Developing
early practice

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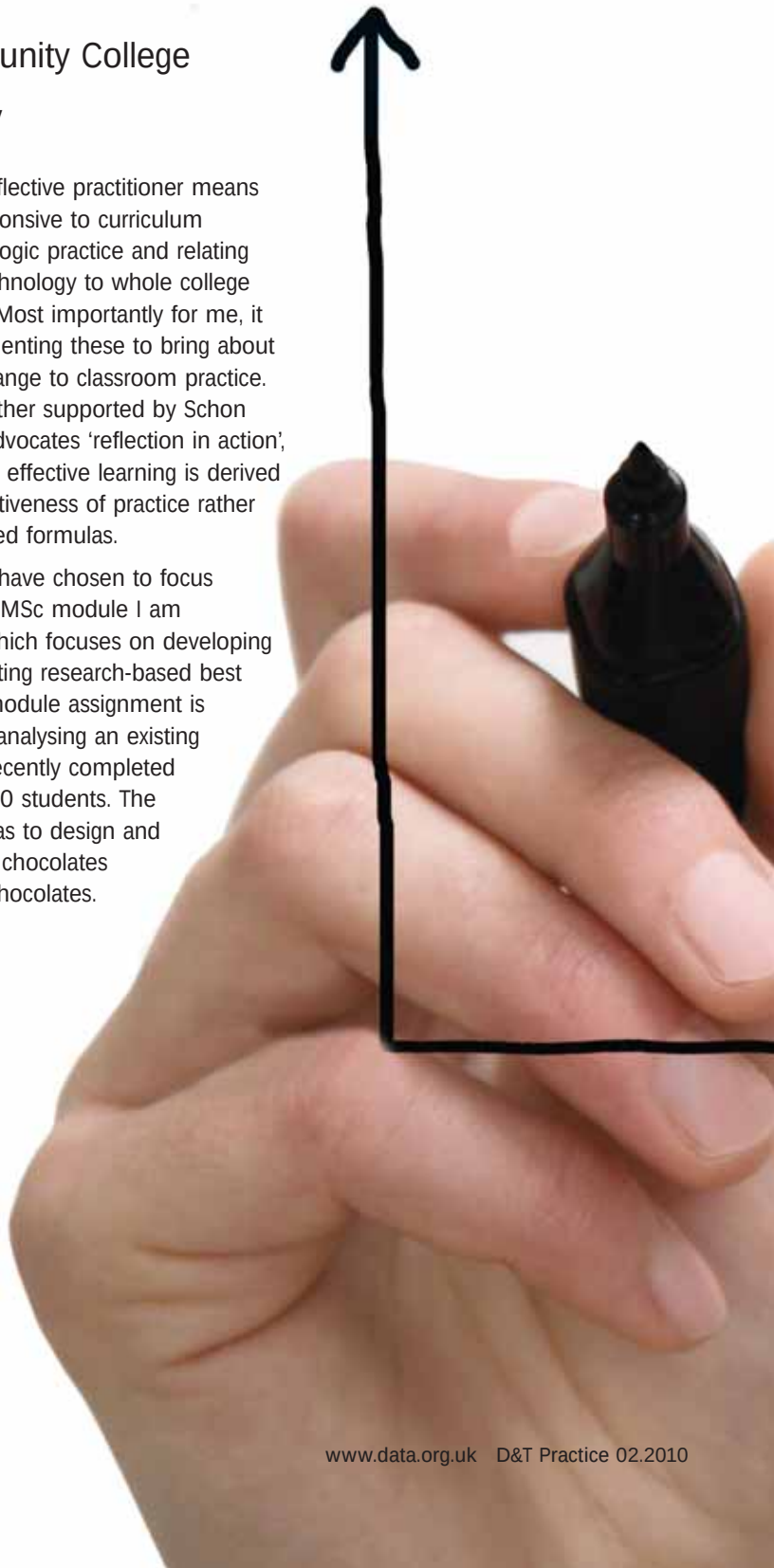
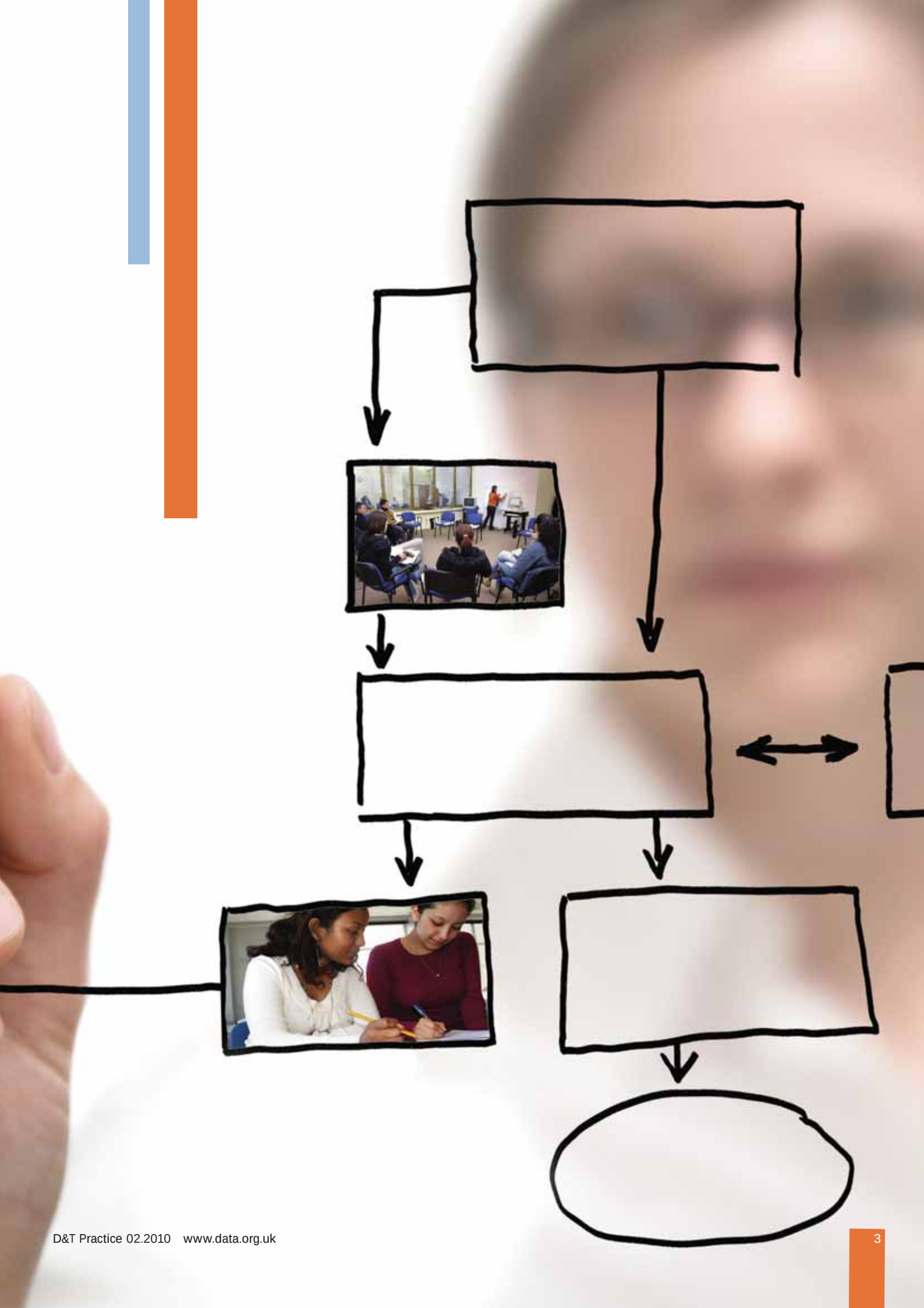
Since completing an intensive PGCE course in Design and Technology Education at Loughborough University in 2007, I have looked to continue improving my classroom practice through action research. Discussing the features of action research, Coleman and Lumby (1999a) describe two purposes of improving practice as bringing about change, and promoting reflection amongst practitioners. With this in mind and an aim to develop my skills as a reflective practitioner I decided to extend my initial training and enrol onto the brand new MSc in Education at Loughborough University. The course is offered in response to the Governments plan to invest into the development of teachers knowledge and skills. I am sure this will form a key part of my early CPD (Continuing Professional Development).

