

Craft and Design for Sustainability: Leverage for Change

* Xiaofang Zhan^a, Stuart Walker^a

^a ImaginationLancaster Design Research Centre, Lancaster University

*Corresponding author e-mail: x.zhan@lancaster.ac.uk

Abstract

Traditional craft has been relegated to the margins in modern culture, being perceived as out step with technological, economic and societal progress. However, emergent research is rediscovering the nature of craft and its potential for contributing to design practice in conjunction with developments in science and technology. Through the analyses of craft and sustainability, strong connections are revealed as well as some incompatibilities. The contribution of this paper is to a) map a systemic view of craft and b) establish a theoretical understanding of the relationship between craft and a holistic understanding of sustainability. Drawing on recent research that proposes three areas of leverage for sustainability, we argue that craft, as a system of making, knowing and being, has significant potential to contribute actively and tangibly to the transitional conditions, thereby serving as an agency for sustainable transformation.

Keywords: Craft, Design for Sustainability, Leverage, Transformative Change, Human Values.

Understandings of design for sustainability have evolved from being primarily technology-based, to more holistic understandings in which broader understandings in relation to human values (Abson et al., 2016) are considered vital to bringing about transitional change. In this, traditional craft can offer important insights for positive transformation because it represents a communal and cultural knowledge, practices and values that are grounded in context and place. Moreover, craft can be understood as a way of thinking, as well as theory building through converting its often tacit knowledge into “formal” or explicit knowledge (e.g. Risatti, 2007; Sennett, 2008; Niedderer, 2014). Through an analysis of the nature of craft, and a holistic understanding of sustainability, the relationship between craft and sustainability is discussed in terms of accordances and tensions.

Craft: A Systemic View

Attempts to define ‘craft’ have given rise to a wide range of specialized literature (e.g. Lucie-Smith, 1981; Adamson, 2007, 2010; Risatti, 2007; Sennett, 2008; Niedderer, 2014, etc.).

Among these writings, craft is considered the most elusive of concepts, which belongs to a “polythetic category” (Marchand and Ashgate, 2016, p.3, cited in Hyland, 2016), because it cannot be absolutely fixed in any particular definition. Here, we develop an understanding of craft from three perspectives –practical, epistemological and ontological.

Practical

Adamson (2010, p.3) poses an open-ended definition of craft that suggests it is “*the application of skill and material-based knowledge to relatively small-scale production*”. This gives room for a broad range of practices and is in accord with understandings that recognize craft in terms of embodied knowledge, materials, localism, small-scale, etc. (Shiner, 2012, p.239). This relationship between knowledge and craft’s tangible aspects is commonly discussed. Sennett says craft establishes “*a realm of skill and knowledge perhaps beyond human verbal capacities to explain*”. This know-how, skill or expertise is acquired over long periods of time by engaging in the slow pace of craft making practices (2008, p.295). Through this process, specific kinds of knowledge are acquired and accumulate over time and, traditionally, were passed down from one generation to the next by an apprentice working alongside and learning from a skilled craftsman. This form of knowledge-sharing shaped the unique relationship between expert and pupil.

This kind of knowledge is developed in specific contexts (Brown, 2014, p.6), with locally specific materials and resources, and serving local human needs. Craftspeople root their practices in particular places, building on local traditions (Bop Consulting, 2012). This sense of place often represents an intensely personal or symbolic relationship with a locality (Racz, 2009; Williams et al., 1992, p.31) and is as unique to each locality as it is to each person. Hence, ‘local’ and ‘diversity’ are both important characteristics of craft practices. Today, however, due to digital communications, craftspeople can easily follow each other’s work and be connected across large geographical areas. This will undoubtedly affect the sense of the local in contemporary craft (Brown, 2014). Even so, as a response to globalization, mass-produced products and homogenized aesthetics, we are seeing a growing interest in local identity and products produced through craft practices.¹

