The Inspiration Pitch: Where do design ideas come from?

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Abstract

This paper reports on a specific aspect of research undertaken to explore the use of real-time' dynamic, digital portfolios as a way of developing, evidencing and assessing design and technological capability – the e-scape project (Kimbell et al. 2009). In particular, it focuses on the factors that inspired the design ideas generated by the learners, as identified by the learners themselves through an 'inspiration pitch'. This 'pitch' took the form of a 30 second sound-bite, recorded on a mobile phone, through which the learners explained the source of their inspiration.

The learners' responses were analysed to explore the type and range of sources they identified, how these related to performance in the task, whether gender was an issue and if there was a 'school' effect.

A key feature of the task was the provision of an 'inspiration' handing collection and particular attention is paid to this. The handling collection was provided by the school, following guidance from the research team. The paper will report on the way in which the activity and handling collections were structured, the responses of the learners and the insights provided into supporting design ideation. In addition, the paper will report on other sources of inspiration – linked to both resources provided through the task itself and also those from external sources. Finally, the paper will identify certain key messages that could be drawn on to enable teachers to provide more effective support to learners' development of creative and innovative ideas.

This paper draws directly on the Report of Phase 3 of the e-scape project (Kimbell et al, 2009).

Key words

creativity; designing; handling collections; product analysis

Introduction

Through a series of research projects, researchers in the Technology Education Research Unit (TERU) at Goldsmiths, University of London have developed an approach to 'choreographing' short, structured design activities aimed at both supporting and revealing design and technology capability and, in particular, creativity and innovation. (Kimbell & Stables, 2007). A feature of these activities has been the way in which we have deliberately built in elements aimed at supporting ideation. This has included the provision of a design context/scenario that learners can engage with, an 'issues-rich' task, user profiles and an 'inspiration' handling collection of products. During recent research that featured these elements (the e-scape project, Kimbell et al. 2009) learners were invited to comment on where the inspiration for their design ideas had come from. This paper will explore the sources of the ideas that learners shared with us.

The survey that the paper draws from involved 352 learners across 16 schools (15 secondary and one primary). The secondary schools were chosen to provide a regional spread (north east, north west, midlands, south west and south east) and were identified by advisors in those regions. The primary school was added to enable us to see if using the approach, including the technology, presented problems with a younger age group. The school chosen was one we had worked with on a previous project. The design activity that the learners were engaged in lasted six hours, spread across two mornings. It was half way through this activity (at the end of the first morning) that the learners were asked to record a 30 second 'sound-bite' (using a mobile phone) explaining where the ideas they were working on had come from.

The focus of the design task was pill dispensers – designed to meet the needs of a specific client group. Four 'user profiles' were provided for the learners to select from – or it was up to them to choose an alternative. The four user profiles presented centered on a six year old boy with a nut allergy, a teenage girl who suffered from migraines, a 40 year old active sportsman and an elderly woman who was confused and forgetful and who had to take a range of tablets several times a day.

A key element of the support provided was the 'inspiration' handling collection. The concept for this type of collection was

Figure 1. Examples of products to provide inspiration for 'filling and dispensing' given in the guidance materials

developed initially through the Assessing Design Innovation project (the precursor to e-scape – see Kimbell et al. 2004). The handling collection was a carefully selected set of objects that the learners could analyse, explore and draw 'inspiration' from to support their designing, but that were quite explicitly not examples of the product the learners were asked to design (in this instance the pill dispenser). Choosing objects that didn't relate directly to the product focused in the task was seen as important – the shift in context enabling students to go beyond the obvious. This was something we had explored in the APU D&T project (Kimbell et al. 1991) and is also supported by research by Nicholl and McLellan (2007a).

In the guidance materials that accompanied the task, teachers were encouraged to choose objects (products) for the potential each had to:

- *Inspire learners to explore the unexpected, novel and provocative; to think the unthinkable and step outside the box.*
- *Help learners unstitch a concept from an existing product that they can apply in an entirely new and innovative way to their own design.*
- *Provide a source for creative inspiration throughout the task.*

(e-scape training materials)

In particular they were chosen to provide thought-provoking examples of the aspects of designing that needed to be considered. For example, with the pill dispenser task some were chosen to provide inspiration for ways to fill or dispense.

In addition to the handling collection, and based on research as far back as the APU project (Kimbell et al. 1991), we were mindful of the need to create a challenging design brief – a task that was 'issues rich', presenting learners with a range of considerations. For the Pill dispenser task, the initial challenge was presented as follows:

Young children, teenagers, adults and senior citizens with certain medical conditions often need to carry one or more pills around with them during the day. They need to remember to take these at the correct time.

A manufacturing company has asked you to develop some

ideas for possible pill dispensers. They are looking for attractive and imaginative designs that solve the problems of:
- *containing and carrying the pills;*
- *filling the container and dispensing the pills;*
- *producing something that is easy to use and desirable.*

The third 'inspiration' resource that learners were provided with were the user profile cards mentioned above. These were created to provide hints of more specific design requirements and to enable the learners to empathise with the user group they chose to focus on. Figure 2 shows examples of the profile cards.

