I. Wagner, H. Tellioglu, E. Balka, C. Simone, and L. Ciolfi (eds.).
ECSCW'09: Proceedings of the 11th European Conference on Computer Supported Cooperative Work,
7-11 September 2009, Vienna, Austria

‘Talking about (my) Generation’: Creativity, Practice, Technology & Talk

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Abstract. This paper describes the findings of an ethnomethodological enquiry into the work of graphic designers. We explore the collaborative nature of graphic design as undertaken by a small team of designers working in a packaging design company. In doing so, we attempt to explicate the way in which practice, talk and technology are intricately bound up in such a way as to constitute a creative process. We describe a series of scenic features, ‘orderings’, and ‘talkaboutables’ which are characteristic of this process and which may be entailed in other creative contexts and hence can be important topics for CSCW design for creativity.

Introduction

> "I was recovering from a weeklong stint of design work in my Chicago studio. In those days I was in the habit of bolting my studio door and immersing myself in the heady universe of packaging design. It was my true creative calling ..."
>
> David Marusek, 'Counting Heads'

> “In order to get clear about aesthetic words you have to describe ways of living. We think we have to talk about aesthetic judgments like ‘This is beautiful’, but we find that if we have to talk about aesthetic judgments we don’t find these words at all, but a word used something like a gesture, accompanying a complicated activity”
>
> Wittgenstein 1966, 11.

This paper describes the findings of an ethnomethodological ethnography of graphic designers. We explore the collaborative nature of graphic design as undertaken by a small team of designers working in a packaging design company. We show how the creative process is intricately bound up with talk about the work, orientation to various 'known in common' background features, and shaped by the various technologies used, showing through a series of examples the social and methodical features of the creative work.

Creativity is an interesting topic for the CSCW community, since it has in the past often been conceptualized as a 'black box' - as entailing 'Eureka' moments (e.g. in major scientific discoveries) or as a solitary, perhaps cognitive, pursuit (e.g. music composition). Historical treatments show how our conception of the creative process has been progressively transformed and widened from in ancient Greece, where only poetry was considered creative (even visual arts were considered only to copy nature), through the transformation of the visual arts from the artisanal to the 'creative' in the Renaissance, towards a heroic conception of the creator from the 18th century.

More recent research has begun to explore how creativity is often a collaborative achievement (e.g. Fischer, 2005; Cook, 2005; Jacucci and Wagner, 2007) and certainly creative work is always mediated through technology (for recent discussions of materiality, new technology and the creative process see Jacucci and Wagner, 2007; Eales, 2005). Although such work has begun to explore the situated, technologically-mediated nature of creativity, there are still relatively few studies of creativity 'in the wild', as opposed to more self reflective approaches (e.g. Schneiderman, 2000) or the vast literature that seeks to model creativity (c.f. Greene, 2001), particularly given the broad application of the concept across many domains.

Creativity is now a term that can be applied to arts, sciences, business and design and there is a strong interest in developing technologies which can enhance creativity. Hence, in the world of 'design', there is increased interest in (and a progressive convergence between) the design of 'systems' of whatever kind and design seen as a 'creative' activity. This move has occurred as computer systems seek to support ever more varied and complex activities in novel and innovative ways. This convergence is arguably prompted by at least three distinct 'moves' in design-related arenas such as CSCW. Firstly, as we have 'moved out of the control room' (Hughes et al. 1994) then so have we recognised the heterogeneous nature of skills and expertise in complex environments, where, for example, systems need to support heterogeneous user constituencies across organisational boundaries, and hence the difficulty of representing them (see Ackermann et al, 2003) leading, inter alia, to the reconsideration of concepts such as 'awareness' (see Schmidt, 2002). Secondly, with the advent of Web 2.0 applications, some part of the project at least has involved embedding symbolic information into computer systems in such a way that semantic information can become 'machine

readable' and the handling of multi-media information in such a way that it can be tagged, taxonomised and indexed. Creativity and other social activities, for all sorts of users, are supported and 'catalogued'. Folksonomic applications, for instance, are now commonplace, and are evident in sites like Flickr and social bookmarking sites like Delicious. Furthermore, the Web 2.0 infrastructure allows the creative ad hoc development of new applications, for example, through mash-ups. Thirdly, CSCW itself has expanded into a range of domains that would twenty years ago have been unthought-of, including work on domestic life and on public computing (e.g. in the realm of games and arts) of one kind or another.

These factors and others, we believe, have led to something of a sea change with respect to the recognition of creativity in design. This is reflected in attempts to conceptualise 'creativity' in design (see Herrman, forthcoming) and to 'scope' design issues as heterogeneous and creative processes. Nevertheless, this is not without challenges of its own. New relationships between designer and user may be entailed, along with new problems of conceptualising exactly who our users might be and how they might be mobilised.

This is not to say, of course, that the use of technology in the creative process is new for it evidently (for anyone familiar with the paintbrush) is not. Indeed, art history has made various sporadic attempts to understand the relationship between technology, mundane practices and creativity (see for instance, Baxandall, 1974; Benjamin, 1982; Fischer, 1970), albeit to varying effect. What is relatively new, however, is the use of *collaborative technologies* to support the creative process in heterogeneous environments. Graphic design is, we argue, one such case. It is commonly thought of as a creative profession: it involves artistic abilities and is engaged with producing designed-for-purpose products which are realised on various materials and media (for example, paper, fabric, plastic and digital); the work of designers interlinks with other organisational processes, and involves the deployment of heterogeneous knowledge and resources, both technological and otherwise, not to mention socially shared methods and practices for using them, including language and discourse. All of these are implicated in creating, understanding and evaluating a developing design.