Craft is commonly considered to have low environmental impact. Often, environmentally-friendly processes and materials are used, and many traditional craft materials – like wood, wool and plant dyes – are renewable. Human energy is often a significant part of the process, along with small machines like lathes, sanders and electric saws. Also, craft objects often have long lifespans and their traditional designs – honed over generations – give them an appearance of timelessness (Ree, 1997 cited in Nugraha, 2012, p.106); this aesthetic quality is very different from the many short-lived, fashion-oriented, technology-dependent products made by mass-production. The ecological attributes of craft products are not just superficially embodied through the use of eco-friendly resources, recyclable material, etc., but are reflected in the culture of craft as a whole.

Epistemological

¹ This could be exemplified by the Crafts Council in the UK supporting a series of craft projects since the 1990s, e.g. Tent London is an event dedicated to designers involved in craft practice (CraftsCouncil.com); in China, there are increasing numbers of collaboration between design schools, villages with traditional crafts and industrial companies to develop craft for contemporary use, e. g. New Channel project (App: New Channel), etc.

Some argue that craft reflects multiple ways of knowing which have the ability to engender complex thinking (Crawford, 2009, p. 23). The tacit knowledge inherent to craft practices is, as Polanyi (1961, ed. in L. Prusak, 1997) argues, a complex knowing process on which other types of knowledge (e.g. the cognitive) are based. However, Sennett (2008, p.50) points out that the self-awareness facet of reflection plays a part in the craft-making process, making judgements about tacit habits and reviewing assumptions. Hence, tacit knowledge and explicit awareness are interconnected in the craft-making process. Experience and practice are critical aspects in both acquisition and sharing of tacit knowledge (Lam, 2000) and craft quality emerges from their combined application. They exemplify two aspects of human intelligence: the experiential and the cognitive. Furthermore, some Knowledge Management (KM) scholars argue that these two aspects of craft ability, i.e. a craftsperson's embedded or tacit knowledge, can be largely explicated and codified (Nonaka & Takeuchi, 1995, cited in Niedderer, 2011).

Again, Follett and Valentine (2010, p.5) refer to the thought processes used in craft making as a "system of thinking" that can serve as a strong agency to inform design (Woolley, 2011, p.31) and design organizations, especially with respect to interdisciplinary collaboration. They base this assertion on the idea that *"the complex thinking engendered by craft knowledge could benefit knowledge exchange and shared understanding"* across boundaries (Niedderer, 2011). Within the complex system of disciplinary collaboration, different areas of knowledge can be shared via *"boundary objects"*, employing ways of thinking inherent to the craft process (see Brown & Duguid, 1998, pp.103-104). In such collaborations and explorations, craft can provide an overarching guideline for the emerging interdisciplinary system, or it could serve as a boundary object to build common places.

As another way of knowing, some scholars introduce 'spiritual intelligence' as an unquantifiable parallel counterpart of rational (IQ) and emotional (EQ) intelligence (see Zohar, 2000; King, 2009). Spiritual intelligence refers to critical existential thinking, personal meaning production, transcendental awareness, and conscious state expansion (King & DeCicco 2009). Spiritual intelligence is a widely-appreciated wisdom in both religion and the sciences. Due to the challenge of codifying scientific criteria for spiritual intelligence, Gardner (2000) suggests using the term 'existential intelligence' instead of 'spiritual' to explore *"the nature of existence in its multifarious guises"*. However, he states that there is insufficient evidence about brain structure and neurological processes related to this form of intelligence. Existential thinking in craft is discussed further in the next section.

Ontological

Authenticity: Through the discussion of the practical and epistemological characteristics of craft above, a deeper issue emerges. The implications and meaning of the various aspects of craft and craft making could be encapsulated by the term authenticity. Apart from the originality in materiality and authorship, 'authenticity' describes *"a person who acts in accordance with desires, motives, ideals or beliefs that are not only hers (as opposed to someone else's), but that also express who she really is"* (Stanford Encyclopaedia of

Philosophy, 2014). Here, the term ‘authentic’ refers to that which is both physically real and philosophically true, but especially the latter, which is related to “*moral-psychology, identity and responsibility*” (Ibid). For physical realness, craft is traditionally produced from natural materials, human labour and ecological resources.

