Experiencing the Structure: Considering the possibility of studying how typographic forms are encountered through the application of information design theory

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Abstract
If a great deal of epistemological uncertainty exists within the fields of visual communication and typography, it may be that this is due to the perspective from which visual and typographic material is approached in research contexts. This presentation will put forward an argument in favour of reorientating our epistemological understandings of visual communication and typography through a reframing of the ontological starting point from which both are apprehended. Here, it will be suggested that we might shift the focus from the object (i.e. the outcome) to the ways in which the object is experienced and interacted with by an audience (i.e. encountered in human terms). To this end, the author will introduce a methodological framework, developed in the course of doctoral study, which adapts a semiotically-informed theory of graphic representation put forward by Yuri Engelhardt (2002). To begin, the author will first detail Engelhardt's vision of graphic representations as form of 'graphic language'. Thereafter, the adaptions of this theory will be outlined. To end, the discussion shall at last turn to consider how—through these adaptions—the context-specific and culturally-specific meanings of graphic representations might be harnessed in order to drive empirical research in the field of visual communication and typography.
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Introduction

Academic interest in the 'the visual' abounds. The fields of art and design history, visual anthropology, visual sociology, visual culture and information visualisation all, to a greater or lesser extent, take visual artefacts as a primary object of study (Müller 2007; Fahmy, Bock and Wanta 2014; Pink 2003; Jenks 1995). Even psychologists, through their work in visual perception, can claim that they too are interested in 'visuals' (e.g. Ware 2004).

A cursory glance across this collection of disparate fields will reveal that each has developed or borrowed a range of theories/methods, which, in turn, smuggle in a host of subtly differentiated epistemological positions (e.g. Rose 2012). Any effort to synthesis these conflicting perspectives would likely flounder and, so, at first glance, it would seem that those wishing to forge a consensus within the field of visual communication are set on a fool's errand. This calls into question the possibility of ever developing a coherent, discipline-specific body of knowledge. Yet, without such a body of knowledge to turn to, many designers from visual communications and elsewhere are often at loss when it comes to addressing contemporary professional challenges (Friedman 2003), let alone defining the value of their field.

In response to such a situation one might reasonably ask: if the development of a coherent discipline-specific body of knowledge can't be easily synthesised, what other options are available? I believe that the most appropriate response is to be brave and work to develop a 'native' mode of knowledge production, which arises in, and aims to speak directly back to design practice. The resultant knowledge base might then be linked to existing theories/methods/epistemological positions but would ultimately be centred in the visual communications community itself.

Through this paper I shall set out a possible strategy detailing how a native mode of knowledge production could be structured. I will begin by briefly outlining two more recent efforts to ground visual communications theoretically, and by default epistemologically. Then I move on to discuss the possibilities of practice-based research more generally. From this, I take my recent doctoral work as a case study, highlighting the particular means by which I developed a personal 'native' mode of knowledge production. This leads me to briefly speculate in relation to how such a strategy could be transferred to the study of typographic work, i.e. the main focus of this conference.

It is important to state at the outset that my own personal strategy will be limited in so far as it will focus only a portion of what constitutes the of field visual communications; namely information design. It is hoped however, that the closing speculations will go some way towards compensating for this particularity. Additionally, at this point I must also stress that little of what I have to say is original. The relevant philosophy was written over century ago. Academic discussions relating to new paradigms and practice-based research have been on going for over three decades, if not longer. Designers themselves already have real, valid research concerns. Yet, despite all of this, no one seems able to make rigorous 'native' visual communications research happen. Credibly demonstrating that it *can* happen is the primary aim of this paper.

Visual Communications Theory: Two Attempts at Unification
Surveying the literature, two key texts which aim to unify the field of visual communications are identified: the *Handbook of Visual Communication: Theory, Methods and Media* (Smith, Moriarty, Kenney and Barbatsis 2004) and *Visual Communication Theory and Research: A Mass Communication Perspective* (Fahmy, Bock, and Wanta 2014).

In the first, Moriarty and Barbatsis map visual communication theory through a rhizome analysis (Moriarty and Barbatsis 2004). Taking the view that visual communications is a fragmented field and should remain so they emerge with a set of 'primary nodes' of visual communication theory:

- 'Visual intelligence/Cognition/Perception
- Visual literacy
- Graphic Design/Aesthetics
- Visualisation/Creativity
- Visual culture/Visual rhetoric/Visual semiotics
- Professional performance: Photography/Film/Video/Internet/Mass media/Advertising/PR'

(Moriarty and Barbitsis 2004:10)

As will be apparent, this diversity points to a wide, contested and ill-defined theoretical and epistemological landscape.