Figure 2. Example of user profile cards
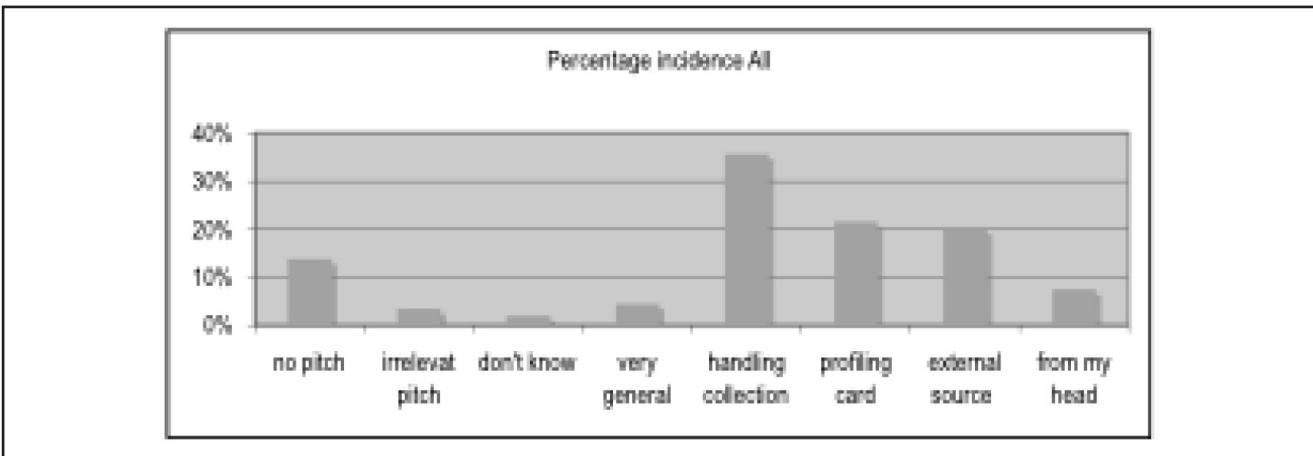
Chart 1. An overview of what learners were inspired by.dispensing' given in the guidance materials

How the data was collected

The e-scape system is one in which dynamic performance data is collected in real time as the learners' projects progress. Learners are prompted to take photos, make text or audio notes, do drawings and make videos at regular intervals, using a smart phone or PDA (Personal Digital Assistant). The digital files created are automatically synchronized to a web space. In addition, the activity was observed and recorded using a pre-defined observation schedule. Learners completed an 'after the event' questionnaire and teachers and regional advisors were interviewed. For this paper the portfolio data has been subjected to content analysis, with some qualitative analysis taking place in regard to the themes and elements identified, performance data and demographic data.

The range of things identified

The responses the learners made when asked about the inspiration for their ideas were analysed to explore the type and range of sources they identified, how these related to performance in the task, whether gender was an issue and if there was a 'school' effect.

The general overview of responses is shown in Chart 1 – which indicates the number of incidences when a particular category of inspiration was mentioned. To the left of the line on Chart 1 it can be seen that, in total, 14% of learners didn't make an inspiration pitch at all – and this is dealt with further on. To the right of the line, the chart shows the number of times learners mentioned a particular category of influence – from "don't know what inspired me" to "it came from my
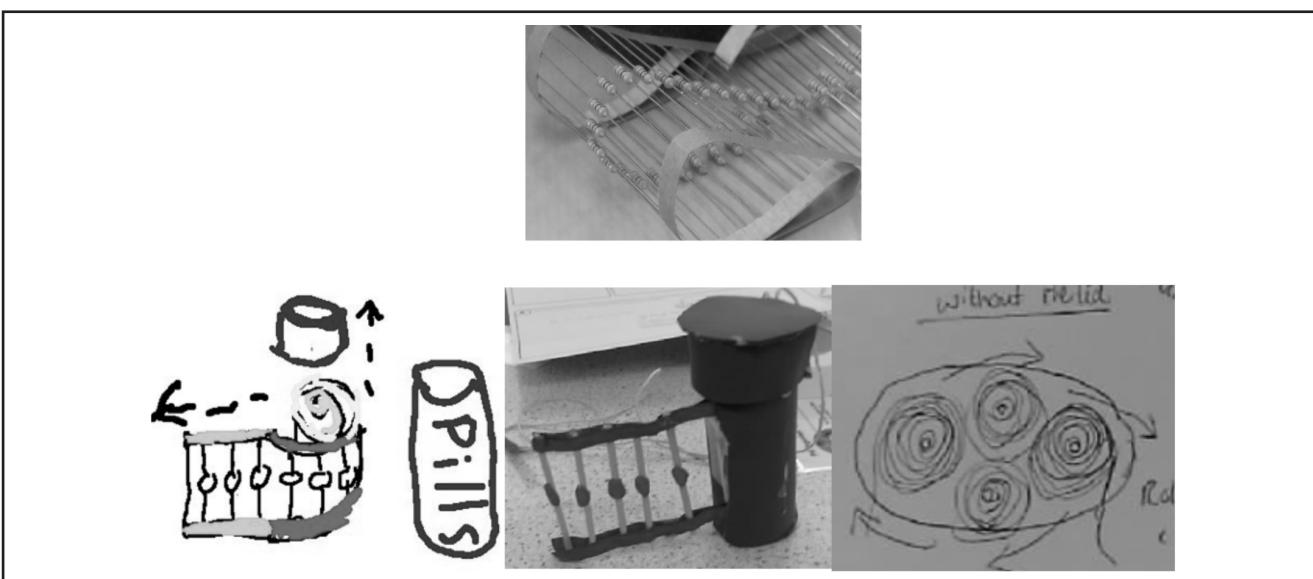

