

Sustainable Textile Design as Bricolage

Clara Vuletich

PhD Fellow, MISTRA Future Fashion Research Project

Textiles Environment Design (TED), University of the Arts London

info@claravuletich.com

Abstract

This paper aims to explore bricolage as a metaphor for a sustainable crafts-based textile design practice, using Levi Strauss's (Lévi-Strauss 1966) bricolage concept as a framework. The author's practice-based PhD project is part of MISTRA Future Fashion (2011), an international research consortium of scientists and designers, that is investigating the sustainability of the Swedish fashion industry. The author's PhD is attached to Project 3/TED within the consortium, Sustainable Design Thinking and Processes, and aims to create pedagogic methods that develop sustainability mindsets in textile and fashion design students. In order to achieve this, an understanding of the epistemology and values of a design practice that works with textiles and the body, and engages with the sustainability agenda, is necessary. However, there are few existing methodological descriptions of textile design practice in the design research literature, and no descriptions of a *sustainable* textile design practice. Similarly, there is a lack of research on the role of values or intention in a design practice and this research aims to extend the description of a textile design practice that includes a value system based on a sustainability agenda.

This paper argues that a bricolage metaphor is a useful framework for understanding a crafts-based textile design practice that includes a values system that supports sustainability, and for making explicit the differences and parallels between a design and science research approach. The first part of the PhD included a literature review of design methodology, sustainability theory and psychology theory on values and worldviews, followed by an auto-ethnographic review of the author's own past textile practice. This paper represents the next stage of the project and includes a literature review of bricolage as a concept across a variety of academic literature, and a synthesis of these findings with the outcomes from the auto-ethnographic review. Five characteristics of the bricolage metaphor have been identified in relation to the author's practice: Using limited resources; Designer as Professional/Amateur; Craft Skill as Knowledge/Intelligence; Self Transformation; and Alternatives to Consumerism. This analysis will then inform an action research phase that tests pedagogic methods for developing sustainability mindsets in textile/fashion design students, with a deeper understanding and articulation of 'sustainable designerly ways of knowing' in a textile and fashion design context.

Keywords

Sustainable textile design, fashion system, sustainability, bricolage, practice-based research, design theory, values, neuro-psychology

Introduction

In 2009, I chose the name *bricolage* for a collective of five textile designer/makers that I had co-founded. I had spent the previous two years as part of a collaborative, practice-based research project on textile upcycling at Chelsea College of Art & Design (*Worn Again/TED* 2005-2010), and was also developing my own practice as a designer/maker. I was aware that the term came from the French word for ‘tinkering’ and was drawn to the term for its sense of making-do, creativity and playfulness. It seemed an apt term for a collection of five female textile designers who all had skills in the different textile disciplines of weave, print and stitch, and who all shared a passion for making, sustainability, re-use and the potential for social-engagement with a craft practice. As a collective we exhibited together, created pop-up shops, shared a studio and taught workshops on ‘textile up-skilling’ (Image 1). We were passionate about highlighting the value of textile designers in both the industry and in a wider society context, and we described our practice as ‘crafting products and crafting experiences’ – articulating our role as facilitators and stewards of creative practice and individual and social well-being. At the same time, I began to intuit that my practice, and the work with *bricolage*, was a process of re-configuring both *materials* and *meaning*. While I understood how my practice was re-configuring materials through the use of recycled and pre-loved textiles, the re-configuring of meaning was more opaque to me.



Image 1: Display wall at group exhibition, Top Drawer trade fair, June 2011

I started a PhD in 2011, and inspired by the activity going on in social design and design for social impact (Thorpe & Gammon 2011) (Emilson, Seravalli and Hillgren 2011), I intended to investigate how textile and fashion designers could become socially-engaged and what attributes and values were needed for the sustainability agenda. There is literature on new design roles in a sustainable fashion context (Fletcher & Grose 2012) and in a social design context (Tan 2012), however the research was empirical rather than practice-based, and did not focus on the epistemology and values of a crafts-based sustainable textile design practice. In order to understand this, I firstly needed to go one step back, or *within*. Hence the psychological and behavioural aspects of both sustainability and textile design practice became the focus of the study, using auto-ethnography as one of the key methods. I needed to understand the particularities of a textile

design practice in a fashion context, as distinct to other design disciplines and to the sciences; and to understand how engaging with the sustainability agenda required both inner, psychological change and outer, behavioural change (Maiteny & Reed 1998). I had also discovered a neuro-psychology perspective on how the left and right brain distinction affects human cultures, worldviews, and behaviour (McGilchrist 2009) that has striking parallels to the bricolage metaphor, and has potential as a framework for this research (see Appendix).

