The Constellation: A framework for conceptualising design as a process of innovation.

Joanna Bletchera*

aDuncan of Jordanstone College of Art and Design, University of Dundee
*Corresponding author e-mail: jfbletcher@dundee.ac.uk

Abstract: There is wide recognition of design’s strategic role in innovation, yet it remains an elusive and variable concept. This paper seeks to support the development of understanding and communications by presenting a framework for conceptualising design as a process of innovation, which was developed through the author’s practice-led doctoral research. In particular, it explicates exhibition-making as a method of exploratory prototyping, leading to deeper insight into the process of innovation through design. It outlines how inspiration was drawn from the work of Theodor Adorno (1973) to visually develop a conceptual framework. This newly devised framework is named ‘the constellation’ and is posited as a guiding principle for conceptualising and communicating design-led innovation.

Keywords: innovation, constellation, design, prototyping, exhibition

1. Introduction

Design is increasingly seen to be central to innovation, and a vital strategy for stimulating economic growth and positive change (Design Council, 2015; Innovate UK, 2015; Nesta, 2009). Yet communicating the value of design, and the centrality of the design process to innovation in diverse settings is challenging, due to the intangible qualities (e.g. of facilitation, collaboration, visual thinking, strategic planning) that are taking centre stage (Scholze, 2016). Despite the widespread interest in the role of design thinking in innovation from business and academia (e.g. Brown, 2009; Jahnke, 2013; Kelley, 2001; Kimbell, 2011; Martin, 2009), there is no firm agreement on exactly how the role of design is defined, and what is distinctive about a design approach. Marzia Mortati (2015) has noted that doubt arises from the tension between interpretations that focus on design’s aesthetic value (its application to products, service and communications) versus its strategic value as a “systemic approach to problem setting and solving” (Mortati, 2015, p. 7). The various perspectives of social innovation (Brown & Wyatt, 2010; Manzini, 2015), and ecologically-focused design (Fry, 2009; Walker, 2011) also highlight the epistemological differences that might occur between the aims, intentions, approaches and outcomes of design and innovation processes.
In the context for research reported in this paper, improved and updated communication is perceived as vital for widening understanding of design innovation and its capacity for shaping everyday life. This context is development of an emerging design museum (V&A Museum of Design Dundee), seeking to inspire broad audiences through sharing stories of design heritage and contemporary design-led innovation. Museums with collections of historical objects have relied upon object-based narratives of design. Yet as design’s role changes, so too must the nature of the stories that are shared with audiences.

Education and learning have long been a central pillar of museum practice, and audience engagement is a core aspect of the museum business model (Hooper-Greenhill, 2011). Given the recognition of design as a tool for innovation, across both academia and industry, is it not necessary to address the arguably limiting narratives of (industrial, object-based) design that are constructed and displayed within the museum environment, where traditions of object-based display, and narratives of iconic design and designers, take centre stage? As a design community we are confronted with the pressing need to acknowledge, understand, and expose the complexity of multifaceted design processes, and as a consequence, commit to developing deeper understanding of design as a catalyst for change.

This intellectual context, as a space for doctoral research, initiated the use of exhibition-making as a method to explore both the nature of contemporary design practice, and the nature of curating exhibitions of contemporary design. Conceptualised as a method of prototyping, exhibition-making is adopted and employed as a reflective practice (cf. Schön, 1983) to analyse the interwoven elements of design-led innovation. This paper details key aspects of this practice-led approach that has led to formation of a conceptual framework that supports communication, knowledge and understanding of design-led innovation.

The paper begins by describing the use of prototyping within the doctoral study, as a means of offering an overview to the larger research study methodology. It proceeds by providing a contextualising summary of insight drawn from case studies, in order to situate the conceptual development within the contingency of a particular investigation. It then discusses how the framework of the constellation was developed. It uses and adapts Theodor Adorno’s (1973) concept of ‘constellation’ to ground the framework theoretically, and relates the empirical research to an understanding of concept development in design. The paper outlines prototyping (specifically exhibition-making) as a design research method and combines this with theory to support development of a guiding framework for exploring, conceptualising, and communicating design practice in terms of innovation.

