

# MOVING FORWARD: Teacher training

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In this article I want to explore the future of training for design and technology teachers. Teaching has moved from the non-graduate profession it once was to a position where the government are talking about a desire for teaching to become a masters-level profession (TDA 2010). However the last government followed by the coalition are talking about ending the undergraduate route into teaching. At Nottingham Trent University (NTU) we have a long history of training design and technology teachers by a variety of routes, but what does the future hold? Do you as design and technology teachers know what to expect from the NQT's currently coming out of our ITT programmes?

## Route into teaching

My own background was not the traditional route into teaching for the time. Back in the 1970's most teachers went to traditional teacher training colleges where the B.Ed (ordinary or honours) was the norm. I took the relatively new B.Sc (Hons) in Home Economics followed by a PGCE. On my PGCE course there were three of us to take the modules of subject knowledge, although we were part of a much larger cohort of PGCE secondary students. Whatever route we took we trained as specialists in either food or textiles under the heading of 'home economics'. Elsewhere in other institutions, there were others training to teach CDT, little did we know then that we would all become design and technology teachers in the future.

After twenty-six years of teaching home economics and later food technology in schools, I came to work at NTU where I have been able to use my Food in Schools Training (primary teacher Trainees), Licence to Cook expertise (KS3 Food Technology), Level 2 Food Safety training along with my many years of classroom based experience. I have worked with undergraduate (with QTS), Post-Graduate certificate, Graduate Teachers Programme, primary SCITT and in-service teachers. The shift from undergraduate teacher training to post-graduate routes is easy to see and it is a complete reversal of what was the case in the late 70's and early 80's when I myself trained. However, I believe there is a place for all types of training and all types of teachers in school. Clearly the government has a view here, but is it grounded in evidence-based research?





### Entry requirements

The last government criticised: 'the 'particularly low' entry requirements on undergraduate courses for those wanting to teach in secondary schools, saying funding for such programmes should cease. (Morgan 2010) However, I don't believe this statement really tells the full story.' We are now in a very different world from the one when I entered the teaching profession, when Home Economics was taught separately from the subjects taught under the title of Craft, Design & Technology (CDT). Having recently asked around many of the local design and technology departments, the team here at NTU found that the majority of schools wanted teachers who could teach across all the material areas in design and technology, at least to Key Stage 3 and some even wanted staff to teach several areas to Key Stage 4 (particularly where departments have had other courses attached in areas such as hair and beauty, hospitality etc). The PGCE in its present form cannot deliver this. The PGCE students at NTU are trained to deliver two material areas in Key Stage 3 and just one in Key Stage 4 and Key Stage 5. The trainees we take on the PGCE course often have highly specialised degrees and would not initially be the versatile teachers these local departments seem to want.

The BA (Hons) Design & Technology Secondary Education course at NTU has produced valued specialist teachers in resistant materials and electronics for many years. In answer to the then governments call to train more specialist food teachers NTU accepted a grant from the TDA to create a specialist food room (DCSF 2008).

### Manifesto for D&T

During the academic year 2010-11 a full re-validation of the course has taken place to ensure that all teachers trained at NTU are fit for the 21st century school environment. From October students embarking on the course will not specialise until the second year of the course. The main template for the new course modules is the D&T Associations' Manifesto for D&T, so we will have modules called 'mainly designing', 'mainly making', 'mainly designing and making' and 'design in education and society'. The largest modules are 'mainly making' in years one and two of the course, because this reflects the importance placed on subject knowledge.

The latest Ofsted report for design and technology (Ofsted 2011) criticizes the carousel in KS3, but goes on to praise the schools that do not change the teacher but just the material in such carousels. The core principles underpinning the revalidated programme for design and technology education at NTU do not compromise on the level of subject knowledge in favour of breadth.



### Subject knowledge

Three types of content subject knowledge are suggested (Shulman 1986): subject matter content, pedagogical content knowledge and curricular knowledge. It is subject matter content knowledge, which our graduates from specialist degrees come with in abundance. It is not just the facts and concepts, but an understanding of the structure of the subject matter, which is important, so that as teachers they understand the variety of ways of organising the discipline and know when to select the most appropriate one. For example a food specialist would understand that food can be viewed from a nutritional point of view, from a chemically structural view and an aesthetic/sensory view, we expect our teachers to know when to use each.

Pedagogical content knowledge goes beyond the knowledge of subject matter and is concerned with that which is most suitable to teach and in forms which are most powerful to make it comprehensible. These forms will be different in the varying circumstances in the classroom. Knowing what makes topics easy or difficult for different groups and what the possible misconceptions might be. Pedagogical content knowledge is clearly very important in any professional teacher training course.

## Curricular knowledge

Curricular knowledge is represented by the range of programmes designed for the teaching of particular subjects. We expect our teachers to be able to draw from the range of materials and programmes available and clearly this knowledge will develop with experience. However, I think we would think it remiss if our ITT programmes did not teach this knowledge probably more so than pedagogical content knowledge.

What the PGCE course cannot deliver to any depth is subject matter content knowledge to students whose first degree is not in one of the material areas taught within design and technology in schools. I would argue therefore a student with a degree in a textiles related subject given good pedagogical content knowledge and curricular knowledge during their professional year will still struggle to teach food technology effectively immediately after they enter the profession as an NQT.

At NTU we have state of the art facilities and the D&T faculty has enjoyed the benefits of the facilities in product design for many years. We have not stood still since the completion of the new food room, which allowed the faculty to increase its design and technology specialism. The school of science has outstanding laboratory facilities and this year our undergraduates on the BA (Hons) D&T Education course have had the opportunity to study food microbiology with a Professor of food microbiology. Not only have these students received excellent tuition, their studies have also been enhanced through the shared experiences with undergraduate science students.

In a recent press release the government clearly wants to look at the standards for gaining QTS:

“a total of 102 standards teachers must meet across all levels. There are four core standards on ‘health and wellbeing’. Just two are on making sure they have a good ‘subject and curriculum knowledge’”. (Department for Education 2011)

There is clearly a concern here for the level knowledge, which trainee teachers have, but unless this ‘overhaul’ the government has planned looks at training on an individual subject level, they will not in the case of design and technology achieve what it is they seem to want. There seems to be recognition that education degrees produce good primary school teachers, but I would argue that this is also the case for design and technology where a wide range of subject matter content is required. n

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