Aiming to develop a more integrated understanding of visual communications, Fahmy, Bock and Wanta (2014) offer a listing of theoretical categories with the following headings: who, says what, to whom, in which channel (p.vii). The simplicity of this arrangement is at once appealing, but it belies a complexity as diverse as that set out by Moriarty and Barbatis (2004).

It will be noted that a decade passed between the publication of both the above texts, yet in both cases, visual communications theory/epistemology is presented as fractured or, at very least, partitioned.

Research through Design: A Path to a Native Knowledge Base

I believe that 'research *through* design' paradigm (Frayling 1993:5, italics added) offers visual communications a way out of its apparent theoretical/epistemological deadlock. Research through design refers to a research approach, in which design practice has been *applied* in order to *conduct* research. Thus, we may say that the enquiry is 'practice-based' (Candy 2006). Such an approach results in, a fundamentally different form of knowledge production, distinct from that presented by the natural sciences (Cross 2007:24). Here, action and reflection (Schön 1983) are seen to allow for the production of artefacts, which in turn may answer particular research questions (Bang et al. 2012; Binder and Brandt 2007). Further, through the trialling of such artefacts in test situations, theories *for* design (e.g. frameworks, guidelines and implications) may be generated (Zimmerman et. al 2010). Thereafter, the resultant artefacts and associated theories may be contested and debated within a research community of peers and, as such, accepted or rejected as contributions to knowledge (Keunen et Redström 2013).

A Methodological Structure: The Centred Experiment

Over the past two decades one of the key issues of debate surrounding practice-based design enquiries has concerned the ways in which such research should be *enacted*. There has been the suggestion that the enactment of research might be driven by a design researcher's questions (Brandt and Binder 2007), motivations (Zimmerman and Forlizzi 2008), or the context of their enquiry (Koskinen, Zimmerman, Binder, Redström and Wensveen, 2011).

Ann Louise Bang and colleagues (Bang, Krogh, Ludvigsen, and Markussen 2012) have recently taken issue with these suggestions. They argue that there remains a general disclarity in relation to some of the above concepts and regret that an explicit means by which such research can be operationalized is still lacking (Ibid:4). Seeking to amend this, they propose a model that is seen to act as an 'operationalization' of research through design and impose what they term a 'conscious hierarchy' upon the whole. Here, the design experiment is centralised; it is literally seen as a cog. Motivations are positioned as the starting point. From this, a *hypothesis* is formed.
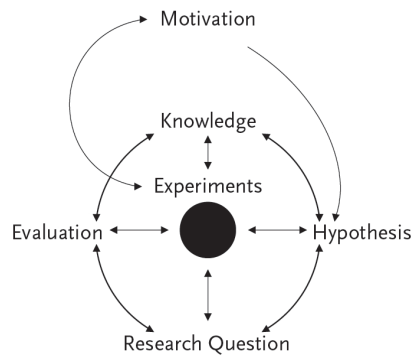
Fig.1 An operationalization of the research *through* design approach, adapted from Bang et. al (2012:6).

For Bang et al. it is the formulation of such a *hypothesis* that allows the design researcher to define their research question. Subsequently, both are seen as potential entrance-points from which to guide and direct design experiments as in Figure 2 below.
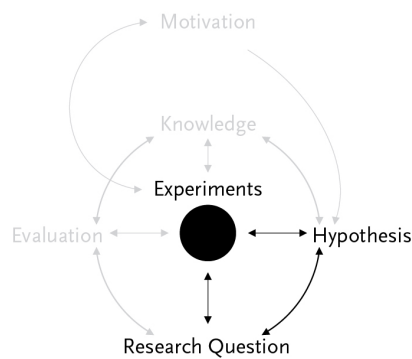

Fig.2 Within Bang et al.'s model (2012) both the hypothesis and/or the research question may guide and direct the subsequent research.