Figure 3. The inspiration and developing idea of Pupil 02/12

head". Perhaps as we hoped, the handling collections were identified the most. But what surprised us were the number who referred to the profile cards and also those who cited some external source. A number of learners mentioned items that fell into more than one category. In what immediately follows the chart, we illustrate the range of ways learners identified their inspiration and illustrate how this impacted on their developing ideas.

Specific mention of the handling collection

For some learners, their whole design was influenced by one product in the handling collection, as shown in Figure 3. In this instance, the teacher had provided a very diverse range of objects and the learner saw his opportunity in taking an idea from a sheet of resistors. He went on to develop a pill dispenser that contained sheets of pills that fed out of a container by turning a handle.

> Well the thing that inspired me was the link of resistors joined together. I thought that would make a good roll of pills. (Pupil No 02/12: ranked 33)

Other learners saw how they could adopt concepts from different objects and combine them to develop their own idea. In the example shown in Figure 4, the learner has extrapolated concepts from four different products to exploit in his own design.

> What inspired me was the objects lying around. Certain designs were inspired specifically by this thing on the table, which smelt quite nice and had a lid that spun round. That inspired my first design – I completely copied that in a way. The other one was a belt buckle and a watch, which inspired – there was a belt lying around, you know. And a watch and stuff like that. Another thing was this thing that you flick up in the air and catch a ball. (Pupil No 11/14: ranked 31)

Unstitching a concept

In the training material, we had emphasised the potential of a good handling collection to include products from which learners could 'unstitch' a concept – and this was illustrated nicely by one of the Primary aged children in the trial, in describing how he took his idea from a particular design for an eraser dispenser.

> Where I got my idea from is a rubber and it span round. Well you pull this little out-ridge and it comes round and then the rubber gets shown, and I thought, wait, couldn't you do that with pills. Instead of it already being connected, Its scooping them up and showing you them. I thought that was a pretty good inspiration. (Pupil No. 13/02: ranked 102)
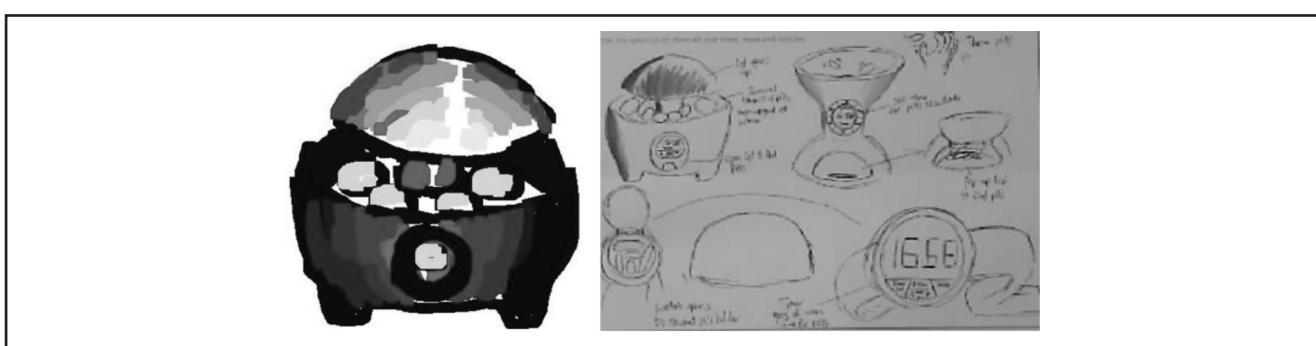
Figure 4. The developing idea of Pupil 11/14, drawing on multiple products
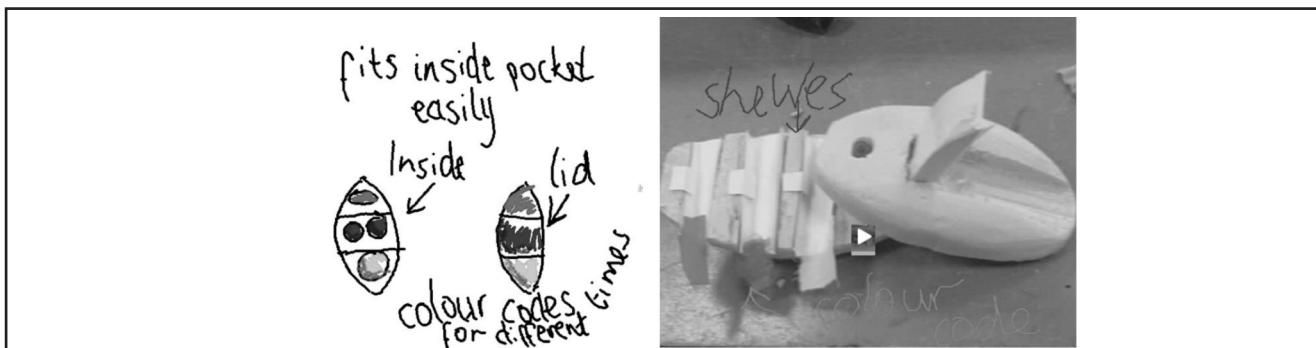

