When it is and when it isn't

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Well…hello again.

It feels some while since I left this 'reflection' slot…. actually it has been two years. So when Eddie invited me, it seemed like a nice idea to revive my meanderings through some of the big ideas in design & technology. You may of course take a different view.

In the interim I have been working with colleagues at Goldsmiths and elsewhere on a project that has forced me to examine what must be (as a professional subject body) one of the most fundamental questions for us all. When is design & technology NOT design & technology? What is it about it that defines it as design & technology? At first glance this might seem a simple matter. But I assure you it isn't.

When it is and when it isn't

The issue first arose for me when I was starting out with the APU team at Goldsmiths in the mid 1980s. We had been commissioned to develop tests for design & technology, and so we set about it with gusto – creating all kinds of test activities that seemed to us to be interesting and inventive. But inevitably our steering group (whose brief was to keep us on task) continually forced us to justify our activities…

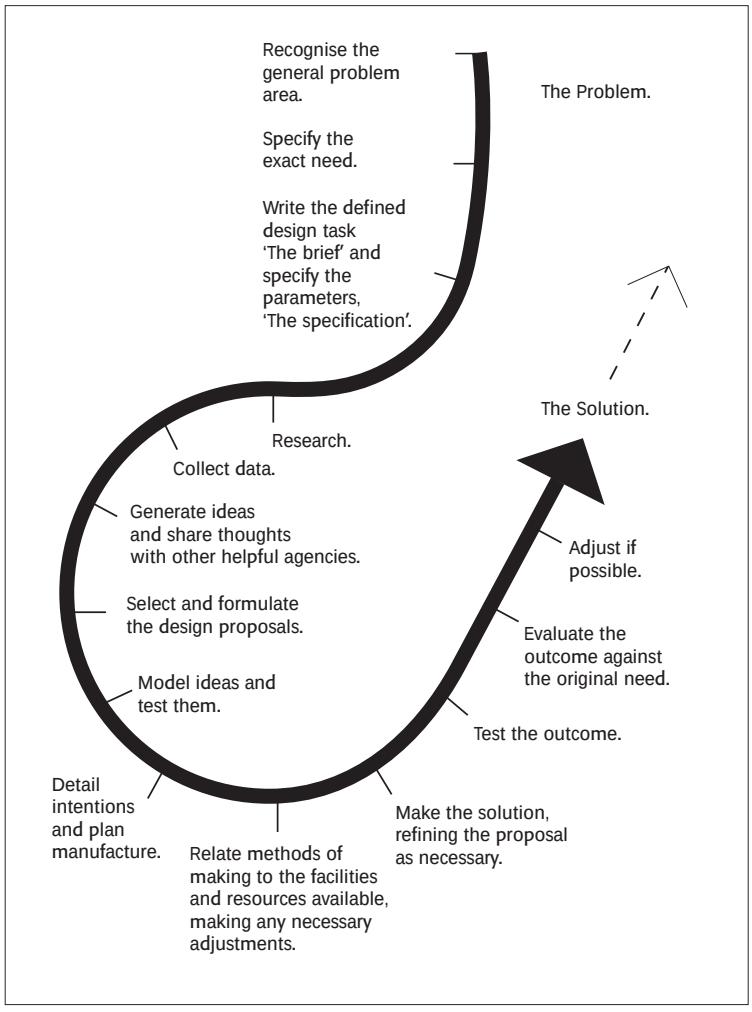
> "Yes that looks a really interesting activity …but is it a d&t activity?"

> "Yes if learners could do that it would be good …but is it a d&t skill/capability?"

To answer such a challenge, surely all we needed to do was to describe the capabilities/skills that make up design and technology, then design test activities that probe them and allow learners to demonstrate the extent to which they could (or could not) do the business.

This 1987 HMI version is illustrative of a much wider set of descriptions – all variants on the same basic idea.

It is a matter of record that we challenged this linear view of the activity – and offered an alternative account of how the designing activity operates. But quite apart from that debate, the idea of designing as a set of sub-processes was firmly established. And moreover these sub-processes were (quite properly) cast in the form of higher-order intellectual capabilities



(DES 1987 p10)

The problem that we were seeking to get to grips with lay in the procedural nature of the definition of design and technology. Even at that stage (1985/6) the *activity of designing* was seen to be at the heart of the subject. And designing was seen to operate through a strict and linear set of sub-processes. These typically started with a statement of the 'problem' and worked systematically through to a putative 'solution'.

investigating…researching…exploring…evaluating… testing…creating

Given this framework, it was straightforward and unproblematic if we designed an activity that involved learners developing a new storage system…or a new seating device…or a new garment…or a new

warning/signaling system. These were all part of the stock-in-trade of the design & technology community. But what if I designed a new reading book for an emergent reader? Could I argue that this is design & technology? The outcome is a product – albeit a printed-paper one – maybe with lots of interesting illustrations, and perhaps some paper engineering elements.

