments, accessing teaching materials, and making contacts with industry. The support they receive and the challenges they face as they seek to give young people 'real life' impressions of industry are discussed.

Keywords: *secondary, teachers, food education, industry, work, industrial practice*

Introduction

In England and Wales, pupils in secondary schools learn about industry in the subject design and technology (D&T). The current D&T National Curriculum Programmes of Study (for Key Stage 4) state that pupils should design for manufacture in quantity, use a range of industrial applications, and simulate production and assembly lines (QCA, 2005). Pupils learn about industry by engaging with 'design and make' assignments and using a range of contrasting materials, including resistant materials and compliant materials or food. As Rutland (1997) noted, all GCSE and GNVQ examination courses in food technology must ensure that pupils understand the relationship between their food product development, designing and making activities in the classroom, industrial practices, and systems and control. This paper draws on research exploring food technology teachers' experiences of teaching young people about the food industry. It outlines three key challenges teachers face covering the industrial element of food technology. These are:

- Keeping up-to-date with developments in industry.
- Accessing teaching materials.
- Giving pupils a realistic impression of industry.

Methodology

The data was generated through a combination of qualitative and quantitative research methods including semi-structured interviews with thirty teachers of food technology. The questions were designed to encourage the teachers to discuss their experiences of teaching young people about the food industry, including the strategies they use. A questionnaire was sent to a sample of four-hundred teacher members of the Design and Technology Association (DATA) in England and Wales. This had a response rate of 42% (168). The questionnaire included a series of statements relating to the relationship between food education and industry. Having read the statements, the teachers had to decide on their level of agreement using a Likert scale from 1 (strongly disagree) to 5 (strongly agree). Their responses were analysed using the Statistical Package for the Social Sciences (SPSS).

The majority of the research participants were female, with just one male teacher of food technology being interviewed. Of the teachers returning the questionnaire, 99% were female. Many (61%) of the questionnaire respondents had over twenty years' teaching experience.

Teachers' subject knowledge

Feeling confident about their own subject knowledge was a challenge for some of the teachers involved in this research. Those with over twenty years of teaching experience were trained as home economists and originally taught domestic rather than industrial food production. None recalled having specific training to teach the industrial aspects of food technology. Instead some remembered feeling confused about the implications of teaching the industrial aspects of food technology when the school subject home economics (the domestic food-related subject) became food technology in the early 1990s:

> 'There were rumours that you had to have an industrial kitchen built in the school' (Interviewee E).

Sometimes these teachers just stayed one step ahead of their pupils. Interviewee (C) gave a good example of this:

> 'I remember the first time I did a questionnaire with a group of pupils, I had to ensure I learnt the best ways to do it first' (Interviewee C).

Gaining current knowledge of industry remains a professional challenge, because industrial processes do not remain static: technological developments continually change and industrial design and manufacturing processes are updated.

Keeping up-to-date with developments in industry

Most of the teachers involved in this research felt positive about teaching a subject related to industry:

> 'It (food technology) brings the subject up-to-date. Pupils get an understanding of the huge scope of jobs within the food industry. Boys enjoy the subject much more as there is less domestic influence and it is not seen as a 'girls' subject' (Interviewee W).

Those completing the questionnaire were required to indicate if they believed they should keep up-to-date with developments in the food industry. As Figure 1 shows, the majority (77%) of the respondents agreed that it is important for teachers to keep up-to-date.

Although the majority of these teachers felt they should keep up-to-date with industry, ensuring their own professional knowledge is current and feeling confident teaching young people about the food industry was challenging.