Figure 5. The developing idea of Pupil 15/08, designing a pill dispenser for the elderly
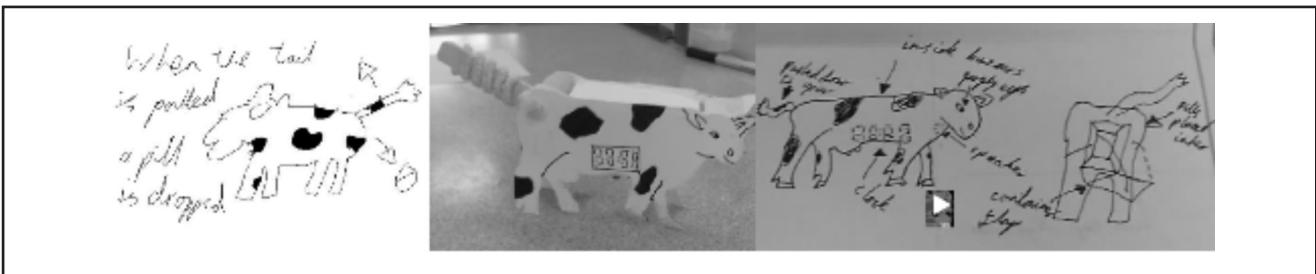
Figure 6. The developing idea of Pupil 15/20, designing a pill dispenser for a child

Making good use of the profiling cards

The profiling cards were a major source of inspiration. Learners used them to identify the needs of their clients, as is illustrated by the following two examples; one designing for the elderly (see Figure 5) and one for a child (see Figure 6). What is impressive with both is the way in which the initial inspiration is tenaciously held on to as the very first visualising of the idea, drawn in the first 5 minutes directly onto the Ameo (mini computer) screen, is developed through to a working prototype.

I based my design on one of the cards that told us which people would be using the pill dispenser. I read about an elderly lady who got confused about which pills to take, and I tried to make my design simple, aesthetic and compact. (Pupil No 15/08: ranked 53)

I was inspired by one of the typical users needs who says he loves cartoons and going to the zoo. As I read the zoo, animals started going through my mind and I was seeing what children would find as entertaining. I thought of a cow pooing out a pill. (Pupil No 15/20: ranked 59)

For some learners, the profile cards caused them to think of particular clients as they personalised the profile to someone they knew – for example a younger brother who didn't like to take medicine, or an older relative who had similarities to 'Alice' the elderly woman on one of the cards. These learners often cited the inspiration as coming from this personal experience.

The thing that inspired me was that my grandad takes lots of pills so if I could create one this maybe would help him take it and not forget in the evening or the morning, forget to take them which would be very vital to his health. He has been a big role model in me creating this product. (Pupil No 11/10: ranked 70)

Drawing from an external source

20% of learners took their inspiration either wholly or in part from external sources – things from outside the classroom. This ranged from products they had at home, products they had experienced earlier in their lives, and products they had seen used in unusual ways – as is the case with Pupil 08/06 who took his inspiration from a James Bond movie.

My design ideas came from a movie and a sequence of films. One was James Bond. I'd seen this necklace - it was containing diamonds and so I thought the diamonds could be pills and that could work. Another was Prison Break and you put little messages in. (Pupil No 08/06: ranked 21)

This learner was designing for a teenager who didn't want to draw attention to the fact that they always had to carry medication with them and went on to design a pill dispenser disguised as a fountain pen.