After the first year full-time PGCE at Loughborough, the remaining three years of the MSc are structured and taken through distance learning modules. Having successfully completed an exciting Newly Qualified Teacher (NQT) induction year, which had a particular focus on the newly formed professional standards, I am now working towards the third year where emphasis is placed on advancing subject and pedagogic knowledge. A focus is also placed on preparation for the final year by undertaking a module on practitioner research methodology.

Becoming a reflective practitioner means remaining responsive to curriculum content, pedagogic practice and relating design and technology to whole college development. Most importantly for me, it means implementing these to bring about impact and change to classroom practice. This idea is further supported by Schon (1991) who advocates 'reflection in action', suggesting that effective learning is derived from the inventiveness of practice rather than any learned formulas.

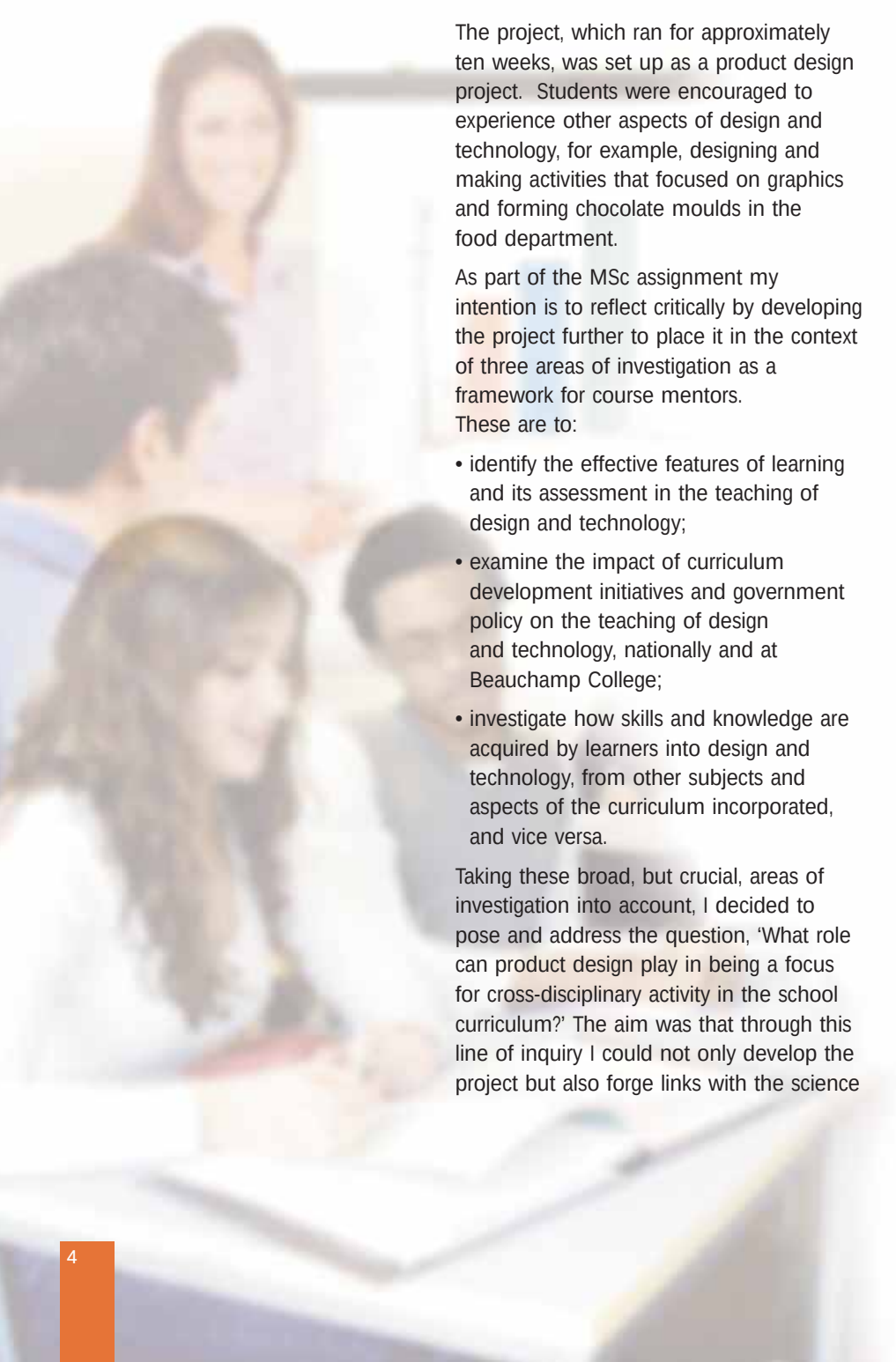
In this article I have chosen to focus on the current MSc module I am undertaking, which focuses on developing and implementing research-based best practice. The module assignment is based around analysing an existing project that I recently completed with my Year 10 students. The project brief was to design and make a box of chocolates including the chocolates.