Indeed, only 41% 'agreed' or 'strongly agreed' that they were able to update their knowledge of industrial practice and pass this on to their pupils.
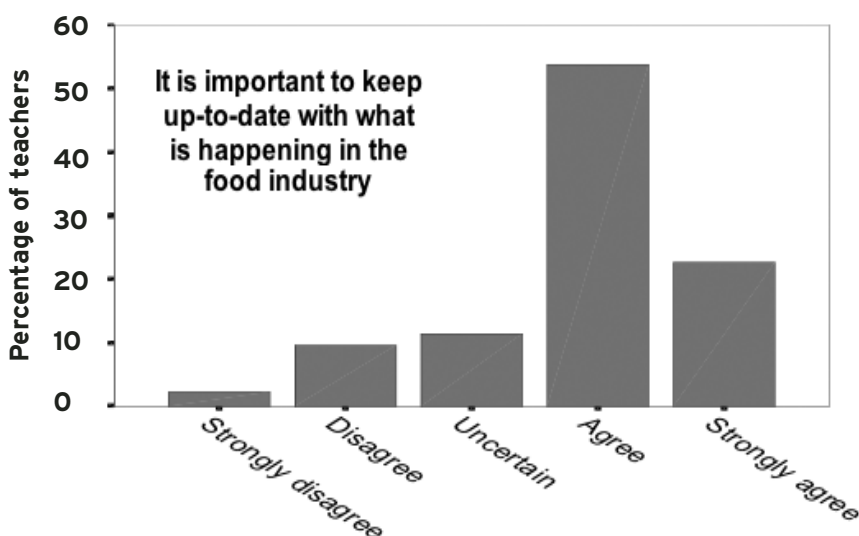

Figure 1: Keeping up-to-date with industry

Knowledge of ICT and industrial practice were identified as specific training needs. However, it can be difficult for teachers to attend training courses during school time, and finding appropriate courses was a concern:

> 'Updating knowledge is difficult due to shortage of courses other than those run by the local DATA group' (Questionnaire Respondent 6).

> 'I suggest courses be available to up-date food technology teachers who have been out of education for more than five years. I wish there was financial support too, the only course I know about is a distance course at Lincoln/Grimsby £750' (Questionnaire Respondent 110).

Others felt it would be difficult to leave their classes to attend training events:

> 'You can't keep leaving your classes that are in the middle of a design project they won't finish if you keep going off and training. I think we have taught ourselves in food' (Interviewee D).

Those who felt confident teaching their pupils about the food industry developed strategies to update their knowledge. They overcame their lack of industrial experience by learning from formal sources such as commercially produced teaching materials, and informally through friends working in the food industry. Geen's (1996) investigation of the links home economics teachers had with industry revealed contact through teachers' supervision of work placements in hotels and the food industry, careers advice, and business/education partnerships. Most of the participants involved in this research had formal and/or informal contact with the food industry. Informal contact involved gaining information from friends, acquaintances or university peers for the less experienced teachers. These teachers gained food-related degrees rather than doing three-year teacher training courses, so their peers were now working in the food industry.

Formal contact with industry was initiated by some of the teachers, and included having visiting speakers from local industry and school-college links. Teachers described having Tesco bread makers showing pupils this industrial process and taking the pupils to supermarkets to conduct questionnaires. Links with local colleges allowed them to receive information about catering courses. Others took their classes to commercial food outlets for sessions where pupils designed and made food products with staff members. One recent initiative involved pupils enrolled on a GNVQ Catering course spending some days being taught in the local college. These links with industry allowed these teachers to update their own knowledge and give pupils some insights into the food industry.