The research question thus became: what is the 'designerly way of knowing' (Cross 2006) of a crafts-based sustainable textile designer, who creates textile artefacts but who was also socially-engaged, using their craft/design 'knowing' to create experiences and social relationships? The methodological descriptions of a textile design practice in the design research literature were limited. Igeo (Igeo 2013) appears to be a lone voice in the discourse, and talks of the 'taciturn' qualities of the textile design discipline – practitioners and researchers as unable, or unwilling, to communicate their value and knowledge through the written word. There is a well-established discourse by textile theorists who study textiles as cultural objects (Harper 2011) (Hemmings 2012) but a lack discourse on the design thinking of textile designers. Igeo has employed a combination of auto-ethnography and qualitative interviews to research the methodologies and processes used by textile designers, and uses a metaphor of textiles and the textile design process as 'matrixial', based on the work of Bracha Lichtenberg Ettinger, an artist and psychoanalyst (2006). At the time of writing, Igeo's PhD has just been completed and made available, so a thorough analysis of the findings in the context of this research, are forthcoming. The project was focused on textile designers who worked on sampling for industry, and did not emphasise craft processes, a sustainability agenda or any design activity beyond the material artefact. However, there are several aspects from an initial reading of the research that are useful here. These include: that the focus in the wider design literature on design as a rational, problem-solving process was not applicable to a textile design practice; that the design thinking discourse is lacking a feminist/female position; and that the textile designer is involved in both an affective (right brain) and industrial (left brain) design process (my brackets), whereas the inner psychological and affective processes are mostly absent from the design methodology descriptions.

The limitations of the design literature on articulating the complexity of any design practice, is also explored by researchers in the wider design discourse. Rao (2012) states that designers do not follow a rational, logical sequence of events when designing, and they often rely on heuristics or their tacit knowledge. "... 'knowing-how' takes precedence over 'knowing-what' and methods are used based on experience rather than explicitly stated rules..." (2012:65). Rao developed a new definition of design methodology called 'The Way of Design', based on the Japanese notion of 'Do', that includes Pattern, Purpose, and Process. Kimbell (Kimbell 2009) argues for a definition based on practice theory called 'design-as-practice'. This description sees design as not just a cognitive process that goes on in the mind of the designer, but as a messy, contingent, iterative practice that combines thoughts, embodied actions, tools, symbolic and organisational structures, and other social actors. The focus of design as an embodied, tacit practice also overlaps with the definitions of craft practice being investigated in the 'material thinking' discourse (Carter 2004). What is lacking from Kimbell's definition is how values or intention (in this case an engagement with the sustainability agenda) effects design practice.

Hence, the existing explanations of how designers think and do design were limited in both the wider design discourse and virtually non-existent in the textile design discourse. There was also no descriptions of how values or intention affect design practice. Then I began to research the term bricolage in more detail, reading Levi Strauss and performing a literature review across different academic fields. This process revealed a deeper relevance of the bricolage term, from my initial use of the term for the textile collective. It also became clear that the metaphor might go some way towards describing a crafts-based sustainable textile design practice, and to identify that the process of craft/design is epistemologically and ontologically distinct when compared to a science approach. This distinction is particularly important as the author's research is part of a larger research consortium that consists of material, social, and political scientists (MISTRA FF).

In summary, using the bricolage metaphor to analyse the author's own practice is useful in the several ways:

1. to identify the values and crafts-based aspects of the author's own textile practice
2. to highlight and make explicit the differences and parallels between crafts-based design research methods of inquiry and science based methods

Methodology

(Yee & Bremner 2011) analysed practice-based doctorates in design, and identified that one of the key characteristics of the methods used was a 'bricolage' approach, where researchers combined methods from social science, hard science and humanities to develop an appropriate model of inquiry. They posit that such an approach is necessary in design due to the indeterminate nature of the discipline.

.....design is undisciplined, transgresses the arts and the sciences, and has the ability to be an agent of change in response to social conditions.....therefore a design researcher has to be methodologically flexible (bricolage), to 'make do' with established research tools.....but also have the ability to create new tools that enable them to explore questions that are complex and indeterminate...(2)

The experimental nature of the research methods used in this practice-based project can be seen as a form of bricolage, including an adaption of auto-ethnography for the historical review of a crafts-based practice, and the written synthesis and 'patching together' of the auto-ethnographic review with the academic literature, as seen in this paper. The development of the methodology of the project has been responsive and iterative, and had emerged as the research developed. The first part of the author's PhD project has been an auto-ethnographic review of past design practice from 2007-2011. This period of practice was chosen for analysis as it was while the author was a Research Assistant at TED/Chelsea, and was working as a designer/maker having recently graduated from a printed textile design Bachelors degree in the UK. The practice in this period can be defined as an iterative process of theory, action and reflection, where the theoretical concepts being researched at TED/UAL were being explored through practice outside the educational context through the researcher's own designer/maker practice.

Research that investigates epistemology, is a type of enquiry that explores the relationship between the knower (the enquirer) and the known (or knowable) (Guba & Lincoln 1994).