The aims of the original project are to:

- develop a Year 10 resource task to build skills for GCSE major project;
- increase student engagement;
- encourage a multi material approach, and experience a variety of workshop processes;
- introduce packaging and the need to consider sustainability;
- introduce elements of CAD/CAM;
- introduce ideas about scales of production and quality control;
- cross over design and technology subject boundaries.



The project, which ran for approximately ten weeks, was set up as a product design project. Students were encouraged to experience other aspects of design and technology, for example, designing and making activities that focused on graphics and forming chocolate moulds in the food department.

As part of the MSc assignment my intention is to reflect critically by developing the project further to place it in the context of three areas of investigation as a framework for course mentors. These are to:

- identify the effective features of learning and its assessment in the teaching of design and technology;
- examine the impact of curriculum development initiatives and government policy on the teaching of design and technology, nationally and at Beauchamp College;
- investigate how skills and knowledge are acquired by learners into design and technology, from other subjects and aspects of the curriculum incorporated, and vice versa.

Taking these broad, but crucial, areas of investigation into account, I decided to pose and address the question, 'What role can product design play in being a focus for cross-disciplinary activity in the school curriculum?' The aim was that through this line of inquiry I could not only develop the project but also forge links with the science and maths faculties by taking a cross-curricular approach to student learning.

It was interesting to read about a cross-curricular project published in an article in D&T Practice 1.2009. The article, 'Creating lasting partnerships', described how a school had worked with a professional design consultancy through the 'Creative Partnerships' scheme to develop a classroom project. This gave the inspiration to consider the opportunities that may exist to take a similar approach. The 'Creative Partnerships' initiative, sponsored by the Arts Council England, is described as the Government's flagship scheme that focuses on fostering creativity by linking schools with professionals working in industry.

Speaking at the D&T Association International Research Conference 2009, James Averdieck, founder and MD of Gü Chocolate Puds, outlined the power of industry to provide real and relevant experiences for learners. His willingness to work with schools and colleges forms an ideal opportunity to develop the type of project work being described here.