For philosophical trueness, craft making is a type of activity motivated by the desire to work well for its own sake (Sennett, 2008, pp.241-267); craftspeople find self-fulfilment in the freedom of experimentation (making) driven by an aspiration to pursue a high degree of excellence. In this process, craftspeople reflect critically on their goals and values, and are responsible for their own work. Taylor (1992) maintains that the “*powerful moral ideal.... behind self-fulfilment is what a better or higher mode of life should be.... [offering] a standard that we ought to desire*”. He further suggests that this moral ideal is something we wish for, but it is something that transcends us as individuals. This reveals aspects of deeper meaning in craft making, namely, existential (spiritual) meaning; this will be discussed below. In recent years, more and more people have criticized the inauthenticity of modern meaningless and purposeless work (e.g. Taylor, 1992, pp.2-4; Walker, 2011), instead celebrating the dignity of craft labour, which they argue, reflects a more authentic, ethical way of being.

Craft and existential (spiritual) meaning: Although there are disagreements about which term should be used in relation to scientific research, the most important point is that existential thinking is a significant human trait. It is related to human values but cannot be measured scientifically (Gardner, 2000).

From archaeological evidence, traditional crafts and practices are replete with value accumulation and the spiritual embodiment of ancestors. However, existentialists think these “activities and ideas” are produced from the acting, feeling, and living experience of human as individual rather than merely from mind or thinking (Macquarrie, 1972, pp.14-15). According to these ideas, material things are endowed with meanings that transcend the materials themselves through the making process; meanings can even pertain to the sacred or the divine. Risatti suggests that craft’s unique qualities come partly from “*an ability to express human values that transcend temporal, spatial and social boundaries*” (2007). These human values have been closely connected with the production of crafts and everyday objects for thousands of years (Ahmad, 2003 cited in Arshad et al., 2014).

In summary, craft is a field “*established and defined through its perceived difference*” (Adamson, 2010, p.5). However, its essence can be understood through several critical thematic words: **ecological attribute, localism, complex thinking and authentic being.**

Understandings of and Approaches to Sustainability in Design

The terms ‘sustainability’ and ‘sustainable development’ have been widely used over the past thirty years. Contributing to the understanding of sustainability are a series of ideas from the *Triple Bottom Line* to the *Circular Economy* that propose and demonstrate visions and

methodologies from their own particular perspectives. This deals with the common concerns of environmental integrity, social justice, and economic viability (e.g. Elkington, 1997; Ellen MacArthur Foundation, 2012).

In the *design for sustainability* field, numerous pathways have enabled solutions and initiatives to emerge over the past two decades. These include: *Green Design*, *Cradle to Cradle*, *Biomimicry*, *Product/Service-based Systems*, *upcycling* (McDonough & Braungart, 2013), *Systemic Design* (Ceschin & Gaziulusoy, 2016), *permaculture* (Mallison, ed.1991, 1st ed.2013), *social innovation* (Manzini, 2014), and the recently-established *Transition Design* (Irwin, Tonkinwise and Kossoff, 2013). The practices and discourses of *design for sustainability* have yielded an unprecedented mix of ideas and approaches, but this has created some polarization. The discourse of sustainable design tends to be between technocentrism and ecocentrism (Orr, cited in Van der Ryn & Cowan, 2007, p.20; Luederitz et al., 2010); between the ecotopian and business-as-usual; between grassroots, bottom-up diverse models and centrally controlled, top-down paradigms (Manzini, 2014, p.57).