Thus, in order to gain insight into the epistemology and value system of a crafts-based textile design practice, where the researcher is a crafts-based textile designer, the researcher will need methods that allow for insight into the subjective process of practice, in order to then communicate the insight gained to others. The researcher may ask, “How can I gain insights about my own craft/design experience (and my epistemology) that produces a valid research outcome?” Gray and Mallins (2004) call this position the ‘practitioner-researcher’ and state that the role requires the researcher to become a ‘self-observer through reflection on action’ (pg 21). Auto-ethnography is an inquiry method that is useful when acting as a ‘self-observer’. (Ellis & Bochner 2000) define auto-ethnography as “auto-biographies that self-consciously explore the interplay of the introspective, personally-engaged self with cultural descriptions mediated through language, history, and ethnographic descriptions” (2000:742). While various methodological strategies of auto ethnography have been developed in different research disciplines, (Chang 2008) states that what all the strategies share is the commonality of being a qualitative, narrative inquiry that is both ethnographical and autobiographical (2008:4).

The techniques used in this auto-ethnographic process involved a framework for focusing the data collection, memory recall with documentation (sketchbooks, images and textile samples) and the use of visual tools (mind mapping, sketching). The data collected was then written up, using the key terms from the framework for each practice project, followed by reflective writing on the whole process. The data was then analysed using the five bricolage characteristics developed from the literature review.

Bricolage as a concept

The term ‘bricolage’ was developed by Levi Strauss in *The Savage Mind* (1966). The common use of the term ‘bricolage’ in French referred to someone who works with their hands to reassemble existing materials. There is no precise equivalent in English but as the translator’s of the Levi Strauss work explain in a footnote, “He is a man who undertakes odd jobs and is a Jack of all trades or a kind of professional do-it-yourself man but ...he is of a different standing from, for instance, the English ‘odd job man’ or handyman” (1966:54).

Levi Strauss used the term to describe the infinite, improvisational recombination of a fixed number of elements, as a modality of human thought that he called ‘the ‘science of the concrete’, or ‘mythical thought’. This modality of thought is found amongst primitive cultures and societies, of which Levi Strauss had studied extensively. This was a metaphor that allowed Levi Strauss to fully investigate how these societies created linguistic and cultural meaning, and to demonstrate the differences between ‘mythical thought’ and scientific thought. Therefore just like the ‘Jack of all trades’ man who works with a limited set of materials and tools, mythical thought is a kind of ‘intellectual bricolage’. It is this dual nature of the metaphor as being both a *material* and *intellectual* process that creates the richness of meaning. Essentially Levi Strauss was arguing for the validity of the pre-scientific approach as a form of knowledge-seeking (Wangelin 2007) or knowledge creation.

The 'bricoleur' is adept at performing a large number of diverse tasks; but, unlike the engineer, he does not subordinate each of them to the availability of raw materials and tools conceived and procured for the purpose of the project. His universe of instruments is closed and the rules of his game are always to make do with 'whatever is at hand', that is to say with a set of tools and materials which is always finite and heterogeneous...

Hence, whereas the engineer creates the means to complete the project, the bricoleur redefines existing means. For the bricoleur, there is an existing set of elements, or inventory, and these elements are already semi-defined by their past usage and past history. The bricoleur collects and retains tools and materials as they may be useful for future projects, whereas the scientist procures tools and materials according to each new project (Louridas 1999). The main characteristic of the bricoleur's inventory of tools and materials is that these existing elements are semi-defined: they are at the same time abstract and concrete. They are specialised up to a point, but not enough for each of them to have a defined use or purpose. In this way, they each represent a set of actual and possible relations, and are therefore contingent, or subject to change.

Most importantly, it is the bricoleur who is in control of deciding the roles played by the elements, by entering into a dialogue with the inventory (Louridas 1999). Levi Strauss uses an example of a bricoleur and a piece of wood to illustrate the point:

His first step is retrospective. He has to turn back to an already existent set made up of tools and materials...to engage in a sort of dialogue with it.... A particular cube of oak could be a wedge to make up for the inadequate length of a plank of pine or it could be a pedestal....In one case it will serve as extension, in the other as material. But the possibilities always remain limited by the particular history of each piece, and by what is predetermined by the use for which it was originally intended.

It is the designer's engagement with the materials or elements that contributes to the creation of new meaning, through an engagement of the designer's intellectual, emotional and physical experience and knowledge. Thus, the designer is literally a 'meaning maker' through engaging in a materials-based practice.

The notion that all forms of human thought and activity are based on underlying structures or systems, that are made up of interrelated elements, forms the basis of structuralism, the theoretical framework that Levi Strauss contributed to. Levi Strauss uses a structuralist approach to conclude that the differences between the scientist and bricoleur modalities of thought relates to their structure. That is, both follow the same logic but they apply this logic differently. The bricoleur builds up structured sets, not directly with other structured sets, but by using the remains and debris of events. The scientist on the other hand, has an existing structure that is used to classify events.