2. Practice-led research – prototyping the exhibition

“How can the method of exhibition be used to support the development of new conceptual frameworks for interpreting and communicating contemporary design innovation, in the context of museum environments – thereby extending the potential for more people to understand and engage with the transformational potential of design?” (Bletcher, 2016, p. 27).

The doctoral research adopted and developed a hermeneutic practice-led research methodology, as hermeneutics supports a belief in contextually situated, practical action as a basis for developing understanding and knowledge (Bolt, 2011; Heidegger, 1962). The contingency of social research situations means that the conclusions or insights here are not intended to be fully generalizable. This does not mean that insights are not transferable to other contexts, however the aim is to continue to
deepen understanding rather than arrive at a singular ‘truth’ (Barrett, 2007; Flyvbjerg, 2013). From this perspective, engaging in action brings a particular experience of the world in which we are embedded (Alvesson & Sköldberg, 2009; Bolt, 2011; Heidegger, 1962; Laverty, 2003; Ricoeur, 1991). If exhibition as a method of communication is under question, it can be seen to make sense to use this method itself as a way to explore the challenge.

As hermeneutics operates in an exploratory way, a framework that supports an open form of inquiry is required. The act of curating design exhibitions can be employed as it offers a way into understanding the myriad elements that emerge and converge in a project’s development. Thus exhibition practice was framed as a form of prototyping: an iterative way to explore and manifest basic concepts. Donald Schön (1983) suggests that practice is both the performance of particular actions and the preparation for those performances through repetition. This idea of repetition connects with the notion of iteration: repetition with difference (Bolt, 2008). The idea that iteration drives the development and extension of any practice is central for design, which builds on material techniques in different areas.

2.1 Exploratory prototyping

Prototyping is a common design act, often occurring in the latter stages of the design process to manifest the idea that is to be tested. As innovation consultant and researcher Michael Schrage (2013, p.22) notes: “The prototype describes a potential future worth testing... [It] embodies the design hypothesis to be tested.” However, researchers also consider the value of prototyping as a way of “reflecting on open-ended exploration” (Stappers, 2013, p.87), and position prototyping as a way to lead the research journey (cf. Sanders 2013; Schrage 2000, 2013). Interaction design researchers Lim, Stolterman and Tenenberg (2008) have suggested that prototypes can be seen as “filters and manifestations” and that the process of prototyping is a way of “filtering” the “design space” in which one is working. The design space can be described as “a dynamic context in which design activity takes place, which is multifaceted, and involves the active creation of boundaries amid localized constraints” (Bletcher, 2016, p. 38; for discussions of the design space see also Botero, Kommonen & Martila, 2010; Heape, 2007; Sanders & Westerlund, 2011; Westerlund, 2009). This filtering is selective, focusing on particular qualities, materials, functions or interactions in order to test an aspect of the idea, whilst suspending details of the whole. The research therefore conceptualised the curatorial acts of selecting, framing and communicating different design practices, in a public arena, as a form of prototyping: as a filtering of concepts within a particular design space. In short, the act of curating, when seen as prototyping, becomes an exploratory design act. Engaging in this concrete iterative practice allows the development of understanding, both about the design practices of others, and of the researcher’s own prototyping process (as a process of innovation) for developing the exhibition concept.