However, there is an emergent understanding and vision of sustainability, characterized by initiatives such as *Transition Design* (Irwin, 2015), and *Agenda of Deep Leverage Points for Sustainability Transformation* (Abson et al., 2016), both of which identify the need for a systemic shift in outlook and approaches. These resonate with the theory of holism (Kossoff, 2015) and systems view of life (Capra and Luisi, 2014), and share the common concepts of self-organization, interconnectedness, cosmopolitan localism and symbiosis. These conceptions resonate with the notions of deep leverage points for sustainability transformation (Abson et al., 2016). According to the old and the new (visions, concepts and ideas), the characteristics of design approaches in sustainability are identified as:

Eco-effectiveness is the core of the Circular Economy. The central principle of eco-effectiveness is ‘waste equals food.’ However, eco-effectiveness is mostly explored and discussed from technological perspectives of sustainability, such as *Cradle to Cradle*, *Biomimicry* and *Systemic Design*. It considers the flow of materials and energy from the waste of one system to the input of another, thereby creating a recyclable production chain (Ceschin, 2016). However, many scholars criticize it because it mainly focuses on technological and productive aspects, and fails to address issues from the personal and social aspects (Ibid).

Cosmopolitan localization emphasizes community-based local distributed systems, with the ability to share and exchange information and knowledge through ever-improving technologies and global network (Manzini 2014; Irwin, 2015, p229). This concept aims at first generating a resilient social mechanism and productive system to cope with the ever-deteriorating climate and social crises, while being coherent with another notion of sustainability – diversity.

Self-production corresponds to self-organization, which is strongly linked with autonomy (Massotte, 1995). Flexible, robust self-organization, development and production are

recognized as valuable factors to be imitated and used in system design for manufacturing (see Leitão, 2008). In recent decades, these concepts have inspired a movement towards self-production, which opposes Fordist mass-production and outsourcing, and which has been expanding since the 1990s in Europe (Ferrara, 2011, pp.5-13). In addition, this cultural trend encourages consumers to participate in the production process rather than simply purchasing the products off-the-shelf (Atakan, 2011). In the design field, self-production is based on co-creation that “*represents the act of mediation between areas of knowledge*” (Mazzarella and Engler, 2014).

Revision of lifestyle: lifestyle and everyday routines are fundamentally driven by needs and desires (Kossoff, 2015, p.31). Modern technology and modern design, operating within a market economy, continuously fuel people’s appetites. Constantly longing for improved products and new gadgets is not a matter of needs but of desires: this inevitably results in constant dissatisfaction. Modern lifestyles fueled, by constantly creating desires but failing to meet human essential needs which is criticized by Davies (2016), are “at the root of many wicked problems” (Irwin, 2015, p. 240). Therefore, modern lifestyle is in urgent revision in accordance with the principles of sustainability.

Relationship between Craft and Design for Sustainability

From the discussion and analysis above, it is not difficult to see how craft and sustainability connect with each other. The relationship between craft and sustainability can be understood in terms of accordances and tensions (see Table 1). The accordances – localism, eco-effectiveness, resilient system and lifestyle. However, because of craft’s roots in a pre-industrial age, there are also tensions – cosmopolitanism, productivity and economic viability. These three tensions result from our fast-paced modern technologies and economic demands. Cosmopolitanism and high productivity do benefit human civilization and progress, but criticism of these characteristics of modernity and technology is not new. Constantly pursuing productivity and profits without consideration of environmental and societal costs and systems thinking is widely condemned as creating a potentially catastrophic risk (Beck,1992).