Method and field site

Ethnography has played an influential role in CSCW, providing as it does detailed insights into work (and other) practices. The ethnomethodologically-informed variety, employed in this study, has consistently identified and emphasised the detailed explication of the ordinary, practical ways in which people go about doing the things that they construe as relevant, important or necessary in the context which they inhabit and produce. Such ethnographies have progressively exposed the knowledgeable, artful ways in which participants orient to their work using and constituting that work through the use of technologies and

other artefacts (see e.g. Button and Sharrock, 1997; Goodwin, 1994; Whalen, 1995). Such work has sometimes been tightly coupled with design, sometimes more evaluative and increasingly has stood as an informational resource about practice. We would suggest that the latter instance, one recommended by, for instance, Dourish (2007), is peculiarly well-suited to problems of the 'creative'. This is because (as pointed out by Randall et al, 2007), as we move out not only from the control room but also out of the bounded organisation, decisions about who and what to study, and in what situations, become increasingly complex. This third use might be considered as apolitical insofar as the aim is to explicate practice rather than to directly influence design. Like Dourish we would contend that this form of ethnography is of specific relevance to CSCW in situations where we may have relatively little to go on - conceptually and empirically - in efforts to open the 'black box' of creativity, as it unfolds in practice.

The graphic design company we studied - 'Box Group' - is a small independent start-up agency, incubated in a University, which specialises in packaging design. Their work ranges from innovative packaging concept design for large UK retail customers to more mundane packaging (and other) graphic design work for small and medium businesses (SMBs). They have 4 full-time employees (a creative director, 2 graphic designers and an administrator) who are all located in the same small room, and 2 part-time designers. The creative director concentrates on innovative packaging, sometimes in concert with the part-time designers. The full-time designers do the more run-of-the-mill design work for SMBs, doing both the creative design (ideas and concepts) and the mechanical design (the final accurate product). This ethnography was conducted over two separate weeks a few months apart. The study was observational with ad hoc interviews conducted from time to time to clarify or understand elements of the work. Several hours of audio recordings were made each day. Some video was also collected, as well as photographs, many notes and various design materials. The material was analysed from an ethnomethodological perspective (e.g. see Randall et al. 2007).

Social and methodical features of creativity

In this section, we examine how the design context both inspires and constrains the design space and how the tools and technologies enable searching, comparing, choosing and detailed editing work. The designers in Box Group work with a range of technologies, applications and resources. The key technology for them is Adobe Illustrator© where the detailed design is produced. Illustrator is very good for producing graphical design elements but text and photographs can also be brought in, assembled and manipulated in a number of ways. The designers also use Adobe Photoshop© for the assembly and manipulation of photographs. In terms of other resources, the designers use various on-line photograph and graphics/icons libraries like Getty Images and font libraries like Dafont, some are

subscription and some are free. Customers may supply specific fonts and logo files to be used in their designs. They also use digital cameras, scanners, printers and traditional technologies like pens, pencils, paper, scissors and glue.

In what follows we characterise some of the activities involved in this kind of design work. We are not, it should be stated, suggesting that they take place in any determined order, for as with many other forms of work, we see a variety of iterations in play.

Assembling Resources

We have pointed to the way in which organisational studies have increasingly recognised the heterogeneous nature of organisational life. One aspect of this is, the inter-organisational - a common feature of which is 'customer facing' work. An over-arching 'scenic' feature of creative design work is that it is customer-facing. Graphic designers draw a number of distinctions about work for a customer. Most importantly, they distinguish concept design from 'artwork', or mechanical design. In the first, their work is looser, providing 'concepts', i.e. more or less 'accurately' realized sketches of ideas, containing the different textual and graphical/pictorial elements. In the second, they produce the finished product to specification. This is about correctness and detail, and may involve a series of products over a range. It is time consuming and meticulous, and the designers talk about it as the more humdrum part of the work. It is 'small' creativity to them as opposed to the freer ideas work in the earlier stage. However, creativity also depends on the freedom of the brief, the will of the customer for something 'out-there' and so forth. Some pieces of work are restrictive and require only an update, in a similar style, with similar fonts, colours etc. The opportunity for creativity is low. Even so, whilst the opportunity to be creative is desired, being given a free reign (i.e. with a customer unclear about what they want) is not. Clear ideas from the customer are very important in shaping which way to go.

Graphic designers, in other words, do not work in an unconstrained space, for they are providing a service for a customer and a first step in a new design project is to collect ideas, requirements and 'parameters' that allow them to circumscribe the design space – to fix elements of the design. Thus, when designers talk to a potential customer they are engaged in the process of 'constructing the brief' such that the initial brief is made tractable. This is done, in part, by assembling relevant information. Indeed, designers suggest that a large design space and freedom for creativity can be a dangerous thing; it can stop them getting on with the design and it can make it difficult to know if the customer will like what they have produced (N = Neil designer, E = ethnographer):

1. N – Well sometimes a free space can be even worse because sometimes its better with parameters, it's easier with restriction…cos it, speeds up the decision making process… it means you can't go down that sort of route, you can't go down blind alleys

2. E – And even time can be a restriction?
3. N – It is, because time is always money as we all know… and that always, in the back of your mind…sometimes that's a good thing too because you won't pfaff around, you won't sit with your feet up and stare out a window thinking it'll come, it'll come

Designers' orientation to various constraints, then, consists in their knowledge of and about a variety of relevant activities which can and does include:

- The receipt from the customer of a written brief, some examples of current products (the products themselves and the artwork for them), additional information from interviews and telephone conversations. They may even try out the products e.g. chocolate bars and sweets.
- The gathering of background research material – i.e. packages and designs of similar and contrasting products in the same general area.
- Knowledge of the 'library' or collection of materials distributed around the office that they have collected and assembled magpie-like; designers like picking up designs and other objects that appeal to them, and they do it as part of their work.
- Access to online resources such as libraries of fonts, images and so on.