As Louridas explains in his analysis of bricolage as a metaphor for design:

Bricolage is at the mercy of contingencies, either external...or internal, in the form of the creator's idiosyncrasy. This is in contrast to the scientific process....which uses structures (hypothesis) to arrive at its results. Bricolage works the opposite way, it creates structures in the form of artefacts, by means of contingent events. (7)

Bricolage as a metaphor in academic discourse

Following Levi Strauss's seminal work, the metaphor was used, and re-appropriated, by many different academic disciplines including design (Louridas 1999) (Rossi 2013), cultural and social studies (Hartley 2002), fashion theory (Barnard 2002), entrepreneurship (Baker & Nelson 2005) (Sarasvathy 2008), organisational management (Hernes & Weik 2007), social entrepreneurship (Haugh 2010) and research methodology (Denzin & Lincoln 2000) (Yee and Bremmer).

Within the art and design discourse, there is a range of movements and activity that have been inspired by, or reflect, some of the characteristics of bricolage including Ad Hocism (Jencks & Silver 1972), Arte Povere, and Post Modernism. Defining characteristics of the artistic activity include experimentation, contrasting of unusual/unexpected elements, and working with traditional/pre-industrial design norms. The concept really came of age during the 1970's and 80's and was applied to various aspects of Western culture including found objects, collage, and installations that reassembled the detritus of everyday consumerism. It was the rise of consumer culture in the West, and the subsequent reaction to this culture, that was the context for this bricolage activity. As Hartley states, "Western consumer society was taken to be a society of bricoleurs" (2002: 16).

There have been several authors in the design literature who have attempted to analyse bricolage as a metaphor for design activity. Louridas explores 'design as bricolage' from a design methodology perspective, and has provided the most insight in the context of this research (1999). Wangelin continues this metaphoric exploration by looking at the similarities between bricolage and hermeneutics, in a design research context (2007). Kimbell describes designers and their relationship to objects, as "people who fiddle and tinker, who practice bricolage, they want to get inside and understand how objects are constituted and how they work" (2009:3). Rossi takes a less conceptual approach and uses bricolage and other related concepts to analyse the work of product and furniture designers from the Italian avant-garde of the 1960's/70's and contemporary product designers (2013).

There is a substantial body of literature from organisational management and entrepreneurship that applies the bricolage metaphor to entrepreneurship activity. Most useful in this context is the application of the metaphor to explore how social entrepreneurs re-configure financial, infrastructure or social resources to grow businesses that have social outcomes, referred to as 'social bricolage' (Haugh 2010). The data from the auto-ethnographic review of design practice that is being analysed in this research, includes design practice that is socially-engaged, and thus an understanding of how a designer can act as a 'social bricoleur' is useful.

There has also been criticism of the use of bricolage as a metaphor in some academic discourses. In discourse theory, Derrida disagrees that the bricoleur is unique in re-using and appropriating existing elements for a new purpose. "If one calls bricolage the necessity of borrowing one's concepts from the text of a heritage which is more or less coherent or ruined, it must be said that every discourse is bricolage" (1978: 285) As Barnard points out, Derrida uses a cloth metaphor to explain that no human

in any culture can be the origin of their own discourse, and that “nobody can construct it out of whole cloth”. While it is true that all human activity and thought is influenced and affected by the wider cultural and social context, the bricolage metaphor is none the less useful for analysing a crafts-based sustainable textile practice, as distinct from other design or science practices.

Characteristics of bricolage for understanding a sustainable textile design practice

The bricoleur is at the grassroots, she has her feet on the ground, and is responding to each context with inquisitiveness and creativity. She is constantly on the look out for opportunities to apply her thriftiness and passion for sustainable solutions, as well as her love for beautiful things. She is not sitting in a studio painting floral designs onto silk. She may do this some of the time, but she is also out in the world: on a factory floor scouting for textile waste because she is driven by resourcefulness and finds her creativity thrives in these limits; at a community centre working with local people and their craft skills because she recognises latent human skills that are not being celebrated and utilised; convincing a manufacturer for access to a new laser technology that is not designed for textiles but that she believes could be transferrable onto new substrates; working with paper scientists on a new paper fabric because she sees the gap in the market for a fashion solution that is short life but fully compostable. The bricoleur has a way of being in the world that informs how she acts, how she thinks and what she believes.

In order to analyse how the bricolage metaphor is useful for understanding a sustainable textile design practice, this section will outline the key characteristics of the metaphor and use these characteristics to explore the author’s own practice. A starting point for identifying the key characteristics of bricolage as a metaphor was Baker and Nelson’s (2005) literature review and summary, Haugh’s (2010) summary of characteristics and Wangelin’s (2007) four points.

