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Located Making: Design for Sustainability in Small Maker Enterprises

Fabricación in situ: diseño para la sustentabilidad en pequeñas empresas fabricantes

Abstract. This paper presents findings from the UK Arts and Humanities Research Council funded project *Living Design: The Effective Use of Design for Sustainability in Small Maker Enterprises*. The project examines enterprises that, for various reasons, are deeply rooted in 'place'. These kinds of enterprises often continue long-established traditional practices but, today, they are frequently in decline. Ironically, this decline is occurring at the very time there is renewed interest in such practices, which are associated with heritage, provenance, authenticity and cultural identity.

Here we present evidence-based findings and the emergence of a concept we have termed *Located Making*, which recognizes the connection of these practices to the place and culture in which they operate. Our research identifies factors that may help – or hinder – such enterprises, as well as areas where design can make a contribution to ensure resilience commensurate with *design for sustainability*.

Through its robust engagement with the complex and interrelated issues of design, sustainability and placed-based heritage, the research presents insights that will be of interest to researchers, enterprise development personnel and policy makers at the regional level, as well as makers and maker associations and related third sector organisations such as the UNESCO Intangible Cultural Heritage Programme.

Keywords: design, design for sustainability, maker-enterprises.

Resumen. El presente artículo muestra los resultados de un proyecto financiando por el UK Arts and Humanities Research Council llamado *Living Design: The Effective Use of Design for Sustainability in Small Maker Enterprises (Viviendo el Diseño: El Uso Efectivo del Diseño para la Sustentabilidad en pequeñas empresas maker)*. El proyecto examina empresas que, por diversas razones, se encuentran profundamente arraigadas "localmente". Este continúan utilizando prácticas tradicionales, las cuales son asociadas al patrimonio, la procedencia, la autenticidad y la identidad cultural. Este artículo introduce resultados basados en evidencia y la emergencia del concepto *Producción Localizada*, la cual reconoce la conexión de estas prácticas al lugar y la cultura en las que operan. Busca identificar factores que permitan ayudar a estas empresas, y también aquellas áreas donde el diseño pueda generar una contribución constructiva que genere una resiliencia en concordancia con el *diseño para la sustentabilidad*.

La investigación presenta observaciones que serán de interés para investigadores, empresas de personal de desarrollo y responsables de formular políticas a nivel regional, así como también a *makers* y asociaciones de *makers* y organizaciones relacionadas del sector terciario como el Programa de Patrimonio Cultural Inmaterial de la UNESCO y los Objetivos de Desarrollo Sostenible de la ONU.

Palabras clave: diseño para la sustentabilidad, fabricación *in situ*, pequeñas empresas.

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Introduction

The Living Design research project examines small maker enterprises in Cumbria in the UK that are a strongly rooted to place. In addition, it explores how design can contribute in ways that are aligned with the principles of sustainability. Based on primary research, the paper introduces the concept of Located Making, which identifies how small maker enterprises are connected, in some significant way, to the place and culture in which they operate.

The paper begins with an introduction to the research questions and context. This is followed by an overview of the methodology, the presentation of key findings and a discussion of areas in which design can help to sustain small maker enterprises.

The Research Question identified in the project is as follows: How can design contribute to the effective implementation of sustainability principles at the local level in micro enterprises (fewer than ten employees), especially in ways that conform to Walker's Quadruple Bottom Line of Design for Sustainability

The Quadruple Bottom Line of Design for Sustainability is a development of the work of John Hick (1989) and also Elkington's *Triple Bottom Line* (1997, 1998). It is a more comprehensive approach than technologically driven (Davison, 2001) and material-based approaches to sustainability, as represented by such initiatives as the *Natural Step* (Upham, 2000), *Cradle to Cradle* (McDonough & Braungart 2001) and the *Circular Economy* (Ellen MacArthur Foundation, n.d). It takes into account:

- Practical Meaning: providing for physical needs plus their environmental impacts.
- Social Meaning: ethics, compassion, equity and justice.
- Personal Meaning: conscience, well-being, questions of ultimate concern.
- Economic Means: financial viability to ensure the above are realised.