2.2 Practice-led research: case studies

Three practice-led case studies from the doctoral research are outlined here to bring contextual detail to the development of the ‘constellation’ framework (which will be further elaborated below). These studies operate at two levels: 1) the practical act of curating exhibitions (which allows reflection on the design practices that form the exhibition content, as well as the process of curating itself) and 2) the reflexive analysis of this act as embodying the design process of prototyping: a key way in which design can lead innovation (Schrage 2000, 2013). The case studies are iterative, with insights developing from analysis across and between each. Seen as a series of exploratory prototypes, they serve as a way of using the curatorial process to manifest the challenge of communicating the strategic capacity of design through (primarily object-based) exhibitions.
In the first study, the role of the researcher was to act as curatorial assistant to the industry sponsor, V&A Museum of Design Dundee, during a live exhibition project, ‘Design in Motion’. Here the curatorial process of exploring and selecting designers for the exhibition was used to reflect upon how and why different narratives of design are created through object-based display. The manner in which criteria are created and works selected for inclusion in an exhibition was considered in connection to the requirements of multiple stakeholders. This study reveals how design values, beliefs, personal interests, and institutional constraints and requirements come together to affect and shape organisational innovation. When developing approaches to communicating design innovation, it is vital to acknowledge that strategic organisational needs and priorities come into contact with the ideas and motivations of curators, and those of designers selected for inclusion in an exhibition.

Figure 1: The interior design of the Travelling Gallery bus with the exhibition Design in Motion (2015). It included the work of seven different designers. Image ©V&A Museum of Design Dundee

The second case study was a small prototyping exercise: an exhibition created to explore the development of text, object and image combinations, aimed at a particular audience (prospective students to a Higher Education institution). These are basic elements that make up the core of an object-based exhibition. This study involved selecting and displaying exhibits from invited participants, and creating and editing textual materials to form an interpretive layer for the audience (See Figure 2). The focus was on how relationships are formed between objects in a single exhibit and across the exhibition as a whole, evaluating how these work together to frame concepts of design. The study sought to develop a narrative through the combination of text and object, editing and filtering out elements such as exhibition design and the development of thematic selection criteria.

When we examine the significance of prototyping here the act itself is brought sharply into focus. By ‘filtering’ certain aspects (such as textual interpretation) and manifesting these in a number of different iterations within the exhibition, the challenges of communicating the concept of innovation rise to the surface. The practical act of prototyping physicalizes the thinking process and allows the researcher to reflect on why changes are needed. A key insight arising here is that the object-based display struggles to convey higher-level design processes, and the limits of traditional narratives of the hero designer and the final design outcome are made visible. It is the use of exhibition as prototyping that moves us back and forth in reflection, allowing the different elements and
challenges in the design space to become visible, and demonstrating the significance of prototyping for concept development.

Figure 2: Second case study exhibition installation. This included the work of eighteen designers and students from Duncan of Jordanstone College of Art and Design, at the University of Dundee, in Scotland. Image: Joanna Bletcher

The third study consisted of developing an exhibition with a public learning and engagement programme as part of the UK Crafts Council’s national innovation festival, Make:Shift:Do (see Figure 3 below). This deliberately involved different types and layers of design activity. Some of the different aspects under consideration included: which criteria to use to select the designers for the exhibition; how to develop an interpretive structure; the role of juxtaposition in communicating the various contexts in which design operates; the needs of the audience; and how to intersect with the objectives of a national event. From the process of selecting, framing, connecting and communicating design narratives, deeper understanding developed of the different, competing, contrasting and parallel stories of design possible. Developing a public-facing exhibition and programme of design activity, involves constantly evaluating different forms of innovation.

Within the research process, as each case study progresses, networks and connections between objects, decisions, and directions of exploration are reflected on and drawn out. The process of thinking through the complex interconnections that exist when traversing design spaces stimulated the development of the ‘constellation’ as a visual and theoretical framework for considering how to frame and communicate innovation. In order to give some theoretical explication to the insight developed through the practical research noted above, the next section outlines the work of critical theorist Theodor Adorno, and illustrates how this has informed the understanding emerging from the case studies.
3. The Constellation: theory and practice

The constellation is an idea originally developed by Walter Benjamin (1977), and more fully elaborated by Adorno (1973; Buck-Morss, 1977). Benjamin’s materialist philosophical approach suggests that concrete phenomena can form the basis for developing philosophical ‘truth’. Rather than focusing solely on empirical methods, or full immersion in the idealist realm, Benjamin suggests that everyday experience can bridge the gap, and form the basis for philosophical reflection. Intrigued by this idea of the ‘particularity’ of concrete phenomena, Adorno developed a meticulous philosophical approach that focuses on drawing theoretical significance from specific details of ‘objects’, such as a piece of music or a passage in a piece of literature (Buck-Morss 1977).