- 1. Using limited resources, within a finite set of possibilities**
- 2. Designer as Professional & Amateur**
- 3. Craft Skill as Knowledge/Intelligence**
4. Self/Subjectivity
5. Alternatives to Consumerism

In this paper, only 1-3 of the characteristics have been analysed, with 4 and 5 still to be completed.

1. Using limited resources, within a finite set of possibilities

One of the most important characteristics of the bricolage approach is the use of resources or materials that are limited but immediately available. In making terms, this has origins in ‘unself-conscious’ design (Alexander 1964 in Louridas 1999), the type of design that is prevalent amongst primitive and pre-industrial societies, where the designer is also the maker of the object. Here the designer/maker is limited to a particular geographical location and to the materials – wood, clay, animal hair etc - that are available from that environment. The limits are set by tradition and location (Louridas 1999). Most design today exists in a vastly different context to pre-Industrial design, with a seemingly over-abundance of resources that are available from all geographic locations. However, a design approach that uses limited resources is evident in sustainable textile and fashion design

practices that react against a false sense of over-abundance and consciously chooses to utilise existing or used textile materials.

Textile/fashion designers who use either pre- or post-consumer textiles choose to work within a set of limitations based on what materials are available. If a designer is sourcing and re-working second-hand garments, they are responding to the existing features of the garment including the shape, material, and condition/quality. Similarly, when a designer is sourcing pre-consumer textile waste from production, they are limited to what is available and to the size, material type and ease of access to the production facilities. By seeing textile waste as a resource of value, the bricoleur or sustainable textile designer acts in a contrary way to the dominant view of the industrial production system that sees the waste as value-less.

The ability to use limited resources according to the needs of the project, or 'making do', could be called resourcefulness. The dictionary defines resourcefulness as the 'ability to act effectively or imaginatively, especially in difficult situations'. The term implies active engagement with problems or opportunities, rather than stalling over, or analysing, whether a workable outcome will be effective (Baker & Nelson 2005). Hence, being resourceful is not just about being inventive with materials. Resourcefulness also suggests a way of being and thinking, that comes with knowledge, skill and experience (Campbell 2011). By being resourceful, one acts on resources in an efficient way, but one is also acting in a way that comes from a *posterior* knowledge – the knowledge gained not from ideas or concepts, but from an embodied experience out in the world. A designer who creates garments from pre-consumer textile waste, has gone into factories, talked to manufacturers, found out where to access these often 'off limits' waste streams, has a sensual and tacit understanding of textiles or second hand garments and knows what to look for. This experience and skill has built up over time and has created an epistemology within the designer that is different to the epistemology of a textile waste facility manager or a sustainability manager.

Design for Change (2012)

A practice-based, collaborative research project that aimed to create a prototype 'business model' (for exhibition purposes) for a design-led social enterprise concept for a large US clothing manufacturer/retailer. The project proposed a design intervention for 'systems change' for a denim supply chain; for the internal organisational structures within a denim brand; and for the social context/neighbourhood of the factory. This was done in two ways:

- 1) through the design and production of a fashion/textile product, that involved 'material/craft' knowledge
- 2) through strategic design that is a more abstracted form of the design process, that the author is calling *Strategic Design for Corporate Social Responsibility (CSR)*

An concept that was central to the project was resourcefulness. The designer identifies both material and social resources that are being under-utilised and works with their design epistemology and 'ways of knowing' to add value, or re-configure, these assets. At the product level, the designer uses their 'material/craft' knowledge to identify three different waste streams in the denim supply chain (at the

cotton mill; in production from the layplan; and post-consumer take back) and creates a range of fashion accessories using these materials. At the strategic level, the designer collaborates with social business and branding experts to create a business model concept, in which the denim brand partners with a local community organisation and employs ex-gang members from the local area to produce the collection.

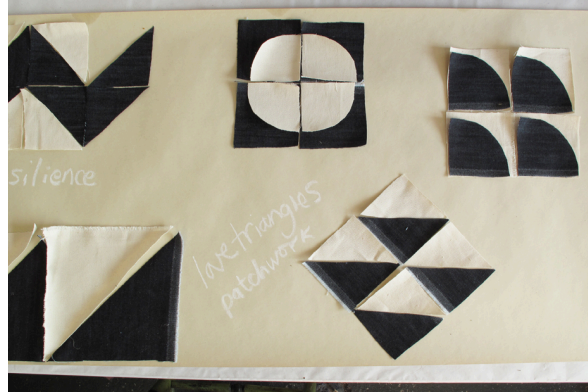


Image: models wear two of the denim bags (left), and the initial textile design process (right)

2. Designer as professional and amateur

In the art and design literature that references bricolage, it is often unclear whether the metaphor is being applied to the behaviour and activity of designers/artists or to people in the everyday. This ambiguity can be traced back to Levi Strauss's use of the term *bricoleur*, as a person who was neither a professional or an amateur. As the translators of his work state in a footnote, the term refers to a person who is a "professional Do it Yourself" (1966:67). Thus, he is not merely tinkering in his own back yard for his own pleasure or needs, neither is he a profession such as a carpenter, builder or tradesman. Louridas also comes to this conclusion in his analysis that both un self conscious design (designer as maker/unprofessional) and self conscious design (professional designer in industry), are a form of bricolage (1999:14).