The aim of the research is to develop effective ways of using design to contribute to the continuance and flourishing of small maker enterprises in ways that are consistent with principles of design for sustainability. In particular the research explores areas such as the making and selling of long-lasting, desirable products; development of local skills; use of local materials and the development of new market opportunities. The term design is being used in this research in a comprehensive manner to embrace a variety of design related activities that pertain to small maker enterprises, these include product design, websites, branding, etc. We found that, for the most part, our interviewees were the sole designers of their products, although in some cases they work collaboratively with others to develop packaging, online information and photography, etc.

Methodology

The research location is the county of Cumbria in North West England. The area was chosen because of its rich array of maker enterprises, which include woollen textiles, art materials, baskets, bags, cut-glassware, and home furnishings, even natural wool mattresses. The county is diverse in terms of cultural, historical, geographical and economic landscapes and at its heart lies the Lake District National Park, an area of outstanding natural beauty that in 2017 was awarded UNESCO World Heritage Status (Lake District UNESCO, n.d.). It is a mountainous landscape with a long history of sheep farming and is now a popular tourist area, attracting around fifteen million visitors a year.

A constructivist approach was taken to the research (Gray, 2004) that draws on local knowledge of makers and enterprise owners. Semi-structured interviews were carried out with over twenty-five small enterprises, and observations were made during workshop visits to the understand the nature of the practices. The initial selection of interviewees was broad and inclusive, with participants sourced via the internet and through local country fairs.

Interviews were thematically analysed (Braun and Clarke, 2006) and initial findings indicated that although based in Cumbria, a significant proportion had little or no connection to the region or its rich cultural heritage. From this initial evidence, the number of enterprises for more in-depth examination was reduced, and the study focussed on those that, in some significant way, were directly connected to Cumbria. The rationale for this decision was that sustainability is context-related and dependent on the particularities of place (Van der Ryn & Cowan, 1996).

Consequently, the second stage of the research focused upon eight small enterprises that not only demonstrate a strong connection to place, but also represent a variety of business models. The interview data also showed that these enterprises also had strong ethical approaches consistent with the 'beyond self' values necessary for sustainable futures (Crompton, 2010). The initial stage of the research was carried out in order to ascertain if design input is needed to help ensure sustainable practices and, if so, what role design might play in this process. This approach has similarities with practices such as co-design (Sanders and Stappers, 2008) and participatory design (Robertson and Simonsen, 2012) as design needs were ascertained by listening to and in cooperation with the makers and enterprise owners. Recent international research projects have engaged designers and makers in co and participatory design relationships (Zhan et al., 2017; Kaur and Bahl, 2018), often in order to enable the re-vitalisation of traditional craft practices through the updating of the design, where the designer works with the craftsperson directly. Living Design initially explored the potential for developing products through pairing product designers with makers, but during our initial interviews it became apparent that makers did not wish designers to develop new products but could benefit from working with designers from a range of specialisms to develop areas such as marketing, branding, websites and packaging.

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| Enterprise name | Products | Materials | Number of employees |
|-----------------------|--|--|---------------------|
| Cable & Blake | Interior goods & accessories, re-upholstered furniture | Herdwick and Cheviot wool, re-cycled furniture | 2 |
| Cumbria Crystal | Luxury cut glassware | Glass | > 10 |
| Florence Paint Makers | Artists materials | Pigment derived from iron ore, slate and sandstone | 5 |
| Herdwick Limited | Bags and accessories, furniture | Herwick wool, wood | 1.5 |
| Herdy | Mugs, bags, keyrings, mattresses, craft kits | Herwick wool, ceramics (UK & China), assorted materials e.g. plastic | > 10 |
| Laura's Loom | Woven wool products: scarves, blankets, socks | Blue-faced Leicester, Swaledale, Herdwick wool | 1 |
| Lorna Singleton | Oak swill basketry, woven handbags, interior accessories | Oak, hazel, willow | 1 |
| Owen Jones | Oak swill baskets | Oak, hazel, willow | 1 |

Table 1. Names and products produced by the enterprises interviewed for the Living Design research project

Comparisons between the findings from field data and from literature allowed us to better recognise the contributions of craftspeople and traditional maker enterprises to sustainability, community, well-being and place; to develop recommendations and guidelines for supporting them through design; and to align this support with their values, priorities and needs.