And if this argument were to be accepted, what if I stretch it a bit further? What if there is no illustration…and no paper engineering…just a jolly good story. Have I designed it? Could I not argue that I have investigated the market; and researched themes that excite that market sector; and then created some characters; and given them a context to operate in; and created a draft (prototype); and tested it all out with a user group; and refined my draft and finalised the book. But have I designed it? Is it design & technology? Was Dickens a designer?

The same argument could of course be applied not just to writing, but to any field of creative performance. By defining design & technology in terms of higher-order cognitive processes, (investigating, researching, exploring, evaluating, testing, creating) we run the risk of being seen to lay claim to the entire world of creative endeavour. So when (in 1987) we came to write our first APU report, we used a form of words that described the scope of design & technology as creative endeavour *in the made world* – ie the world of products and systems and material things. And shortly afterwards the first NC document appeared (the Interim Report of 1988) with the categories of *products…systems…environments.*

So oddly, design & technology is *not* defined by its overriding processes, but rather by the kinds of outcome that result from the operation of those processes. It IS design & technology if the outcome is a chair, or a garment, or any other material product. But it is NOT design & technology if the very same processes result in something *other than* a material product. Even as we agreed the final text of that APU report, it seemed to me to be a somewhat unsatisfactory position.

This issue has rattled around and frequently re-surfaced over the intervening years, and we are now tackling it again in project e-scape. Essentially, *e-scape* is built on two innovations.

First it is about creating e-portfolios of design performance dynamically and directly from activity in the workshop/studio. Commonly e-portfolios tend to be second hand re-creations (in a nice clean IT suite) of a process that takes place in messy and cluttered workshop and studio spaces. In e-scape, we use hand-held digital tools to get down and dirty with the technology; document the process live as it unfolds, creating real-time web-portfolios.

Second, since all the portfolios are web-based and available ubiquitously, we have been able to develop a radical new assessment methodology that dramatically improves the simplicity and the reliability of the assessment process.

Having built a system that has been proved to work, we have been commissioned to extend the work into another phase, with the brief to see whether it can operate in a similar way in other disciplines. So we are now busily working with expert groups in science and geography to see whether we can use the e-scape model to create dynamic e-portfolios of performance in those subjects.

E-scape design portfolios are always based on – and grow out of – designing activities. So in science it seemed sensible to ask the experts to create activities that are similarly built around scientific processes like observation, experimentation, evidence collection, data interpretation and explanation. The further we got into the process however, the more we found that the supposedly scientific activity was starting to involve other (familiar) higher-order processes:

- investigating…how materials behave;
- exploring…how they might set up an experiment;
- creating…test rigs to examine specific behaviors;
- evaluating…the strengths and weaknesses of different explanations;…in fact all the cognitive processes that make up designing.

The science teachers were delighted with the activities – affirming their clear sense that this was good and exciting science. But I could not help thinking of it as designing. The students were *designing* experiments – and, having conducted them, were using that experience to *model* ideas that helped them to explain what was going on. The designing and modeling of ideas was not of MDF components, or calico constructions, but was rather centred on abstract notions of (in this case) acceleration, deceleration and impact.

The importance statement for science is really interesting. …experimentation and modelling are used to develop and evaluate explanations, encouraging critical and creative thought: www.nc.uk.net/nc/contents/Sc-home.htm

Sounds a bit like designing to me.

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The e-scape geography team has also been hard at work developing their activities, and a month or so after the teams had started their development work for us, we had a combined meeting with them. We had a debate about the 'importance' statements and invited them to articulate what it was about their subject that made it special. The scientists got straight into the importance of asking good questions…looking for evidence…modeling consequences (futures)…etc. At which point one of the geography team intervened…'that's exactly what we do… what makes that science?'

Which all set me wondering about the reality of the divisions between subjects. Is designing an experiment really science? Is modeling a future landscape really geography? Or is it that – if we are concerned with higher-order process skills – the activity is the same, but just customised to different ends?

There is an important message in this for design & technology teachers. Remember that most subjects (and science in particular) are coming very late to this party. Most subjects have been hamstrung with buckets of content to such an extent that process-rich science (and process-rich just about everything else) is a seriously endangered species in schools. Put the other way around, who are the experts in this way of working? Where is the mass of expertise about how these higher-order process skills can be embedded into dynamic learning activities?

Step forward design & technology teachers…we've been doing it for decades.

References:

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