It is this ambiguity of status and intent that makes the *bricoleur* metaphor so apt for a sustainable textile/fashion design practice. The designer is in this liminal space between amateur and professional, understanding intuitively how people live and use textiles and garments in the everyday. It is often described as a form of empathy in the design literature (Chapman, 2005) or designing for emotion. For a textile designer, it is an understanding of how textiles and garments meet human needs, both the aesthetic qualities of colour and pattern, and the tactile qualities of texture and touch. Beyond that, the *sustainable* textile designer, brings an even greater understanding of human needs, that relates to the desire of a consumer/user to show care and respect for the resources and people involved in the making of the clothes they wear.

Textile Re-skilling Workshops (2009-10)

One of the main motivations of the textile collective bricolage, was to teach textile techniques that enabled people to feel empowered as users and consumers of fashion garments, including patchwork/quilting and darning/mending This was inspired by the activity and discourse in sustainable

fashion that argues the fast fashion system had created passive consumers who were disconnected from their own creativity and ability to create meaning through the wear and care of garments (Fletcher, 2008) (von Busch). The designers in the fast fashion system remain disconnected from the consumer, and the empathy of the designer for the user is limited to being expressed through the garment or textile (embodied in the pattern, colour or touch of the garment). However, when the textile/fashion designer comes out of the design studio and places herself in the position of teacher or facilitator of skills development, the ability to act as empathiser is more direct. As facilitators of a collaborative craft learning experience, we were drawing on our own subjective knowledge as users of textiles and garments, and as designers – both professional and amateur.



Images: bricolage member Polly Burton (left image, left) and author (right image, second from left) teaching textile workshops in mending and natural dyeing (2010-2011)

3. Craft Skill as Knowledge/Intelligence

While the bricolage metaphor chosen by Levi Strauss emphasises hand and craft skills, Levi Strauss actually differentiates a craftsperson from a bricoleur. “The bricoleur....who uses devious means compared with those of a craftsman” (1966:62). There is some discussion in the art and design literature, that suggests that the level of skill in the bricoleur is more like an amateur - humble and utilitarian, and may even be anti-craftsmanship (Adamson 1997:93). The focus in this paper however, will not be on what the level of skill is, but on what the knowledge or epistemology of this craft skill is.

Central to the concept that a craftsperson has a particular knowledge is the idea of an embodied materials-based process being a form of ‘thinking’. The idea that a designer or creative practitioner thinks differently to other disciplines or professions, originates in the design research literature from the 1960’s, that focused on what designers do and how they think (Kimbell). An attempt to understand the thinking styles of designers in action has continued since then, with a focus on their designerly ways of knowing (Cross 2006) and design thinking. In the craft literature, Adamson (2007) has unpicked the secondary status of craft in relation to fine art and explored ‘thinking through craft’. Carter advocates for ‘material thinking’ as a valuable source of knowledge in creative research (2005). Both works suggest that there is value in the knowledge gained through the sensory and material experiences of a craft practitioner, and this knowledge is a form of intelligence.

As Carter explains:

Craft ...is a gift for putting things back together in a different way. Invention and re-remembering...are two aspects of a single intellectual process. The capacity to perform these sleights of hand – craft is traditionally associated with the magic arts - depends though on an advanced material knowledge. One who thinks materially has to be a specialist in alloying. (2005:73)

The process of 'alloying' is both intellectual and physical, and it is this interdependence of the hand and the mind that is unique to a craft process. The 'invention and re-remembering' is also similar to the skill of the bricoleur who works with existing elements, or used materials, that are semi-defined. The 're-remembering' is the designer being aware of the materials past history, but the 'invention' is the designer giving the material a new context and new use.

The sustainable textile designer - whether they use print, knit, weave or stitch techniques – has a repertoire of hand skills that have been developed and refined through a design education and professional practice. These hand skills are put to use, at the service of not only the creative process, but at the service of the sustainability agenda. The value of this knowledge in a sustainability context is crucial yet under-defined and is what this research is aiming to understand.