Table 1. The Relationship between Craft and Sustainability in terms of Accordances and Tensions

Relationship between Craft and Sustainability	
Accordances	Tensions
Ecology Natural material, renewable resources, closed loop ecosystem	Cosmopolitanism Closed, isolated from technology and economy, lack of global view, being out of step with modern aesthetics
Eco-communality Local resources, knowledge, local human need, community-based living system, diverse cultural identities	Efficiency & effectiveness Pre-industrial technique, uncompetitive, while modern production generally ignore social and environmental costs.
Resilient system Small-scale, diverse, distributed, resilient to risks and crises	Economic viability Low-paid, low price, value diminished, cost-income gap
Lifestyle Authentic, relevant, creative, responsive, contextualized	

Craft as Leverage for Sustainability Transformation

Drawing on the concept of leverage points proposed by Meadows, recent research calls for three realms of deep leverage for sustainability transformation (Abson et al., 2016). These are:

- **reconnecting people with nature:** to what degree humanity relies on nature essentially influences the function of a system and human well-being; a disconnection from nature is identified at both individual and societal levels (Ibid, p.34);
- **restructuring institutions:** institutions guide and constrain action; institutional change represents a crucial realm of leverage for sustainability transformation; institutions include the formal - law, regulation and plans, and the informal – customs, taboos and codes of conduct (Ibid);
- **rethinking knowledge creation and use:** questions legitimate knowledge, and calls for new forms of knowledge production (Ibid, p.35).

Reconnecting people to nature

Craft can be regarded as a way of making ecological material culture based in a specific place. Craft practices tend to use natural materials and renewable resources in conjunction with human labour – a meaningful renewable energy. Use of natural materials in the course of human labour serves to connect people to nature, both through the making and the using processes. Craft maker and user foster a deep perception and awareness of natural resources and the environment. The localism feature of craft determines that craft production processes

occur in local communities, connecting people to specific cultures and traditions. In turn, this cultural connection further strengthens people's relationship to the natural world and to place.

Restructure institutional culture

Craft represents an ecological and authentic way of seeing the world; one that has been overlooked for a long time. Abron et al. (2016, p.34) appeal to us to allow "*otherwise inaccessible insights into the functioning of institutions*", and to improve institutional functioning in the face of multiple crises. The ecological awareness, cultural continuity and authentic lifestyle of craft and craft making could offer valuable insights for re-examining our current institutional culture and public ideology. People reflect on their current material culture by doing, using and appreciating craft. In the process, we foster changes in posture, mindset, and worldview, and thereby revise our moral norms, customs and codes of conduct. Eventually, these changes will affect and change our formal institutions of regulation and related policies.

Triggering new form of Knowledge

Craft can be understood not just as a way of tacit making but also as a form of complex thinking. Craft has been widely acknowledged as a type of informal and non-intellectual knowledge characterized by its non-verbality, incommunicability and being rooted in labour. However, this way of portraying craft is inadequate. Many craftspeople, artists and scholars regard craft knowledge as a combination of multiple ways of thinking. There are two key elements of craft that could contribute to the re-creation of new forms of thinking and knowledge. One is craft's creative and subversive nature, the other is its ecological, ethical and authentic connotations that are grounded in local traditional culture. As evidenced by the Maker Movement, craft has informed many interdisciplinary collaborations and creative exchange. Also, practising a craft actually involves many elements: value judgements about materials and processes; moral norms that guide making and related choices; cultural and spiritual references to tradition and context.

Conclusions

Craft is viewed in this research through a philosophical lens as a comprehensive field capable of relating people to the natural world. Because of its ecological, authentic and existential meanings, craft has strong connections to sustainability. As such, it has great potential as a lever for change. For these reasons, craft is worthy of further research, especially in areas such as how it can be revalued and made it relevant to the present. In so doing, it will be able to make an important contribution to personal and social sustainability. However, there are also tensions between craft and sustainability in the contemporary context. How to mediate these incompatibilities is also crucial if change towards more sustainable ways of living is to be effective. Most importantly, the values inherent to craft, which are rooted in place and traditional culture, are potential domains for further sustainability research.

Acknowledgement

This work is funded by China Scholarship Council Arts and Humanities Research Council, UK.