As with the use of the collections brought into the classroom, for some, this involved drawing together inspiration from more than one product – as was the case with a second Primary learner who took …
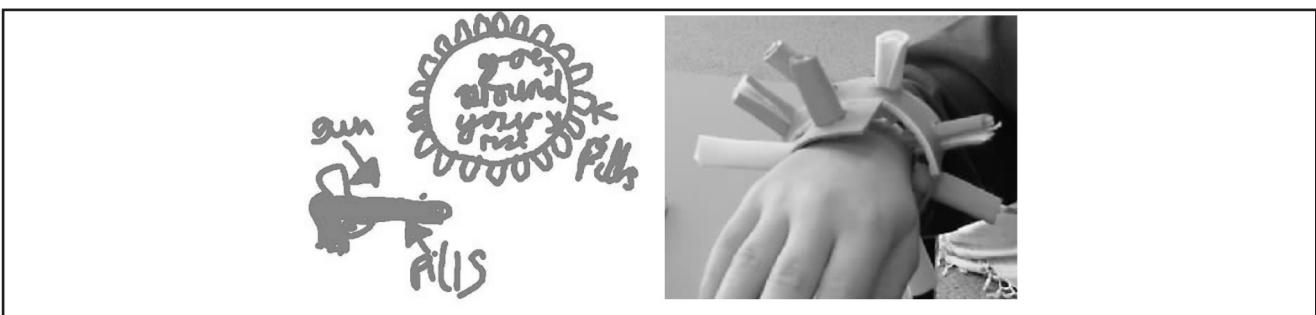
Figure 7. The developing idea of Pupil 13/15, combining ideas from an external source 'Just popped into my head'

ideas from a dog lead and I saw loads of people at Glastonbury wearing things that were pretty cool and I thought that I could turn it into a pill dispenser. So yeh, I got it from a dog lead and Glastonbury. (Pupil No. 13/15: ranked 72)

A significant minority of learners (8%) reported that ideas just 'popped' into their heads. For some, there was evidence that they were talking about what could be termed a 'creative leap' and the initial inspiration then led to purposeful development towards an imaginative solution. For others, the statement had more negative overtones – implying almost a lack of inspiration. The contrast between these two positions is illustrated in the following two examples: the first from a learner ranked 42nd overall (Figure 8), and receiving an A Grade; the second from a learner ranked 304th (Figure 9), who received an E Grade.

To tell you the truth I have no idea where this idea came from. It just came into my head. Things do that -they just come into my head from nowhere. I don't know why. But it was a good idea, so I kept it. (Pupil No 10/14; ranked 42)

The relationship between the inspiration and gender, performance and school

Looking more deeply into the data, it is apparent that the ways in which learners report what inspired them is not evenly spread. There are clear trends showing relationships between what was drawn on and the learners' performance. Exploring this further shows a link to what might be called 'school effect'. Interestingly, in exploring these relationships, the one area where there was limited difference was gender. This lack of difference is an interesting finding in itself. There are, however, two small differences; first that boys appear slightly more likely to say that inspiration just came into their heads and second that girls drew more inspiration from the profiling cards. This difference was quite marked (9%) and resonates with our earlier research that indicates that girls are more likely to be user focused. (Kimbell, et al. 1991; Kimbell, Stables & Green, 1996)

The performance effect

However, there are more noticeable differences when comparing the range and amount of elements referred to in relation to performance. Chart 3 shows the incidence of categories being cited by learners grouped by the grades received. (Some grades have been clustered to facilitate more even sample sizes). Certain things are immediately apparent. First, the higher the performance, the more likely that the handling collections will have some impact. It is interesting that the focus on the handling collections is particularly strong at Grade C – and this might be explained by the concrete nature of handling collections, and the way they might afford a bright,
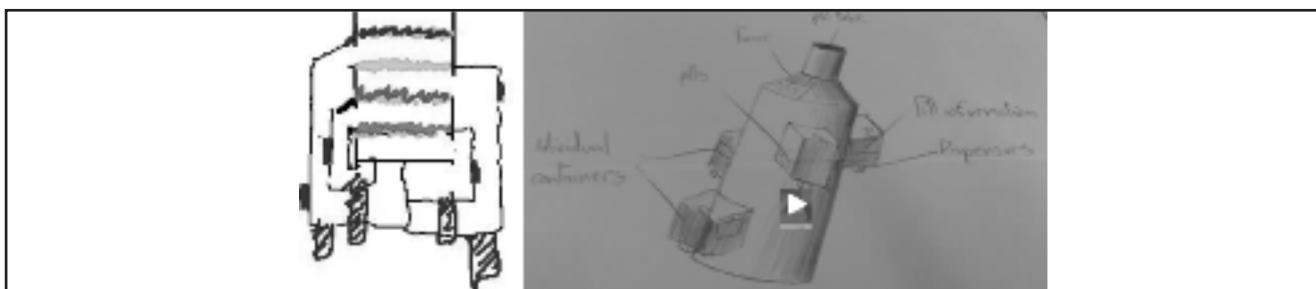

Figure 8. The developing idea that 'popped into the head of Pupil 10/14
It just came off my head, I just got an idea, yeh. Nothing much. (Pupil No 12/10: ranked 304)