Once the design experiments have commenced, further experiments may be launched from any point within the cycle of hypothesis, research question, evaluation and knowledge. An ever-present link between these experiments and the motivation(s) allows for constant reflection and occasional reorientation.
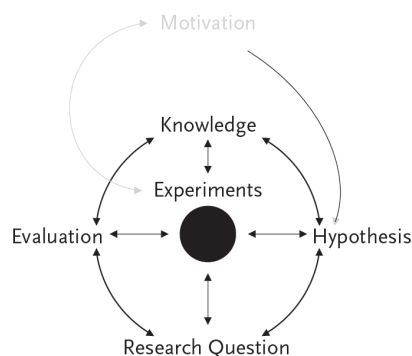
Fig.3 Experiments may be launched from any point along the cycle of hypothesis, research question, evaluation, and knowledge generation.

A Case-Study: My Doctoral Work

In my own recently submitted doctoral work, I was initially motivated to *explore* how *novel* information design approaches to mobile maps might better support user-experience within the use-context of walking for recreation in an urban environment.

Appropriating Bang et al.'s model, I adapted it to include two additional pre-hypothesis elements beyond the motivation: a literature review and a program of semi-structured interviews. These were positioned in a row beside the motivation. Thus all three are presented as interlinked, informing and supporting the formulation/reformulation of the hypothesis.
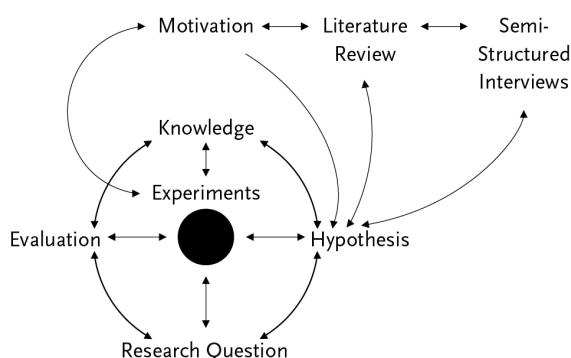
Fig.4 An adaption of Bang et al.'s operatization of research through design (2012), within the present research. Here, a literature review and the qualitative method of semi-structured interview is also seen to inform the hypothesis.

Through the interviews and literature review I defined my project as being concerned with how a mobile map could support a walker's awareness of their surrounding environment as they used the map in wayfinding. Having identified this area of focus, I was able to induct a hypothesis in relation to how an appropriate urban walker's mobile map might be visually structured. With this hypothesis to hand, I then commenced an iterative development cycle involving multiple small-scale experiments wherein a novel information design approach was gradually established and refined.

The final outcome was tested with real people in a real setting. In this experiment I applied a mixed methods approach, i.e. I collected and analysed both quantitative and qualitative data. Here, the qualitative data was positioned as my primary evidence base. In other words, I chose to rely on peoples' personal reports of their use of the map as I sought to verify of my original theory/hypothesis.

With the hypothesis verified through an integration of both datasets, I submitted an original artefact as a *practical response* to my primary research question. Alongside this, I also submitted what I term a 'contextualised graphic syntax' (Engelhardt 2002). This second contribution acts as an *annotation* (Gaver 2012) to the artefact, which aims to provide an outline for the design of a GPS-enabled mobile map to support a walker's awareness of their surrounding environment as they use the map. Both of these contributions are as non-generalisable; that is, their underpinning claims cannot be assumed to hold across a large population.

Without any claim to generalisability, the question then arises as to how these submissions can be seen as contributions to knowledge?

At this point we must move beyond the notion of epistemology to consider ontology, i.e. the study of being, wherein the nature of reality is called into question (Crotty 1998).

A Designer's Ontology

An ontological position is often implicitly linked to an epistemological position (Crotty 1998:10). In other words, theories of reality and theories of knowledge often emerge together. In broad terms, those working in social sciences generally ascribe to one of two theories of reality. On the one hand we have objectivism, which claims that 'social phenomena confront us as external facts' (Bryman 2008:33). On the other, we have constructionism, which makes the alternative claim that 'social phenomena and their meanings are continually being accomplished by social actors' (Ibid:34). For constructionists, the world is constituted in our experience and so, is in a constant state of revision (e.g. Lincoln and Guba 1985).

If we turn to question our ontological position as designers, i.e. where we locate the reality of our design outcomes, then surely we must conclude that it is within the experience of the interaction that these objects become really 'real'. Furthermore, it seems quite apparent that it is within our interpersonal usage of designed objects—our sharing of their meanings—that they truly 'come alive'.