These collected artefacts get used as context setting and shaping devices when the designers, often collaboratively, employ their knowledge and skill in relation to them when they develop and appraise their designs.

Determining Relevance

Of course, in principle any number of possible resources could be used, and in some way they have to be selected. An example of the collaborative work entailed in this is provided below. Here, the job in hand is the packaging re-design and re-branding carried out for two specific brands of sweets ('mini mix and mini fruit drop mix'). From the start we can see the collaborative nature of design work as one of the more experienced designers, Jim (J), relays information on the products, the written brief and his conversations with the customer's agent to a less experienced colleague, Annie, (A) who will do the work:

1. J – … So the thing they want to shout about is the fact that they are a ten calorie sweet … and the name of them … I'll give you the brief afterwards mini mix and mini fruit drop mix
2. A – They don't have any specification on fonts or anything
3. J – No we've got complete, whatever we want – the new design **(reading)** must advertise the low calorie count, advertise no artificial colours and preservatives, present that product as a more value looking brand than the current SweetCo packet so it can't be that it looks high value its got to look like a fun sweet … but if he's saying it has to look like a lower value brand than that one you've got there then that looks like the cheapest brand you've ever seen

Figure 1: Old designs for the sweet packets

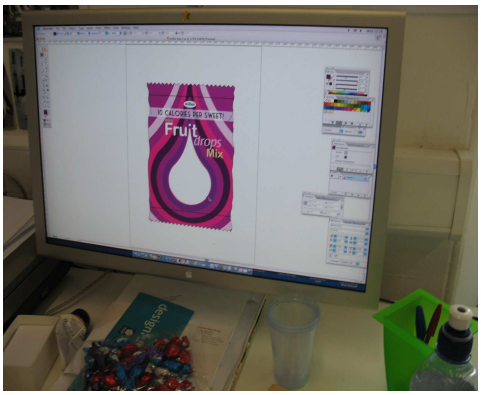

Figure 2: Annie's new design

Jim begins by saying that the *'thing they want to shout about'* and lists two things; the *name* and the fact that they are *ten calorie sweets*. That suggests a prominence for these two pieces of text on the packet. Annie asks whether there is a specification of fonts or anything else. Jim answers *'No, we've got complete, whatever we want-'*. This does not translate into we can do whatever we like, rather a number of design constraints are clearly worked up in the description and conversation. Jim goes on to read the brief which specifies further textual requirements and a statement about the brand being a *'value looking brand'* in comparison with another company brand. What 'value looking' might mean is further elaborated when Jim picks up the packet that he believes suggests 'higher quality' to the customer – *'… that looks like the cheapest* (i.e., most extreme 'value') *brand you've ever seen'* – suggesting that the new design should not try and look cheaper than what the customer thinks of as higher quality[1]. Instead (see turn 4 below), he suggests they should design something comparative to another popular UK brand – *Celebrations* – and different from another more expensive brand – *Thornton's*. This type of comparison is a common feature of design work – since it is collaborative work the designs need to be articulated (whether amongst the designers themselves or between the customer and designer) yet the design itself is a visual matter. So the designers use comparisons such as these – which might be thought of as product discourse, along with other 'design speak' to inspire and articulate designs[2]. They can be considered as a form of membership categorisation device [Sacks, 1995], employing members' knowledge of what particular product designs are meant to convey, and serve as starting points for design.

[1] This is also a joke about customer taste.

[2] Inspiration works in complex ways – it may be about 'categorising' the product with other products, it may be general features, it may be just a detail, or sets of them, or a font 'type', a use of colours etc. How similarity and difference are to be realised for 'this' product is creatively produced through design activities and in relation to talk like this.

Design Elicitation: The Product and the Range

As the conversation continues Jim suggests how Annie should proceed and makes some suggestions: draw a bag shape, have a window in it, try fonts and brands, less photographs and more graphics:

4. J – So ignore it but don't make it look like a premium brand … make it look like a nice cheery bag, of, 'Celebrations' or something like that sort of you know what I mean, it doesn't look like Thorntons but it doesn't look like that, on the table … we will produce a number of design concepts for both mixes and present for comment, that's all that we need to do at the moment. So all you need to do is … a bag shape and mess around with a design, and you can have a window in it as I say … they always do have a window in it … now … I bet that's the one that he thinks is higher class brand at the moment that, it doesn't have to look as premium as that so less photograph's and more, more graphics, but all I want is, really free, … just messing around with fonts and brands and stuff like that…

Being product designers, the physical shape and material of the packaging is also subject to design, but is also used as an initial starting point, being roughly determined by the nature of the product (size, shape, etc.). Interestingly, from looking at the current packets (figure 1) Jim has inferred that the customer thinks that photography/pictures are indicative of 'premium' and graphics of 'value', through comparing and contrasting the packets to see what differs amongst them.

It should be becoming clear that design does not happen in a vacuum. The brief circumscribes the space, to a greater or lesser extent: make it look value or premium, try graphics or photos, colours or the impression given by the font may be suggested (e.g. in an example below a 'shouty' font was considered appropriate). Jim guides Annie by suggesting what things to do, how to start off (draw an outline, give prominence to X or Y), how to scope things (make it like product X and Y, not like product Z) and so forth. All this provides scaffolding for the creativity.