*Figure 9. The developing idea that 'popped into the head of Pupil 12/10*
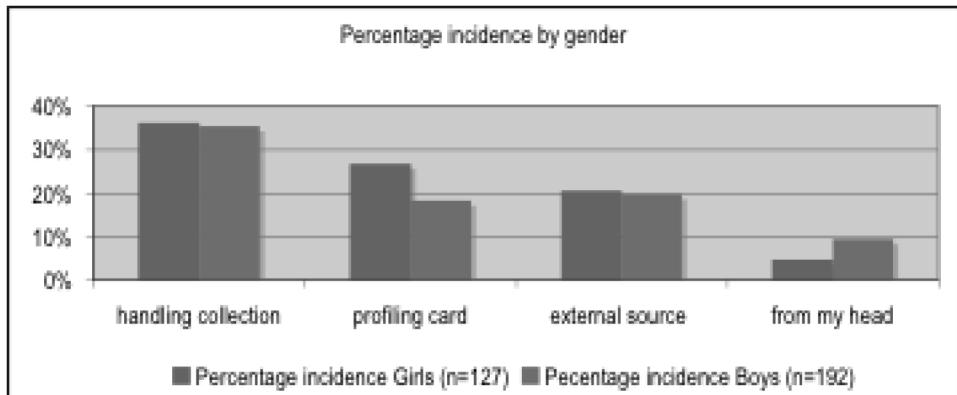
Chart 2. Gender differences.

but less academic learner a very immediate way of identifying a useful design concept. The chart also indicates the very strong use that the highest performers have made of the profile cards - more than twice any other grade. There are also indications that they were using these in conjunction with the handling collections. Finally, it would appear that the lower performers are more likely to have drawn inspiration from inside their own heads – there being very little evidence of this in Grades A*, A and B, and where this did occur, it was more likely to be of the 'creative leap' nature indicated in Figure 6 above.

The school effect

When analysing the data to compare differences between schools, a number of aspects become apparent. Chart 4 shows the range and amount of references for each school, and is organised by average performance of each school – School 08 on the left having the highest average performance, School 12 on the right having the lowest average performance. While there is noticeable variation, there are still clear indications that drawing on the handling collections is likely to have a positive

impact on performance, and a trend to suggest that where this is balanced with drawing on the profile cards and from external sources, performance is likely to be positively affected. This is demonstrated most forcefully in School 8, which had the highest average performance in the trial.

But there are some noticeable examples that 'buck' the trends – and in particular School 04 (a mid to high performing school) that made very limited reference to the handling collection; School 02 (a mid to low performing school) that made considerable reference to the handling collections; and School 03 (a low performing school) that made minimal reference to the handling collections and considerable reference to the profile cards.

Looking in more detail at the data collected by the researchers observing the trials, it appears that there are two particular aspects that have impacted on the value of the handling collection – the quality of the collection itself, and the way it was introduced to the learners. The variations witnessed were
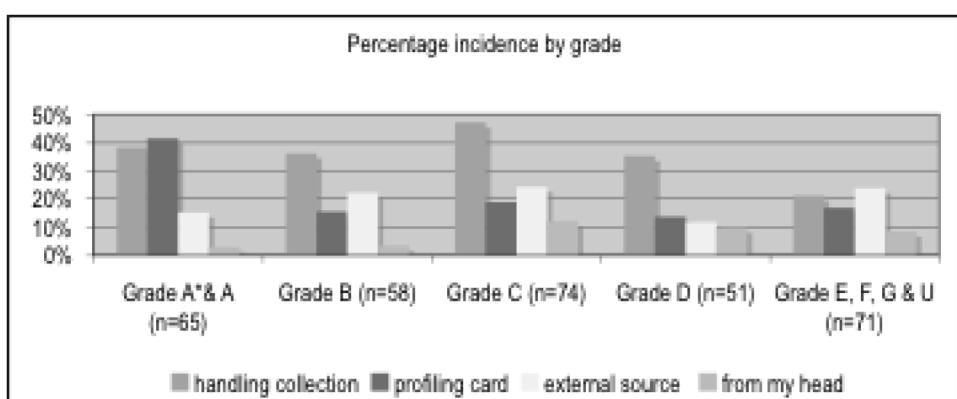