Patchwork and sampling as a craft process – reflective writing from auto-ethnographic review of Digital Fragments (2011)

For this project, I was becoming more interested in quilts both for their visual/material qualities, and socio/cultural context. I was collaborating with Katherine May, a quilter, and I had started to make baby quilts for friends. Then I found Lucy Norris's texts about quilting in the (unpublished) Worn Again writings (Worn Again/TED 2005-2010), where she talks about patchwork made from old clothes/textiles as a form of re-contextualisation. "Quilting and patchwork are techniques that involve the destruction of objects which hold within them emotional attachments to specific people, places and moments in time, and stitching them into newly rearranged wholes, preserving certain memories while radically re-contextualizing them". I realised that for the Digital Fragments project, I was attempting to 'make whole' fragments of fabrics, feelings and memories.

The act of patchwork is a slow process and starts with my collection of textiles or 'textile stash'. Igeo talks of textile designers and their 'paraphernalia' - the objects and artifacts that they collect, store and use to inspire their design process (2013). In my patchwork process, pieces and scraps of textiles have been collected and stored over a period of time and once the process begins, the textiles are picked up and touched, shuffled round, and laid out into an emerging pattern. Then they are hand-stitched together, to form a coherent whole. The process involves an intuitive sense of the contrasting of colour and pattern, combined with the meaning that is embedded in each textile, either through memory of past usage or of where the textile was found (second hand shops, markets, given by a friend etc). The final stage of patchwork and quilting, involves the final kantha running stitch, that quilts all the layers together, binding separate membranes into one heavier weight fabric. Finally the edges are stitched with binding to finish the process.

Quilting also represents what Showalter calls “the art of scarcity, ingenuity, conservation and order” (1986:227) and there is a substantial body of discourse in feminist and art theory around the quilt as a metaphor for female experiences of fragmentation (of time, materials in the home) and multiplicity (Lippard 1983). After reading some of this theory on the act of quilting, I realised that I was creating a taxonomy of emotions and stitches. By creating patchwork and quilting samples, I was referencing this hidden female skill and ambiguity around this type of craft work done in the home. I was also creating patchwork from digitally printed fabric I had created, by scanning on old fragments of fabric from my ‘stash’. By enlarging the tiny textile fragments and digitally printing them onto new cloth, I was revealing the hidden meanings in the cloth as I saw them – of my mother and godmother, who had raised me through the 1970’s, teaching me to sew clothes and appreciate hand skills, who I intuitively knew had ambivalent feelings about their roles in the home and in society.



Image: Author doing patchwork (left), and a sample piece from *Digital Fragments* (2011)

Conclusion

The metaphor of bricolage as proposed by Levi Strauss, describes an intellectual and physical process that re-configures elements to create new meaning. This paper has argued that the bricolage approach to knowledge creation can be compared to a sustainable textile design practice, and is made up of a collection of characteristics that involve the formulation of both material and symbolic meaning. With the methodological descriptions of a sustainable textile design practice in a fashion context non-existent in the design theory literature, this paper has sketched out the beginning of a framework that includes both the design thinking process and values inherent in a sustainable textile design practice. The research will involve continuing to analyse the five characteristics included above, and to also test a neuro-psychology framework for the differences and parallels between a crafts-based design methodology and a science based methodology, based on McGilchrist (2009). This analysis will then inform an action research phase that tests pedagogic methods for developing sustainability mindsets in textile/fashion design students, with a deeper understanding and articulation of ‘sustainable designerly ways of knowing’ in a textile and fashion design context.

Appendix

The five bricolage characteristics developed by the author are mapped against the characteristics of the left and right brain framework as developed by McGilchrist (2009). This is an initial mapping and will be developed further in more detail.

	Bricolage Characteristics	Right Brain Characteristics	Left Brain Characteristics
1.	Using limited resources, available immediately	Contextual, uniqueness	Reduces everything to generalities, de-contextualises, abstracts
2.	Designer as Professional/Amateur	Empathy/inter-subjectivity as the basis of consciousness	No ability to empathise
3.	Craft Skill as Knowledge/Intelligence	Embodied, in the limbic system, importance of the body in constituting reality	Disembodied, sees the body as a machine (pg 174)
	Iteration, reflexivity	Creativity as an unveiling ('no-saying') process	A wilfully constructive process, constructs from parts
	Openness	Open, patient attention to the world	Closed, detailed, wilful grasping attention
4.	Self/Subjectivity	Emotional expression and processing (except for anger)	Only emotion processed is anger
5.	Alternatives to consumerism		Favours utility, sees the earth only as a resource to be utilised