Knowing how to start designing for a client clearly has a number of social and methodical components. It involves drawing on customer supplied resources, known about collections (e.g. on-line, in the office) and specifically collected resources (e.g. similar products in the supermarket). The designers pick out important elements to focus on in the design, whether that is a message, an image, a font or a mixture of elements. This often involves some reading between the lines or translation of what the customer has asked for. In the example above this involved divining and translating the customer's notions of quality into more concrete requirements. It involves thinking about where the product will be placed, who it is aimed at, and in many cases for these designers, making comparisons in terms of products it is like and not like. They have fairly standard procedures for beginning – often producing an outline, and making visual searches of font or image libraries. An element of creativity is making the product speak – it should project an image, say something about itself, at the same time being harmonious, attractive and so on (see figure 2 for Annie's redesign).

As well as working within the context a singular product and the customer's vision of it, many products are part of a range and this introduces the constraint of harmony across the range. The designers talk about envisaging ranges of products all sitting together on a supermarket shelf – and looking good together. Given their propensity to do this imaginative work as part of their day to day design work – 'it's for little boys, in value shops, in a lunch box etc.' – it does not seem like they are simply trotting out of a cliché and one of the products they often produce is a 2.xD illustration of a set of product designs. An impressive example of this is that done for a range of Indian food products, curry pastes, flatbreads, spice mixes etc. (see figure 3), set up like a supermarket shelf.
Of course, designers often design to some extent with a notion of extensibility that may be more or less defined and be more or less explicitly oriented to in their work (of course it may manifest itself, sometimes unfortunately, as a backward compatibility that must be achieved – 'oh no now they tell us we need to come up with five more packets and colour schemes to go with the original').

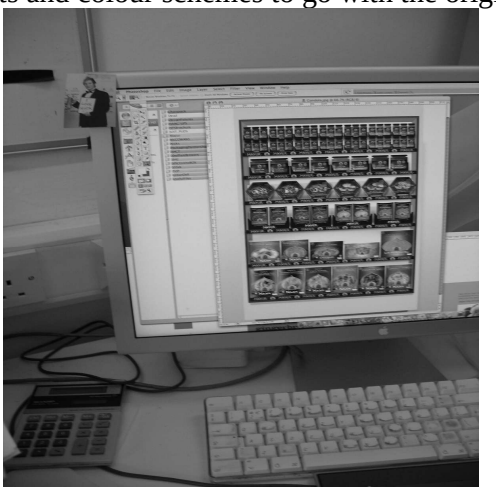

Figure 3: Curry 'range' illustration

As we work through further fieldwork examples the way in which the design context both inspires and constrains the design will be further elaborated.

Specifying the Design: Finding, comparing, choosing

Designs are made up of a variety of elements placed together in a harmonious way to create some form of impression of, or message about, the product. Current technologies enable the designers to do large-scale searches to collect together possible elements of a design. They go through a process of discovery and trial and error, collecting and comparing which leads to a choice of elements from which they can build up their design. A crucial element of this is, unsurprisingly, looking but as we shall see the different technologies enable different ways of

looking. All the various elements that make up a design are important – the colours, the pictures, the fonts – and the designers may search for these individually, but with an eye to how the whole product will look.

In the next example, we will examine how the designers go about choosing the fonts for a chocolate bar redesign (see figure 4) – using websites to select possible fonts and then graphic design tools to compare them. As with the previous example, Jim first instructs Annie, who will do the initial redesigns.

1. J – Just do quite a few Bites he quite likes the colours… as Jane says it quite looks like Lion Bar you know
2. A – Yeah 100% yellow
3. J – Cheap and cheery like what (a) mars bar looks like, what lion bar looks like, it's going to be just like a nice shout-y name for bites.
4. A – Does he want it fun like that cartoon-y type
5. J – Yeah, yeah , yeah
6. A – So he's not looking for that traditional sweet shop
7. J – Nothing traditional, it's going to be going into the pound shops, you buy a wrap, like that, again it's going to be a pound, and the idea is you think – oh my god – I can get all of those chocolate bars for the kids lunchbox or whatever, they're not going to call them lunchbox packs, cos hehe they're not healthy for a lunchbox. Rather than buying a mars bar that costs 37p … but you know they'll all say bites, they'll say bites, bites, bites, like a packet of breakaway or something like that

Again in this brief, Jim makes comparisons with other related products, he also talks about the colours, and the context of the product presentation (where it will be sold, how it will be presented, what its image is to be). From this discussion of the brief, and the original product, we can see that the product name 'Bites' is going to be a central element of the design. The client wants a 'shouty' name (turn 3), Annie clarifies asking if the font is to be 'fun' and 'cartoony'(4) and when talking about the presentation Jim emphasises 'bites, bites, bites' as the product will be packaged in sets of eight (he demonstrates this here by holding up an 8 pack, but of plain white packaged bars).

Annie starts the design by tracing round the physical packet by hand. She then adds some more lines to the drawing by hand to give it a more 3D effect and to demarcate the panel for the brand name. She then scans this onto her computer and uses this to-scale outline as the 'canvass' for her design (interestingly this mixing of paper and digital work has also been observed with more traditional artists (Eales, 2005)). Next she sets about selecting fonts. To do this she accesses the Dafont website which has a wide range of different fonts, each one illustrated as name of the font spelled using the font. They are a collection of 'amateur' and professionally designed fonts. Not all (especially 'amateur' designed) fonts have a full alphabet of upper and lower case letters. They may just have one alphabet of either, or a mix of the two. They vary in quality. They can often be used for free or for only a very small charge. Tools such as The Internet enable this wide-scale sharing of designs – anyone can create fonts and make them available for others to use – for free or a fee. This gives designers a much wider choice of elements.