Accessing teaching materials

Commercially produced teaching materials, such as those by the Meat Marketing Board and the British Nutrition Foundation (BNF), were used to complement textbook information relating to industrial practice. However, 57% of questionnaire respondents still experienced some difficulties accessing teaching materials about the food industry.
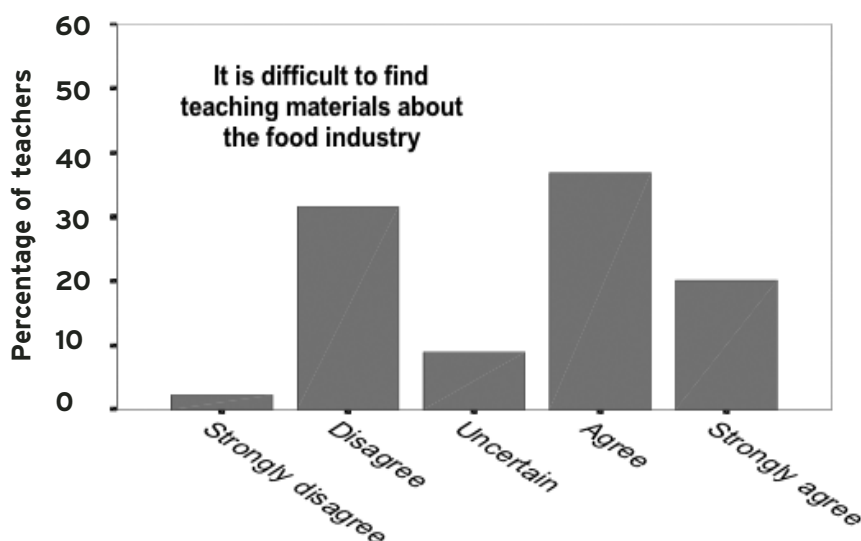

Figure 2: Access to teaching materials

Furthermore, some reported being dissatisfied with these teaching materials. Visual resources such as videos were perceived as helpful by some, whereas others felt teaching packs and videos expensive and not as effective as actually taking groups of pupils to visit industry:

> 'Videos help but are either expensive or boring' (Questionnaire Respondent 18).

> 'It is difficult to get students out into the food industry, therefore reliant on videos to show industrial practice. These can be expensive to purchase' (Questionnaire Respondent 153).

Instead of relying on teaching materials, some of the teachers developed their own activities to give their pupils impressions of how products are designed and made in the food industry.

Giving pupils realistic impressions of industry
The National Curriculum D&T Programmes of Study (POS) state that pupils should be engaged in activities such as simulating production and assembly lines to develop an understanding of industrial practice (QCA, 2005). Government guidance implies this is unproblematic, as schools can use industrial links and small-scale industrial equipment to achieve this. Calt (2000) describes a school acquiring desktop food processing equipment through industrial sponsorship, but it is unlikely that schools' use of technology will ever emulate industry (McCulloch et al. 1985). The interviewees expressed apprehension about schools being able to buy small-scale industrial equipment:

> 'How can a school afford industrial equipment and how can children understand without seeing the industrial processes?' (Interviewee E).

> 'A funnel oven, or pasteuriser, or blast chiller costs £3,000 a piece' (Interviewee B).

They further recognised that schools are under-funded and identified the high costs of funding technology subjects as one of the problems schools will face in the future.

Devising teaching activities to help raise young people's awareness of the food industry is challenging. Ofsted guidance (1996) describes good practice in D&T projects building on what pupils learn from visits to industry, and describes how people working in the food industry have given talks and worked with pupils to produce food products. Many of these teachers indicated that pupils would benefit from industrial visits, but it is not always possible:

> 'Problems getting classes into food manufacturing areas/factories has made a 'real' experience difficult' (Questionnaire Respondent 18).

The consensus was that visits to the food industry were difficult to organise, and some limited simulation of industrial style working practices was more within their reach. Indeed, Rutland (1997) suggests it is not intended that pupils will copy industrial practice in the classroom; rather that they should develop knowledge and understanding of large-scale production processes, learn about ways in which firms and businesses design and manufacture goods, and how these are marketed and sold. Strategies were developed to give pupils impressions of food production:

> 'I think it's impossible to take them out into industry; you can simulate it in the classroom' (Interviewee I).

These teachers sometimes let their pupils pretend to be production lines and believed their pupils enjoy these lessons. These types of activities provide opportunities to cover issues such as quality control:

> 'We do production lines but not very often because it's chaos (laughs) but we do a pizza production line, from making the base to putting the topping on and they absolutely love those sorts of lessons because it's interactive' (Interviewee N).

This interviewee describes a production line simulation:

> '...we also do some recipe engineering and I mean just simulating how they are in industry in the fact that we can put them in a white coat and cover their hair and observe all the hygiene rules that they would have to if they were working in food production' (Interviewee I).

Unsurprisingly, 91% of questionnaire respondents felt that replicating industrial practices on a small scale in the classroom was difficult.