The anticipation of planning a cross curricular project was met with great excitement when first presented to colleagues from science and maths. They were asked to consider what subject specialist teaching and learning they could bring to the project and how this might relate to aspects of their National Curriculum Programmes of Study. This was done by filling out a matrix of classroom activities. Furthermore, they were asked to consider two other important aspects of learning; sustainability and technology. The relevance of these aspects is made explicit by Gina White HMI, Ofsted (2008) who comments on the need for design and technology projects to provided greater technical rigour.

The discussion with colleagues from science and maths drew out several exciting ideas to further enrich the project and provide opportunities where students would see clear links in their learning across the subjects. A snap shot of some of these ideas is shown in figure 1.

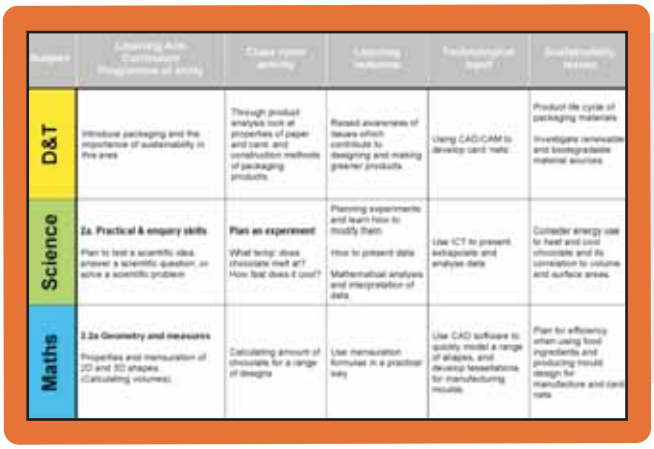


Figure 1: Matrix of classroom activities

The enthusiasm demonstrated by learners when working across the faculty with food and graphics was clear and reflected in the high standard of made outcomes (see figure 2). By adopting a truly interdisciplinary approach working with science and maths this enthusiasm can be used to engage students further and can help them to make important links in their own learning across the subjects.

Figure 2:
'The Art of the Chocolatier',

class room poster
After reflecting and evaluating the project using the framework of the three aspects posed by the MSc module a number of issues where identified for further investigation. Some of these are summarised in figure 3.

Figure 3:
Areas for further investigation

The early findings of this project, presented at the D&T Association International Research Conference 2009, were well received and provided the opportunity to receive constructive feedback from experienced researchers and practitioners, which helped to give further direction. It was suggested that:

- Further research should involve developing methods, which help to measure the benefit to teacher and learner.
- The extent to which CPD is informed by Government initiatives, thus questioning the effectiveness of policy designed to aid new teacher/researcher development.

1) What are the features of effective learning and assessment?	2) What has been the impact of Government policy on curriculum development?	3) How are skills and knowledge acquired by learners from other subjects?
Encouraging independent learning in a controlled resource task	STEM	School curriculum
Planning for effective differentiation in a controlled resource task	Creative Partnerships	Collaborative approaches
Managing the introduction of multiple new ideas	Digital D&T	Enrichment

Although this is a start to developing ideas for cross curricular work, it has became apparent that many of the challenges to setting up such projects lie with the logistics of timetabling, cultural notions of learning held by subjects and probably most importantly the need for teachers to move out of their comfort zone and take some risks in their planning. By taking the small steps described in this project it is intended to encourage other college staff to initiate and expand similar ventures.

The process of critically reflecting on this project has been illuminating and the benefit of taking this practitioner research approach is clear. For example the experience of preparing and presenting at a research conference undoubtedly enriches personal CPD. The outcomes of the research will form a valuable resource for my own college. A second iteration of the chocolate box, or similar project will prove to have a measurable and positive impact on the progression of learners. Based on the success of this project so far I look forward to developing aspects of the research further. Exciting projects are planned for the next academic year, by pursuing best practice through an action research approach.

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Schon, D. (1991) The Reflective Practitioner, How Professionals Think in Action. (London: Arena, Ashgate Publishing) p54
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