Annie searches by looking in various libraries. In the website the fonts are organised according to broad categories (e.g. fantasie, techno, gothique[3]) and sub genres (fantasie has cartoon, comic, groovy). Within fantasie and in various sub-genres Annie rapidly scans through series of fonts focusing on different examples and for certain ones she opens up their alphabets. Through looking and thinking Annie produces a palette of around 10 fonts. She then spells out 'bites' in a number of the promising fonts on the packet outlines (see figure 5). Selection of the font is a matter of trying out the brand name in a variety of fonts and seeing how it looks. Later on the ethnographer asks Annie about her work:

1. E – So, Annie, when you're choosing like a font, what makes it like the right font? Is it partly to do with, the word, and the packet?
2. A – I think for me when I'm looking at it, I don't know if it's a combination of who the market is, and, how you feel when you look at it really, like, for example, I really like that B, there but everything else being in capitals just ruins it… I think laying them out like this and you can see them all on the packet, allows you to kind of sit back and go actually which ones do I like and you choose from them maybe three
3. J – That that's great example of how fonts look and stuff on, some of the different things you're getting off those is mad, the fact that the one at the top, right, doesn't even look like it says bites even to me, It looks like it says bee-tess or something like that
4. N – It's French for bites

Figure 4: Old 'bites' designs

Figure 5: New 'bites' fonts being tried out

Annie begins (turn 2) in response to the question drawing on a notion of market appropriateness before focusing on 'how you feel when you look at it'. A notion of 'market' drove an initial focus on 'shouty' and 'cartoony' fonts, however, much of this work seems to be about looking and trying out and seeing what you think. On-screen comparison allows the designers to evaluate the fonts. Annie firstly draws attention to the second from top bar on the left, and states how she likes the 'b' but everything else being in 'capitals' causes a problem. In the photograph pictured the 'b' is now also a capital letter, but this is only because it

3 It is a French website – i.e. fantasy, techno, gothic.

has now been 'paint-shopped'[4] into one by Annie, since there was no capital 'b' in the font alphabet. Hence, with the original there was a fairly obvious lack harmony between the letters, for this name and product at least. Jim chimes in, in agreement and then draws attention to a problem he sees with another bar, top right – it does not look like it says bites but 'bee-tess'. For him, the 't' sticking up breaks up the flow of the word. This brings in the notion (commonly discussed by designers) that a good font looks good and visually 'says' the word and the brand nicely. Jim then continues (see below) to suggest his preference – second top, right hand side – it is the right kind of font, of that market, and again he draws comparisons, *Boost* and *Sainsburys* homemade. In this turn he also discounts the font below it for a lack of consistency (harmony) in letter size.

5. J – The one below it, is really, of that market, it's really perfect as something that you'd expect to see, you know like as a Boost or something like that…the one below that, it's quite a nice font, but it will never work with *Bites* because your *e* and your *s* are massive compared to your what look like a lower case *b i t*… it (back to the one above) looks like a Sainsburys, homemade, chocolate biscuit bar you know doesn't it really, it's just got that rounded, sort of regular, it's quite normal
6. A – It's chocolaty
7. J – The one that's, the really fancy one that's underneath the one you said you liked the *b* on, on the left hand side that's doing something in another way, that's saying bites to me, BITES as a like a fierce word
8. A – For boys, yeah, little boys
9. J – It's quite quirky, it's quite doing it, yeah, it's saying the word bites without it just spelling the word bites, its got a bit of a crunch to it ain't it

Annie agrees with the favourable assessment of right hand second top – making a comparison with the product substance itself, 'it's chocolaty'. Jim then goes on to evaluate left side, second from bottom – it does something different, 'BITES as a fierce word'. Annie suggests this makes it something for 'little boys', and Jim continues that it spells bites in a 'quirky' way with a 'crunch to it'.

Just as the designers might be considered to create a palette for the fonts, they also more conventionally create palettes for colours, although they use it in a different way. In this next example, we examine how during a redesign for a range of puddings, Just Puds, the designer, Neil, creates and uses a colour palette. Furthermore, we are given an explanation of how different colours can represent different types of products in design. Applications like Illustrator come with a wide range of custom palettes (which can contain 20-50 harmonious colours and shades) and palettes are also available for view and/or download from the Internet (e.g. see COLOURlovers.com for palettes that may break all the traditional 'rules' of harmony). In this case Neil selects a colour palette from the Illustrator library and from it sub selects a set of colours for his palette.

[4] The Internet allows Annie to rapidly access a large collection of interesting, non standard fonts. Adobe Illustrator© facilitates her alteration of a base element in that it allows close-up fine detailed work in which the letter may be altered in a way that seems seamless. Clearly her artistic abilities – drawing and aesthetic appreciation – also enable her to do this.

1. N - But to start to get there we'd like to evolve. So they like the matt finish and everything it's just lack of, it won't be highly laminated like they are. Errm not important at this stage apart from thinking about how the colours will look without a sheen on them. And the luxury feel of the packaging, they don't want the dark stuff because it's a bit too luxurious possibly, they prefer the brighter colours. So from that step I thought it would be a good idea to choose a colour palette
2. E – Yeah this is what I was looking at you had a palette yeah
3. N – Cos it sounds like they want to do it as a range, they've already got a range, they want to fit in with that (shows me current product range) and take their product
4. E – Is that their current ...?
5. N – That's their current list of products and I've just got sort of some colours that are fairly near but probably a bit richer

The notion of the range is clearly important in the way that designers do their design. As Neil produces the re-designs for Just Puds (see figure 6) it is clear that he has a palette of colours (turn 2 above, and visible in figure 6 as a set of colour swatches close to the designs, which are taken from a custom palette open on the right hand side of the screen). Neil has picked a palette in reference to the current colours of the Pud boxes but 'richer', 'deeper' etc. This was also clearly about correspondence to the flavours of the desserts – chocolate, ginger, caramel, toffee, lemon, plum – so yellows, browns, oranges, reds, purples. Neil is seeking an appropriateness of colours that work in various ways – appropriate to the flavours, generally in keeping with the colour categories across the range for the old designs, appropriate to the customer's wishes of a new direction and, finally and crucially, appropriate to each other (harmonious).