*Chart 3. The impact on performance.*
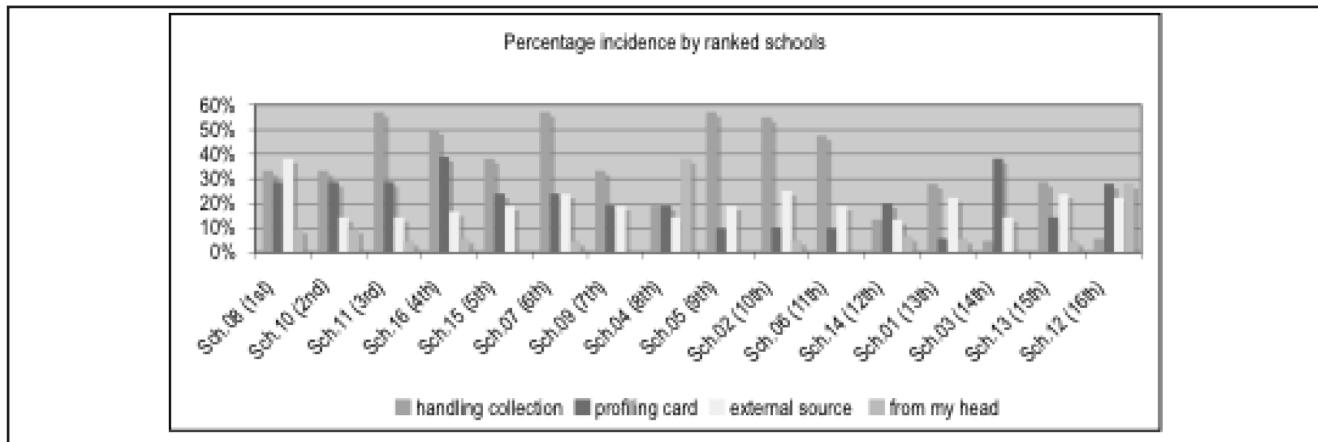
Chart 4. The 'school effect'

Table 1. Comparing the use of handling collections across 4 schools

despite the fact that training support was provided to the teachers running the activities – guidance on both what to include in the collection and how to present it during the activity. Table 1 shows the contrast between high and low performance and also between the two mid performing schools.

It is apparent in these examples that in the two schools where handling collections were drawn on quite extensively (School 02 and School 08), the collections were introduced o the learners in a fulsome and enthusiastic manner, whereas in the two where less use was made, the introduction was more minimal. In addition, from the photographic evidence of the actual collections provided it can be seen that the collections in School 02 and School 08 were both more extensive and more varied than in the other two schools.

To pitch or not to pitch

In 14% of the portfolios there was no evidence of an inspiration pitch. In most cases we don't know whether this was due to a failing in the technology or to the learners actively choosing not to make a pitch (although in certain instances it is clearly the latter as the learners chose to record a 'pitchless' file.) But analysing the incidence of 'no pitch' does still provide some insights. First, the boys appear to be slightly more likely to have made no pitch than the girls.

When the data is split by school, there is a clear trend towards there being more likelihood of no pitch in poorer performing schools.

The special case of the primary school

In all of the above, one school needs particular mention – the primary school that took part in the trial. The learners involved were all either Year 5 or Year 6 – so considerably younger than their counterparts. While (as can be seen from the overview given in Chart 8) there was a certain incidence of what might be seen as an irrelevant pitch – typically talking about what was being done, not where the inspiration came from, it is impressive that all children made a pitch and that none said they didn't know (2% of the total group did declare this). Whilst the handling collection leads their claims for inspiration,
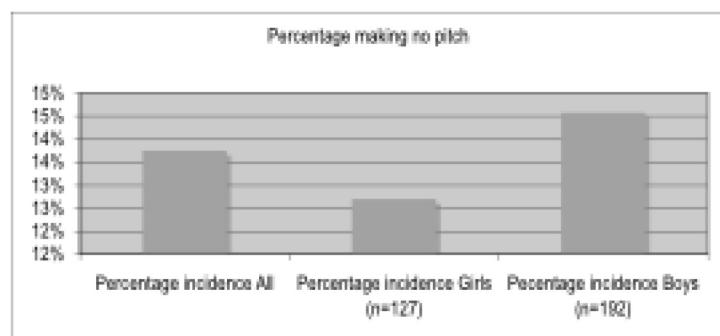

Chart 5. The lack of pitch. When the data is split by school, there is a clear trend towards there being more likelihood of no pitch in poorer performing schools.
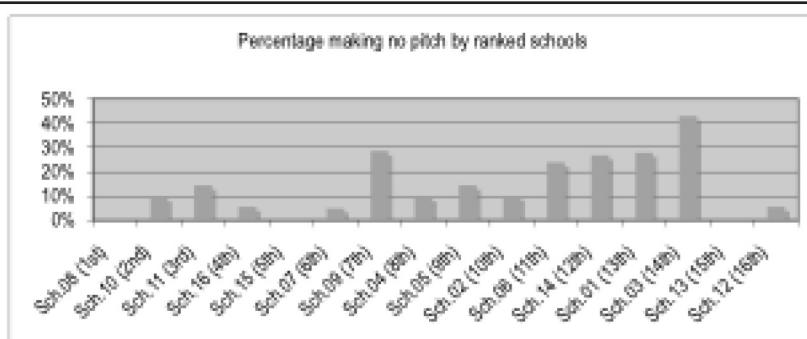