Bibliography

- Alexander, C. 1964, *Notes on the Synthesis of Form*. Cambridge: MA, Harvard University Press.
- Baker, T. & Nelson, R.E. 2005, 'Creating something from nothing: Resource construction through entrepreneurial bricolage', *Administrative science quarterly*, vol. 50, no. 3, pp. 329-66.
- Barnard, M. 2002, *Fashion as communication*, Psychology Press.
- Campbell, E. 2011, *Design as Resourcefulness & Self Reliance*, Royal Society for the Arts, London.
- Carter, P. 2004, *Material thinking : the theory and practice of creative research*, Melbourne University Publishing, Carlton, Vic.
- Chang, H. 2008, *Autoethnography as method*, Left Coast Press Walnut Creek, CA.
- Chapman, J. 2005, *Emotionally durable design: objects, experiences and empathy*, Earthscan.
- Cross, N. 2006, *Designerly ways of knowing*, Springer, London.
- Denzin & Lincoln 2000, *Handbook of Qualitative Research*.
- Derrida, J. 1978, *Writing and Difference*. Chicago, University of Chicago Press.
- Ellis, C.S. & Bochner, A. 2000, 'Autoethnography, personal narrative, reflexivity: Researcher as subject', in N. Denzin & Y. Lincoln (eds), *The Handbook of Qualitative Research*, pp. 733-68.
- Emilson, A., A. Seravalli and P.-A. Hillgren (2011). "Dealing with Dilemmas: Participatory Approaches in Design for Social Innovation." *Swedish Design Research Journal* 1(11): 23-29.
- Fletcher, K. 2008, *Sustainable Fashion & Textiles: Design Journeys*. UK, Earthscan.
- Fletcher, K. & Grose, L. 2012, *Fashion & Sustainability: design for change*, Laurence King London.
- Gamman, L. and Thorpe, A. 2011, "Design with society: why socially responsive design is good enough." *CoDesign* 7(3-4): 217-230
- Gray, C. & Malins, J. 2004, *Visualizing research*, Ashgate Aldershot.
- Guba, E.G. & Lincoln, Y.S. 1994, 'Competing paradigms in qualitative research', *Handbook of qualitative research*, vol. 2, pp. 163-94.
- Harper, C. 2011, *Textiles: critical and primary sources*, Berg Publishers.
- Hartley, J. 2002, *Communication, cultural and media studies: The key concepts*, Routledge.
- Haugh, H. 2010, 'Social Bricolage: Theorising Social Value Creation in Social Enterprises', *Entrepreneurship Theory and Practice*, vol. 34, no. 4, pp. 681-703.
- Hemmings, J. 2012, *The Textile Reader*, Berg Publishers.
- Hernes, T. & Weik, E. 2007, 'Towards a Theory of Organizational Becoming', *Individuum und Organisation*, Springer, pp. 73-95.
- Igeo, E. 2013, 'In Textasis: Matrixial Narratives of Textile Design', PhD thesis, Royal College of Art, UK.
- Jencks, C. & Silver, N. 1972, *Adhocism: the case for improvisation*, Secker and Warburg
- Kimbell, L. 2009, 'Beyond design thinking: Design-as-practice and designs-in-practice', *CRESC Conference, Manchester*.
- Lévi-Strauss, C. 1966, *The Savage Mind*, University of Chicago Press.
- Lippard, L. 1983, "Up, Down, and Across: A New Frame for New Quilts." *The Artist and the Quilt*: 32-43.)
- Louridas, P. 1999, 'Design as bricolage: anthropology meets design thinking', *Design Studies*, vol. 20, no. 6, pp. 517-35.
- Maiteny, P. & Reed, B. 1998, *Oscillation: a meaning and values-centred approach to the sustainability of human systems*, Grubb Institute.
- McGilchrist, I. 2009, *The Master and his Emissary: The Divided Brain and the Making of the Western World*, Yale University Press, UK.
- Michlewski, K. 2008, 'Uncovering design attitude: Inside the culture of designers', *Organization Studies*, vol. 29, no. 3, pp. 373-92.
- MISTRA Future Fashion (2011) www.mistrafuturefashoin.com
- Rao, P. 2012, 'Connecting the Dots: a Design Approach to Services for the Poor', PhD thesis, Northumbria University, UK.
- Rossi, C. 2013, 'Bricolage, Hybridity, Circularity: Crafting Production Strategies in Critical and Conceptual Design', *Design and Culture*, vol. 5, no. 1, pp. 69-88.
- Sarasvathy, S.D. 2008, *Effectuation: Elements of entrepreneurial expertise*, Edward Elgar Publishing.
- Tan, L. 2012, 'Roles for Designers in Design for Social Chnage', PhD thesis, Northumbria University, UK.
- Showalter, E. (1986). 'Piecing and writing', *The Poetics of Gender*. ed. N. Miller, Columbia University Press: 222-247.
- Wangelin, E. 2007, 'Matching bricolage and hermeneutics: a theoretical patchwork in progress', *Design Semiotics in Use, SeFun International Seminar, Helsinki, Finland*, vol. 6.
- Worn Again (2005-2010) <http://www.tedresearch.net/research/detail/worn-again-rethinking-recycled-textiles/>

Yee, J. & Bremner, C. 2011, 'Methodological bricolage: What does it tell us about design?',
Proceedings of the Doctoral Education in Design Conference Hong Kong Hong Kong Polytechnic.