Watching Neil doing this task, it is apparent how he builds up from one box – an assembly of background, text, and picture – to another. With the first design, the selection of colours, font and photograph and the resulting internal harmony between these elements is the primary focus. As he designs further boxes, one-by-one, Neil then evaluates not only the internal harmony of elements but the harmony across the boxes. He re-adjusts colours (and all other aspects of layout), doing new versions and so forth. Work on whatever box is next, invariably becomes work on the whole collection. For example, the top three on the left are 3 versions of the same pudding, produced first then altered twice in response to unfolding constraints produced by subsequent puddings. Harmony across a range produces a series of constraints that are both internal to the individual item and across the products in the range. They are dealt with as a set of local adjustments, and luckily it is not as if there is a single solution, rather, a solution is arrived at through trying, looking and adjusting.

The 'bright' colours of the customers request are translated into 'rich' colours in the design, showing how the brief helps shape the design space but does not dictate it exhaustively. In the extract below, Neil is discussing these colours with the ethnographer and we can see how language is used to articulate the design – to elaborate what the design is 'saying'.

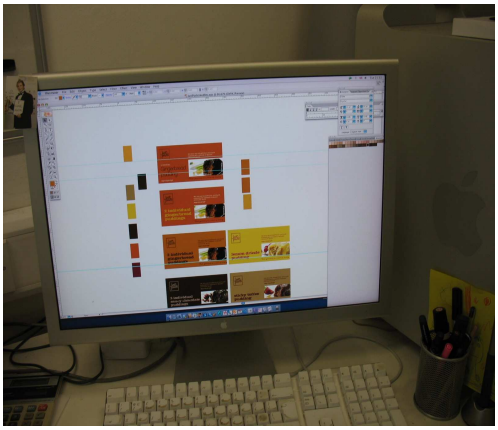

Figure 6: Harmony in the Just Puds range

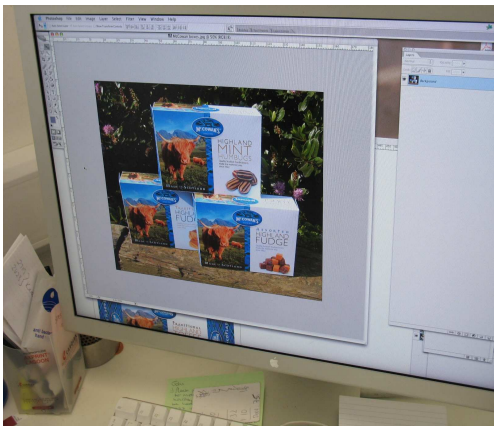

Figure 7: Highland Cow toffee picure

1. N – Things like that. This is, this is, I should imagine that they're not cheap… and they want it to be seen as a luxury treat…a real luxury indulgence… so the colours can't be that bright, I think what they mean by the bright colours, they probably mean rich as well
2. E – Yeah
3. N – Not just bright, there needs to be a rich brightness to it so if it's a red it's going to be a deep
4. E – Yeah
5. N – Luxurious
6. E – Yeah
7. N – Or a crimson rather than a red
8. E – Yeah
9. N – (showing the red) That's you could go red
10. E – Yeah
11. N – Or you could go red and mean it…you know what I mean… richer erm, which if you go and choose a rich colour you're immediately explaining the product because the products meant to be rich, as well…you probably have to be rich to afford it, as well but… but that's what they're trying to put across, they're trying to say. I mean they're saying here they want it to be seen, as a 'aimed more at an upmarket delicatessen, Harrods, Fresh and Wild, rather than bigger supermarkets, so that's what I'm trying to, really, attain

Neil, as we have seen before, scopes where the product will go – *'Harrods', 'Fresh and Wild'* (turn 11) its niche - the 'luxury' end of the market – and, therefore, that it should have 'rich colours'. There is repetition and the choice of particular descriptors (luxurious, rich colours), and the contrasts of what they are not. Neil builds up, turn on turn, a 'vision' of the product in relation to the red colour on screen; 'deep, luxurious, crimson rather than red, you could go red, or you could go red and mean it'. It may be somewhat of a moot point whether this red is inherently and unequivocally deep and luxurious but the rhythmic qualities of the delivery, the emphasis on the three words and the comparison to 'normal, average, red' together serve to encourage the viewer to agree with the description being offered. It certainly has features of a 'sales pitch' in its efforts to convince!

In the example below (continuing the previous) we can see how the designers apply their design knowledge in making creative decisions as Neil defines how certain colours go with certain products.