References

- Abson, D.J., Fischer, J., Leventon, J., Newig, J., Schomerus, T., Vilsmaier, U., von Wehrden, H., Abernethy, P., Ives, C.D., Jager, N.W., & Lang, D.J., (2017). Leverage points for sustainability transformation. *Ambio, A Journal of the Human Environment*, 46 (30) 30-37. doi:10.1007/s13280-016-0800-y.
- Adamson, G. (2007). *Thinking Through Craft*. Oxford: Berg.
- Adamson, G. (2010). *The Craft Reader*. Oxford: Berg.
- Arshad, M. Zaihid, Izani Mat Il M. Hum, & Abd Halim Ibrahim (2014). "Sarawak Bamboo Craft: Symbolism and Phenomenon." *Proceeding of SHS Web of Conferences*. 5, doi:10.1051/shsconf/20140500002.
- Beck, U (1992). *Risk Society: Towards a New Modernity*, translated by Ritter M.. London, England: SAGE Publications.
- BOP Consulting (2012). *Craft in an Age of Change*. London: Crafts Council.
- Brown, J. (2014). *Making It Local: what does this mean in the context of contemporary craft?* London: Crafts Council.
- Brown, J., & Duguid, P. (1998). Organizing knowledge. *California Management Review*, 40(3), 90-111.
- Capra, F. & Luisi, P. L. (2014). *The Systems View of Life: A Unifying Vision*. Cambridge, England: Cambridge University Press.
- Ceschin, F. & Gaziulusoy, I. (2016). "Design for Sustainability: An Evolutionary Review". *Proceeding of Design Research Society 2016*, 1, 314-326.
- Crawford, M. (2009). *The case for working with your hands*. NY: Viking.
- Davies, W. (2016). *The Happiness Industry: How the Government and Big Business Sold Us Well-Being*. NY: Verso.
- Elkington, J. (ed.1999, 1st ed.1997) *Cannibals with Forks: The Triple Bottom Line of 21st Century Business*. Oxford: Capstone.
- Ellen MacArthur Foundation. (2012). Towards the Circular Economy: an economic and business rationale for an accelerated transition. Retrieved from: <https://www.ellenmacarthurfoundation.org/assets/downloads/publications/Ellen-MacArthur-Foundation-Towards-the-Circular-Economy-vol.1.pdf>.
- Ferrara, M. (2011). Design and self-production. The advanced dimension of handcraft. *Strategic Design Research Journal*, 4(1), 5-13.

- Follett, G., & Valentine, L. (2010). *Future Craft: research exposition*. Dundee: Duncan of Jordanstone College of Art & Design
- Gardner, H. (2000). A Case Against Spiritual Intelligence. *The International Journal for the Psychology of Religion*, 10 (1), 27-34.
- Hyland, T. (2016). Craftwork as problem solving: ethnographic studies of design and making, *Journal of Vocational Education & Training*, 68(1), 395-398.
doi:10.1080/13636820.2016.1195065.
- Irwin T. (2015). Transition Design: A Proposal for a New Area of Design Practice, Study, and Research, *Design and Culture*, 7(2), 229-246. doi: 10.1080/17547075.2015.1051829.
- Irwin, T., Tonkinwise, C., & Kossoff, G (2013). Transition Design: Re-conceptualizing Whole Lifestyles. Head, Heart, Hand: AIGA Design Conference, Minneapolis.
Retrieved from: <http://www.aiga.org/video-HHH-2013-irwin-kossoff-tonkinwise/>.
- King, D., & DeCicco, D. (2009). A Viable Model and Self-Report Measure of Spiritual Intelligence, *The International Journal of Transpersonal Studies*, 28, 68-85.
- Kossoff, G. (2015). Holism and the reconstitution of everyday life: a framework for transition to a sustainable society, *Design Philosophy Papers*, 13:1, 25-38.
doi:10.1080/14487136.2015.1085698.
- Lam, A. (2000). Tacit Knowledge, Organizational Learning and Societal Institutions: An Integrated Framework. *Organization Studies*, 21(3), 487–510.
- Lucie-Smith, E. (1981). *The Story of Craft: The Craftsman's Role in Society*, Oxford: Phaidon.
- Luederitz, C., Abson, D.J., Audet, R., & Lang, D.J. (2016). Many pathways toward sustainability: not conflict but co-learning between transition narratives, *Sustainability Science*, doi:10.1007/s11625-016-0414-0.
- Macquarrie, J. (1972). *Existentialism*, England: Westminster.
- Mallison, B (ed.1991, 1st ed.2013). *Introduction to Permaculture*, Massachusetts: Ten Speed Press.
- Manzini, E. (2014). Making Things Happen: Social Innovation and Design. *Design Issues*, 30(1), 57-66.
- Massotte, P. (1995). "Self-organization: A New Approach to Improve the Reactivity of the Production Systems", *Proceeding of the IEEE Conference on ETFA*, 23-32.
- McDonough, W., & Braungart, M. (2013) *The Upcycle: Beyond Sustainability--Designing for Abundance*, New York: North Point Press.
- Meadows, D. (1999). Leverage Points – Places to Intervene in a System, publication of The Sustainability Institute, Hartland, Vermont. Retrieved from: <http://goo.gl/8RYwn>.
- Niedderer, K. & K. Townsend. (2011). Expanding craft: Reappraising the value of skill [Editorial]. *Craft Research*, 2(1), 3-10.