One of the key benefits of adopting a constructionist stance as a design researcher is that one need not demonstrate generalisability in order to claim to have produced knowledge. In place of generalisability, a constructionist research must demonstrate transferability (Lincoln and Guba 1985:316), i.e. that research outcomes can be transferred to and tested in other contexts. This flexibility arises because a constructionist is not seeking one right answer, which corresponds to an ultimate reality, but rather a credible answer to a question, which arises out of a sound enquiry (e.g. Dewey 1986/1938:17). Returning to my doctoral work, I am claiming that my submitted artefact and annotation represent such an answer.

However, in order to get to the point of making these claims, I needed to first adapt information design theory to accommodate a constructionist ontological/epistemological perspective.

Expanding Information Design Theory to Allow for the Production of Constructionist Knowledge: Adapting Engelhardt's Language of Graphics

Yuri Engelhardt's The Language of Graphics (2002) provides a framework which can be universally applied in the analysis of graphic representations. The framework takes guidance from the linguistic notion of the 'compositionality of meaning'. Engelhardt argues that we can decompose a graphic representation's structure and, in doing so, *interpret* the meaning of this structure. Thus, for Engelhardt, a semantic analysis of a graphic representation is paralleled by a syntactic analysis (Ibid:16). I applied the framework as a means to describe the structure of the experimental mobile map design I was developing. It was intended that such structural descriptions, would allow for the development of the annotation that was to accompany the final artefact.

In taking a constructionist ontological/epistemological perspective and applying the framework in the analysis of graphics in real world settings two issues arose. Firstly, it was not possible to describe the dynamic and interactive features of the mobile maps. Secondly, it was also not possible to provide an account of a user's interactions within particular spatiotemporal episodes. In order to address these issues, I proposed that the framework be expanded to allow for the above concepts. This additional level was titled 'the pragmatic' as—following the original semiotic

distinctions (see Morris 1938)—pragmatics implies that someone is looking at/using the representation (Goldsmith 1980).

The inclusion of this additional level also opened up the possibility of enfolding participants' meanings alongside the formal description of the graphic representation being analysed. As a result I was able to develop the annotation of my design artefact, such that it incorporated the participant-generated data collected in the final experiment. Thus the annotation not only offers an outline of the artefact's structure, but also the meanings that participants had attributed to that structure. Here we see a native contribution to knowledge which arises from a *single* effective design. Yet despite the context-dependency of this contribution, in adopting a constructionist ontological/epistemological stance, it may still be presented as a contribution to knowledge as it is held to be transferable. This transferability means that it may guide/inform future mobile map designs; practice speaking to practice via a credible 'native' mode of knowledge production.

To conclude, I will consider how other areas of visual communication, in particular typographic design might take a similar course to one outlined above.

Thinking Further: How Typographic Designers might Apply Similar Research through Design Approaches

I began this paper by arguing that visual communications theory/epistemology is presented as fractured or at very least partitioned. From this, I suggested that research through design offers visual communications a way out of its apparent theoretical/epistemological deadlock by offering a mode of knowledge production, which arises out of practice. Referring to my doctoral work, it was noted that Bang et al.'s (2012) operationalisation of research through design, focusing on the design experiment, offers a viable means by which such research may be enacted. Further, it was ventured that by taking a constructionist ontological/epistemological stance (Lincoln and Guba 1985) design researchers are free to apply a designerly logic (Cross 2007) as they undertake practice-based research (Candy 2006). As such knowledge claims may be made in relation to single effective cases of design, rather than generalisable 'theories'. Lastly, I outlined how, in order get to the point of making my own knowledge claims, I found it necessary to adapt contemporary information design theory, i.e. Engelhardt's analytic framework for graphic representations (2002).

Though Engelhardt's theory pertains to graphic representations in particular rather than visual communications in general it would seem that it would be possible to expand its frame of reference even further to include other more specialised areas of visual work.

In the spirit of this conference, I would like to propose that typographic work in particular, might also be studied through the application of my extension of Engelhardt's framework. It would seem that such an approach could, at the very least, allow for research focusing on the ways in which particular typographic arrangements are experienced by particular participant groups. Though it is not possible at present, further adaption could allow for a description of the more exacting structural details of typefaces and, again, set these beside participants' experiences of that work. Perhaps most exciting of all, is the possibility that a practice-orientated knowledge base could be generated in relation to such areas of work, one which designers own.

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