Conclusion

The issues raised in this paper, including the difficulties associated with obtaining good information about the food industry, accessing teaching materials and industrial equipment, and the accounts of the scenarios teachers have constructed (such as production lines) to teach young people, illustrate how the reality of teaching an industrially related subject can be challenging for teachers of food. This research indicated that many teachers would like more support to teach young people about the food industry. There is scope for further research focusing on:

- How teachers can be supported as they update their knowledge of industry.
- Why teachers are still experiencing difficulties accessing teaching materials relating to industry. Teachers value reviews of teaching materials so might welcome a report detailing industrially-related materials.
- Collating good ideas for activities teachers can use in the classroom to demonstrate industrial practice.
- Exploring ways of enabling teachers to help young people to develop food preparation skills whilst learning about the food industry.

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The University of Sheffield

Food Technology Research

At Sheffield University we are currently researching the history of food-related subjects and the current curriculum orientation. This questionnaire has four short sections (it should only take about ten minutes to complete) and is designed to collect up-to-date information about food technology teachers' views.

Food Technology Questionnaire 2002

How to complete the questionnaire
Please read the statements and then place a tick in ONE box.

Section One

So we can see how your answers compare with other teachers we would like some information about you.

(a) Are you

Male?	
Female?	

(b) How many years have you been teaching?

Probationary year	
2-7 years	
8-19 years	
20-30 years	
30+ years	

(c) Are you a:

Classroom teacher?	
Head of food technology?	
Head of D&T department?	
Senior teacher?	
Other	

If 'other' please specify _____

(d) Do you teach any vocational courses (e.g. GNVQ) ?

Yes	
No	

If yes, please state the course title(s)

_____

Section Two

Look at this list of possible influences on the food technology curriculum.
Decide how important each change has been for the food technology
curriculum then tick ONE box next to each statement.

	Extremely Important (4)	Important (3)	Not very Important (2)	Insignificant (1)
(A) Mixed ability classes				
(B) New technology (e.g. CAD/CAM)				
(C) The National Curriculum				
(D) Curriculum initiatives (e.g. Literacy Across the Curriculum)				
(E) Exam board requirements				
(F) Changing eating patterns				
(G) Equal opportunities (e.g. all pupils studying food technology)				
(f) Smart foods				

Please use this space to list any other changes that you think have been
significant:

Section Three

Read the statements and tick **ONE** box next to each statement.

	Strongly Agree (5)	Agree (4)	Uncertain (3)	Disagree (2)	Strongly Disagree (1)
A) It is more important to teach pupils about the food industry than domestic food preparation.					
B) It is difficult to find materials to teach my pupils about the food industry.					
C) A Key Stage 4 course in food technology should prepare pupils for a career in the food industry.					
D) Food technology courses do not enable pupils to learn enough basic cookery skills.					
E) It is important that schools keep up-to-date with what is happening in the food industry.					

F) The emphasis on designing means there is less time to make food products.					
G) I am able to update my knowledge of the food industry and pass this knowledge onto my pupils.					
H) I see little educational value in teaching pupils how food is mass-produced.					
I) Pupils enjoy learning about the food industry.					
J) It can be difficult to replicate industrial practices in the classroom.					

Section Four

	Strongly Agree (5)	Agree (4)	Uncertain (3)	Disagree (2)	Strongly Disagree (1)
(A) Food technology should continue to be a part of the design and technology curriculum.					
(B) The use of non-specialist food teachers is a matter of serious concern.					
(C) Basic food preparation should be taught separately in a life skills or PSHE course.					
(D) The subject may be lost from the school curriculum unless more food technology teachers are trained.					
(E) Schools should offer more A' level food technology courses to encourage pupils to continue studying the subject.					

Please add any other comments about food technology teaching, attach a separate sheet if you wish.

Please return this questionnaire before Wednesday 1st May 2002 to:

DATA, Freepost, CV2773, Warwick, CV35 9BR

Your answers will be treated confidentially.

Thank you very much for your time.