Adorno is critical of any notion of universal meaning. Part of his approach is to undermine taken-for-granted notions through consistently bringing our attention to the “particulars”, the specificities, or the “nonidentical” elements that make things unique. He attacks “identity thinking” for its impulse of control and domination. Classifying and conceptualising aims to bring things under control: to allow complete understanding. Adorno argues that the nonidentical element in all things makes complete understanding impossible, yet we must conceptualise in order to try and make sense, even partially, of our world.

Thus his approach is not to use single concepts to explain or understand phenomena, but constellations of concepts. These constellations create layers of nuanced meaning, drawing on the particular position of the conceptualiser, and their place in history. This contingency makes any constellation temporary. In the act of conceptualisation we can make no claims for fullness of meaning (Crotty, 1998, p. 135). Building constellations of particular meaning is at the heart of Adorno’s “negative dialectics” (1973). He posits a negatively dialectical mode of reasoning, meaning that interpretation is multifaceted, and any bringing together of opposing concepts retains difference, rather than resolving into synthesis (Crotty, 1998). When interpreting a concrete phenomenon, we gather various concepts together in juxtaposition, allowing different meanings to

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1 His was a political and critical project, connecting Marxist theory to everyday structures. This aspect of his work is not taken forward here.
reflect upon each other. These meanings are created through proximity and similarity, as well as difference. Any removal or shift in the number or type of concept gathered creates a shift in meaning, hence the partial and temporary nature.

Thus we can draw together elements that comprise the constellation: the need for concrete circumstances, and attendance to the contingency of the context; the belief in the “nonidentical” or particularity of meaning; the rise of meaning through juxtaposition; and the temporary nature of meaning connected to past, present, and future interpretive possibility, as seen from the perspective of the interpreter. The research discerns and uses these elements in combination with the wider field of design research (e.g. Buchanan 1998; Dorst 2008; Heape 2007, Sanders & Stappers 2014) employing visualisation as a bridge between the theory and the practice-led research.

4. Discussion: how the constellation embodies design as a process of innovation

Within and between all of the doctoral case studies, visualisation was used as a method to make sense of the ‘filtering’ process, to map relationships between different parts of the exhibition endeavour, and different parts of the case studies’ contextual boundaries. The process of visualisation helps the researcher to make sense of complex material in a way that may not be possible through words alone (Nimkulrat, 2012). The concrete circumstances of each case were used as the ‘particularity’ on which to build theoretical understanding. For example, the visualisation shown in Figure 4 below, visually gathers together of all of the elements converging in the second case study, revealing the relational, contingent nature of design practice. It indicates the naming and mapping of each specific part involved in the exhibition process (such as the exhibition theme, the space, the text, and audience etc.), making the act of prototyping visible through framing the design space in contextual concentric circles. This is a way of actively interpreting and interrogating, showing how exhibition-making acts as a process of prototyping, that filters our understanding of the particular design space under consideration.
Figure 4: A visualisation of the ‘particularity’ of the second case study (taken from Bletcher, 2016, p.262). This shows a visual mapping of this specific design space, where elements such as the objects, the exhibition theme, the textual interpretation, the curatorial position, the exhibition space, and the audience come together to form a specific constellation to be reflected on and interpreted in different ways.

This constellation represents the active gathering together and examination of concepts, and the consideration of possible relations and meanings. When we think about the act of exhibition in this way as a gathering, the notion of the constellation becomes a curatorial strategy for exploring, framing and communicating design through the need to give deep thought to the myriad elements that coalesce in a specific, contingent design space. One of the key contributions of this doctoral research is conceptualising curatorial practice for design in this way: connecting it to the act of prototyping, where it also becomes an active approach for design research.