12. N – Just trying to, because they are on about wanting to be upmarket, they want bright colours but for a bright colour to be upmarket it can't be a garish, cheap looking colour
13. E – Um hum, and you mentioned the matt finish as well
14. N – Yeah
15. E – What would take a matt finish well
16. N – Um we want, the thing is with bright colours you've got to be very careful not to make it look like, em, confectionery, children's… or dairy products, I mean a lot of dairy products are brightly coloured…soft drinks… juices

Neil suggests that there are very particular constraints in finding a bright but upmarket colour – there is a danger of it looking garish and cheap. Bright colours are more often associated with children's (foods), dairy products[5] and soft drinks. We saw above that bright, in this case, becomes 'rich, luxurious and crimson' meaning a deeper darker red. Indeed, throughout all of the examples discussed so far we can see designers employing a 'grammar' and knowledge of design. Some of this is more straightforward such as the association of types of food to particular colours – which is fairly closely followed in the case of the Bites Bars and Just Puds. Chocolate is associated with brown, gingerbread with orange, strawberry with red, caramel with yellowy-brown and, slightly more unusually, coconut with blue (although not for those familiar with *'Bounty'*). Of course, while individual products 'suggest' certain appropriate colour categories, finding the right shade of green, for example, is seen as crucial.

Another interesting feature of design is the way in which search proceeds. Commonly search is vague and the act of searching is about looking for inspiration, rather than retrieving something you know is there, although it is guided in some way – in part by the constraints of the design ideas, as the Bites font search was. Another interesting feature of search is that various possibilities are selected and often the designer does not know which picture etc. will be used until further work, talk etc. has been undertaken. In another example, shown above (figure 7), the designer was re-designing boxes for toffees, fudge etc. and following on from the company logo thought that an element of the box should be a highland cow: but in what way? An extensive search of graphics and photographs was undertaken with a number being selected and tried in various combinations with other elements of the design. The final photograph selected is a mixture of two – one of the highland cow; the other of the mountains in the background. Blending the two photographs together such that they look as one requires a lot of detailed skilful work. As well as doing the Photoshop work for aesthetic reasons, putting together and altering photographs from large on-line collections like this allows the designers to create a unique brand specific image much cheaper than it would cost to get a bespoke photo taken by a professional.

[5] If you look at milk bottles, yoghurt cartons etc. they very commonly have bright basic colours – blues, reds, greens, yellows - certain 'looks' and colour choices are favoured by different types of products.

Constructing the Design: Editing

Looking (cf. Coulter, 1990) is not a single order of activity. It is crucial for appreciation and editing. It is motivated to doing different things and it is conspicuously different in form. The designers regard a design from further away, inspect details closer up, both by looking close up to their screen and enlarging (e.g. a letter) massively. They gain comparison and perspective by looking at designs together, on different formats, in different lights and obviously by sharing them and discussing them. Some of these 'lookings' are just on-going *thinking about* (as a perspicuous visual activity, mundanely identified) or assessing the design. Some are more obviously to do particular things like the close up work to turn the 'b' into a capital, which requires fine-grained blending using a painting programme at something like a pixel level, but the new capital letter also needs to be looked at further away to judge it from some perspective. There often is a to-ing and fro-ing between different views and different 'lookings' – something should look good 'from all sides'.

Another feature of designer expertise is their appreciation of harmony and their understanding that harmony (amongst constituent parts) can only be 'accurately' judged when viewing the assembled product. This is less a theoretical position, than an inherently practical one, and it is clearly demonstrated in the way designers work. Just as we saw with Bites and Just Puds, definitive decisions on many features of the design are delayed. Designers tend to keep some options open. Early in design a number of parallel choices (e.g. of fonts etc.) are investigated and compared. The tools support this – enabling designers to mock up, and change rapidly, products and ranges, seeing how the colours and fonts will look within a product and between products. Designers gradually build up different elements in a layer-like fashion (outline, font, then colour is common, but it depends on the product as graphics or photographs may be crucial elements). During these steps there is some proliferation but also elements and ideas are discarded. It is clear that an element such as a font or colour or photograph that at one point may have been a favourite will be rejected later on because it does not work with other elements, just as a previous rejected or ignored possibility may make the final project. The tools – both the web based libraries and the design technologies themselves such as Paintshop support this 'massive experimentation' – enabling designers to skim through a whole range of different elements to use as starting points, and mock-up designs and ranges relatively easily, particularly just through version saving, copy and paste and various specific tools like palettes.

Harmony can only be assessed in an assembled product and achieving harmony in a product often means adjusting the internal elements, or across the range. Using palettes enables some prejudging of this in advance, but does not preclude needing to try out the colours etc. and making judgements based on the actual designs. As the design progresses, the designers can then add in the other

elements, make small alterations or major changes, copy and paste and adjust the elements to suit the next package in the range and so on.

Discussion: Technology, practice, talk and creativity

We have endeavoured to show how 'creativity' can be understood in quite mundane ways as arising out of the mundane technologically-supported collaborative practices that go into creating packaging designs. Nevertheless, we are not trying to suggest that is 'all there is', for the practices we describe above are visibly and accountably 'artful'. The work is, even so, methodical, in that it is carried out according to known and shared patterns of activity, practices and resources. It has a 'loose' iterative workflow – create outline, create palettes, mix and match and so on and it is tightly coupled with (supported by and shaped by) the technologies they use. Search libraries enable rapid, widespread and opportunist discovery of design elements: images, fonts, even colours. Once they have chosen elements they can import them into their design tools and easily experiment with combinations, alterations and so on. Although we have said that the tools support this kind of work well, this does not mean it is not painstaking – designers spend time getting the effect just right, whether it is an individual letter (cf. the B of bites), an image (cf. the highland cow) or an assembly of parts or of the range. The tools help to enable searching, comparing, zooming in and out, editing, creating palettes, discovery, emergent effects, and so on. The designers can try things out, see the whole range, and so on. The projects and the artefacts they create – at all stages, from looking through libraries to almost finished designs – form the basis of their cooperative work. They are available for the other designers to oversee, they become objects for discussion – the comparison is often done cooperatively- they are 'worked up' through talk into being closer or further away from what the customer wants, from what the product should say and so on.