- Niedderer, K. & Townsend, K. (2014). Designing Craft Research: Joining Emotion and Knowledge, *The Design Journal*, 17 (4), 624-647
- Nugraha, A. (2012). *Transforming Tradition: A Method for Maintaining Tradition in a Craft and Design Context*, Helsinki: Aalto University.
- Polanyi, M. (1997). The Tacit Dimension. In L. Prusak (Ed.), *Knowledge in Organizations*, Newton, MA: Butterworth-Heinemann, 135-146.
- Racz, I. (2009). *Contemporary Crafts*. Oxford: Berg.
- Risatti, H. (2007). *A Theory of Craft: Function and Aesthetic Expression*. Chapel Hill: University of North Carolina Press.
- Sennett R. (2008). *The Craftsman*. New Haven: Yale University Press.
- Shiner, L. (2012). “Blurred Boundaries”? Rethinking the Concept of Craft and its Relation to Art and Design. *Philosophy Compass*, 4, 230–244.
- Stanford Encyclopaedia of Philosophy (2014). Authenticity, [online]. Retrieved from: <https://plato.stanford.edu/entries/authenticity/>.
- Taylor, C. (1992). *The Ethics of Authenticity*. Cambridge: Harvard University Press.
- Van der Ryn, S., & Cowan, S. (ed.2007, 1st ed.1965). *Ecological Design*, Visocky: Island Press, Washington D.C.
- Walker, S. (2011). *The Spirit of Design*. London: Earthscan.
- Williams, D. R., Patterson, M. E., Roggenbuck, J. W., & Watson, A. E. (1992). Beyond the Commodity Metaphor: Examining Emotional and Symbolic Attachment to Place. *Leisure Sciences*, 14, 29-46.
- Woolley, M. (2011). Beyond Control – rethinking industry and craft dynamics. *Craft Research*, 2(1), 11-36.

Biography

Xiaofang Zhan is a PhD candidate at ImaginationLancaster Design Research Centre and is currently working on Design Ecologies project funded by AHRC; prior to this she was a lecturer in product design in Beijing Normal University, Zhuhai. Her research interests include product design that relates to human values and cultures, philosophy of making and Design for Sustainability.

Stuart Walker is Chair of Design for Sustainability at the ImaginationLancaster Research Centre, Lancaster University. His practice-based research explores environmental, social and spiritual aspects of sustainability. His latest book, *Design for Life* is published by Routledge in April 2017.