A second contribution of the research is visually articulating how design can contribute to innovation, through the process of concept development. By examining the process of curating exhibitions, and by seeing this as an act of prototyping, the interpretive movement across the design space is manifested. The image in Figure 5 below is a visual articulation of concept development: showing how design can proceed (through prototyping) as a detailed, exploratory process of innovation. It works through cycles of deep investigation, and through breaking apart and deliberately interrogating concepts in order to innovate.
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The value of design for innovation here is the tenacity for iteration, for filtering the design space and manifesting the different parts of the concept being developed. Visualising, making prototypes, working with users, refining ideas: all and any of these come together in a design process as a way of deliberately building innovation. The construction of new meaning relies upon the active development of new constellations of concepts, and design is an activity that drives this forward. The constellation allows us to see design as an active, practical approach to interpreting the world, and envisioning it in a new way (Verganti & Öberg, 2013).

When we see design in this way, we can consider the extent to which the traditional curatorial act, for example within the museum, must acknowledge this process-led approach of design. Conventional categories, of, for example, stylistic periods or designers’ oeuvres, still have a place, but within a constellation, rather than as a limited single concept. Curator Paul O’Neill has noted this impulse developing in curatorial practice, where it becomes:

“a more juxtaposed field of signification, form, content and critique. The constellation, in this sense, is an ever-shifting and dynamic cluster of changing elements that are always resisting reduction to a single common denominator” (O’Neill, 2012, p. 57).

Curating (exhibitions) becomes the building of tentative or provisional constellations of meaning around certain subjects and practices, in different ways and with different people. In this way it can
be seen as a design process: an exploration and manifestation of a design space. The act of curating design must also forge a path that gathers and explores the multi-faceted nature of the design. As a visualisation, the constellation can be used as a curatorial tool to examine different practices, analysing these for their significance. Such aspects as organisational strategies and missions, and wider social issues and research interests may come into play alongside the practicalities of project management, budget, and target audience (as with design). Even if the final form of public presentation must simplify, the curatorial act itself must acknowledge the complexity, and develop whatever form is seen to be appropriate in the context under consideration.

5: Conclusion

This paper argues that the constellation can be seen as both the result of a process of practice-led design innovation (prototyping exhibitions), and the nature of that process itself. The constellation is a way of using design to explore and define new concepts, offering a way of thinking through the early stages of concept development. It brings attention to the necessity of exploring complex interconnections in the specificity of particular contexts. Building a constellation may arguably be seen as a concerted effort to make sense through multiple elements, challenging traditionally held beliefs, in the search of a more nuanced interpretation. In terms of a theory of design practice, constructing the constellation specifically brings making and thinking together to encourage a filtering of the design space, deliberately playing with the shape of its possible boundaries in the search for new or more refined meaning.

As a theoretical framework for thinking about and through design, the constellation allows us to acknowledge, study and implement the multi-faceted, contextual contingency of design as a process of innovation. This can potentially inform how design is framed and communicated when developing presentational forms such as the exhibition. In this way, the constellation can be used by curators of design, to reflect upon how to approach the framing and mediation of contemporary practices in public settings. It can also be used as a conceptual framing for design researchers, seeking to explore the multifaceted contingency of the design space. At this stage the paper is a conceptual contribution. It thus seeks interest from others to engage in practical research for further development and implementation.

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About the Author:

**Dr Joanna Bletcher**: is a Lecturer and Researcher in Communication Design at Duncan of Jordanstone College of Art and Design, University of Dundee. She has a background in theatre studies and jewellery and metalwork design, and gained her PhD from University of Dundee which was funded by the ESRC and sponsored by the V&A Museum of Design Dundee. Her thesis is entitled, ‘Prototyping the Exhibition: a practice-led investigation into the framing and communication of design as a process of innovation’

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