One reading of this elucidation of some of the social and methodical aspects of creative and aesthetic work would be that it has provided an understanding of creativity that opens the 'black box'. That is, in this context we see quite ordinary and routine features presented as part of the creative process. Some of these features are 'scenic', insofar as they constitute a background orientation that informs a large part of the work. In this case, the main scenic feature is the customer, who is present in various ways - in conceptions of the 'brief', the 'market', the 'range', the 'brand' and so on. Others, we can quite clearly identify as a series of easily understandable practical activities – decisions on how to proceed draw on resources and knowledge that once put into a design make logical sense. We see how elements of customer products and requirements are seized upon to scaffold the design and make decisions about which way to proceed. Other products similar and different are brought into play to delineate

and shape the design space. Developing designs are compared and contrasted to see their fit with the requirements. Reasons for deciding to proceed in one way or another, or valuing one design over another are to be found within the process, in the talk of the practitioners, and can be provided readily after-the-fact, as *the* sensible way to proceed. Assembled in some way, the steps we have outlined above are more or less necessary elements to the design process in this context. But they are evidently not sufficient, for if they were it would make no sense to speak of creativity in the first place.

Our point (again) is that these assemblies are *artful*- they involve the deployment of shared knowledge, resources and histories that constitute the practices of assembly, elicitation, specification and construction outlined above. Creativity and aesthetic judgments are not especially mysterious - they are manifested in knowing which type of resources to marshal to scaffold the design, how to pick out of the possibilities they provoke, how to assess the on-going design, understanding why one thing 'works' and another does not and making the 'good' choice. Whatever it is that originally 'sparks' creativity, designers willy-nilly have the everyday knowledge of how to proceed at given points in the design process, what sorts of things to do, what customers 'like this' may be looking for, and so forth. One last element we should make explicit is that the aesthetic skills entailed are evidently 'talkaboutable' (cf. Turner, 1969) - a critical feature of this collaborative design work. 'Talkaboutability' plays a special role in this process, implicated as it is in the work of brainstorming, directing, and choosing. It assists in providing depth to the evaluations: something is 'of the market', or it's 'shouty', or 'quirky' or got a 'crunch to it', or 'for boys', or 'chocolaty', or says 'bee-tess'. In this kind of talk we witness an elaboration of what is seen, an explanation (e.g. of why something 'works' or not), or an invitation for the viewer to see the product as such, in terms of who would eat it, a sound, a texture, a style – in other words some greater context within which to view the object, or that it can be related to. The comparisons are relevant in terms of other elements of the experience of it e.g. as a food product ('sensually' its texture; crunch, chocolaty) for a potential audience, referencing a style (quirky, shouty). This talk performs a vital role in sorting out what a design 'says', deciding what designs are most liked and reaching an articulated agreement. It is important to recognise that the articulation performs an important role in terms of sharing a preference, of emphasising it. The collaborative 'looking, articulation and discussing' element is very important in sharing an idea or an understanding, and it also serves as an on-going assessment of ideas. To return to Wittgenstein (as quoted at the start) graphic design is a 'form of life' within which aesthetic talk is abundant. The specific meaning of the words chosen is not inherent and objective, without context, but is to be located in their 'gestural roles in complex sets of activities'. They are understandable as purposeful 'moves' in the activities of creating and evaluating design. Furthermore, the activity relates heavily to later 'presentation

activities' – talking about designs is a key skill of graphic designers when they present to clients. In those situations the convincing description of what the client is seeing, what the design suggests and why it fits the company-product is very important to the 'pitch'. This discourse is built up and refined throughout the design process, such that it provides a strong basis for the polished presentation to the client at the end of the process iteration. The narrative of what a product is about, who it speaks to, what it says etc. is built up in the trajectory of the design process, often through several iterations that tend to lead towards a refinement.

There is, as stated earlier, some kind of 'grammar' of design (what things customarily mean and how they go together) and 'stock' resources of design knowledge. Designers draw on both in making design choices about what kind of font, colour, overall 'look and style' would fit for a certain type of product aimed at a certain type of market. Their discourse is punctuated with descriptions of what is 'expected', 'bang on' or 'reasonable' in terms of the elements of the products they are designing. According to theories of design these might be called the 'cultural referents' of those elements and those designs (i.e. they visually 'name check' other things in a culture that contain those elements). Another interesting feature of this is the notion of fashion, and its complexity and self-referential character. Hence, whether a product is meant to be 'retro' or 'classic', or 'premium' or 'innovative and ground-breaking' or 'value' will have profound implications on how the grammar and knowledge will be drawn upon.

In sum, this paper has been concerned with mundane aspects of creativity. It sees the creative process in graphic design as being mutually constituted in orientation to certain 'scenic' features which pertain to customers and markets; in certain kinds of visible 'orderings' which are done in artful ways using technological resources, and in the talk which constructs the 'cultural referents' visible in their work. Lest it be thought that these matters are entirely local to graphic design, we should perhaps remind ourselves that art history and the sociology of art produce similar (if occasional) reminders about the fine arts. Clement Greenburg's (1992) work on modernism was very much about how language (written text and talk) about art transforms the art. Howard Becker (1982) showed very persuasively how art production was bound up in a variety of collaborative market practices. We would anticipate that some features of graphic design are common to other areas of creativity. Some will be quite different. If problems of similarity and difference characterise much of the conceptual work done in CSCW, however, then hopefully this paper provides an initial springboard for the analysis of the visible aspects of the 'creative'

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