Chart 6. The link between 'no pitch' and school.
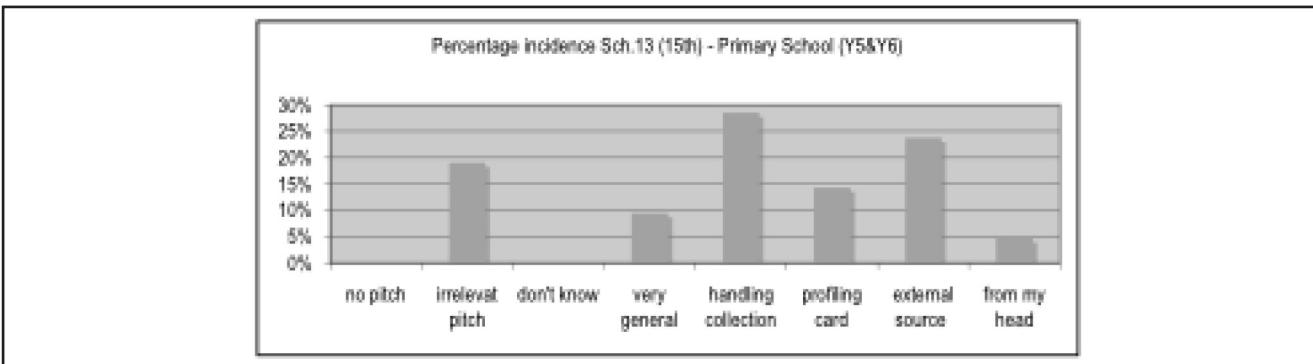
Chart 8. an overview of inspiration from the primary school.

they have an interestingly similar, balanced approach to School 08 – the highest performing school – despite (not surprisingly) having one of the lowest average performances.

Implications of the findings

In summary, there are certain messages to be taken from the analysis of the inspiration pitch, relating to learning and teaching in design and technology. A key overarching finding is that the higher levels of performance showed evidence of learners drawing on a range of sources for inspiration. This gives an important message about the importance of the provision of a range of stimuli and/or prompts to support designing. Linked to this is the fact that generally learners developed a diverse range of responses to the task – something that was clear when looking across all 352 portfolios, but also was something that teachers in individual schools commented upon about their own learners. This diversity is in contrast to the replication or similarity of ideas teachers often report and provides further support for the need for a range of prompts and resources.

Of particular significance was the impact of the handling collections – both good and bad. Where there was a rich and imaginative handling collection, a very positive impact could be seen on the creativity and innovation of the learners – and it was also apparent that a minimal and weak handling collection contributed to poorer performance. The handling collection was provided by the school, following guidance from the research team. As can be seen from the examples given, despite this guidance (given in text format and through an activity at a training session) the collections were of variable quality – and this had a distinct impact on the extent to which, and the ways in which, learners used the collections. It is interesting to note that 17 out of the 18 teachers running activities reported that, following the training, they were confident or very confident in creating the handling collections. This would indicate the need

for even more, well exemplified, guidance materials for teachers to ensure greater quality of both the handling collections themselves and the way these collections are introduced in design activity. The value and importance of product analysis in supporting both designing and making has been emphasised in the English D&T National Curriculum since 1995 – but teachers' understandings of how to make good use of this are still variable – something that has also been found in the research of Nicholl and McLellan (2007a).

The research also highlighted the importance of enabling learners to really get inside the issues and challenges of a task – to see them as relevant and to take ownership. The importance, and ease with which a range of values that make a task "issues rich" can be incorporated into a design brief or scenario has been highlighted by others (e.g. Martin & Riggs, 1999). Having user profile cards as prompts to enable learners to engage and relate to the particular client groups appeared an effective way of enriching the task set. This finding also has resonance with the research of Nicholl and McLennan – both in terms of the value of focusing on the functions of a product to enable less stereotypical ideas (Nicholl and McLellan, 2007b) and the importance of building challenge in design tasks (McLellan and Nicholl 2008).

A separate issue that is worth commenting on is the value of the tactic of using the 'pitch' in getting learners to articulate their thinking – and within this the extent to which the opportunity to do this by making a simple voice recording on a mobile phone also allowed learners to communicate informally but effectively. The use of digital tools is discussed in more detail in the e-scape phase 3 report (Kimbell et al. 2009) but there is evidence that using a range of response modes, such as voice recorded 'sound bites' is valuable both to the learner in articulating their thinking and to the teacher in understanding that thinking.

Finally, it is worth commenting on the evidence we found of what might be seen as the 'creative leap'. Most important is not just that a 'leap' occurs, but what happens to take the idea forward. For the research team this reinforced not just the importance of tenaciously exploring, prodding and growing an idea, but also that quality performances demonstrated, despite a tendency to still witness teachers requiring learners to generate a range of initial ideas, that good idea development can be based on a single initial starting point that is rigorously and critically pursued. In conclusion, one could paraphrase the much quoted Thomas Edison - creative and innovative product development is 1% inspiration & 99% perspiration!

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