Findings

After completing extensive primary research with twenty-five maker enterprises, initial data analysis revealed that many of the small maker enterprises operating in the region have little or no link to place and no historical connection to local traditions, practices and culture. Recognising the important relationship between place and sustainability (Dillon and Kokko, 2017) as a core focus of our research, the project's aims were further developed to clarify and emphasise the importance of place in relation to culturally significant and environmentally appropriate practices (i.e. ties to local resources, suppliers, etc.). This resulted in a second phase of structured data analysis to ensure the integrity of the research in line with the revised project aims. Hence, in the nature of what they do, the smaller number of enterprises considered in detail in this research have a fundamental connection to place. We have called this concept *Located Making*, which we define thus: *Located Making* is defined as purposeful goods whose design, production or use is strongly related to the heritage, culture and/or geography of place.

The concept of *Located Making* informed the development of the research and became a key consideration in the research findings.

Using Walker's (2011, 2014) *Quadruple Bottom Line of Design for Sustainability* as a theoretical lens to structure the research analysis we developed its four principles: *Practical meaning plus environmental impacts; Social meaning; Personal meaning and Economic means* into parameters through which the primary data was evaluated.

Practical meaning + environmental implications: *Goods are purposeful, of moderate or classic design (e.g. not following transitory fashion trends), long-lasting and hard-wearing. Products are made or sourced locally to the enterprise. Consideration is given to the environmental impact of production methods, processes and the lifespan of products, e.g. through use of renewable energy, low energy production methods, design of goods that are long-lasting and repairable.*

The research considers how design can contribute to embedding sustainability principles in small maker enterprises. The design of goods can embody sustainability principles through use of renewable materials, and consideration of the product's functionality and longevity. However, it is striking that none of the interviewees stated a desire for designers to assist with the design of their products per se; rather, they spoke about receiving assistance in branding, packaging and web-design; i.e. using design as an enabler to present the products to the market in a desirable manner.

Enterprise owners may not consider the re-design of their products as a key intervention from designers, but they do see the value of design and its potential contribution in other areas. Makers are often creative people who seldom want designers 'interfering with' or suggesting changes to the products they are already making. There are various reasons for this. For example, Oak Swill Baskets are made by Owen Jones, who is one of the few

remaining practitioners of this craft, which is rated as ‘critically endangered’ in the Heritage Craft Association’s ‘Radcliffe Redlist Report’ (Heritage Craft Association, 2017). The Oak Swill Basket is very traditional design that has been much the same for centuries and this traditional knowledge plays an important role. Owen Jones says: “the language [of making] has passed on ... I haven’t sat down and thought I’m going to change the design of this. Essentially, I’m still making them as I was taught” (Jones, 2018).

An area in which design can make a meaningful contribution relates to supporting mechanisms to enhance business effectiveness, such as websites, packaging, branding, and photography. Enterprise owners expressed a lack of confidence and expertise in these areas, and a lack of time to be able to dedicate to learning these skills and suggested they as suitable areas in which to receive support from designers. For example, Oak Swill basket maker Lorna Singleton finds managing her website a challenge, in particular the development of the design and adding content. She says: “maybe a designer could help and I’m not sure what the best thing to do with the website is. I would like to be able to do it myself to update it ... so maybe it would be better to have a website service or ask someone how to do it rather than having to learn it” (Singleton, interview, 2017 February). These small maker enterprises often comprise just one or two persons. In addition to hand making the stock to sell, they also have to undertake all the other elements of running a business. Learning additional skills, such as website design or branding can be problematic, as these are skills that take time to learn and often the necessary training is not available in a suitable format. In addition, an important aspect of such design contributions is effective *storytelling* through words and visuals, so that the heritage, meaning, significance and value of the products are conveyed in a compelling manner.

Those enterprises with no prior training in design and making tend to work with experts in the development of products and see design as a particularly ‘hands on’ activity. For example, Mandy Marshall, owner of Herdwick Limited does not design in the traditional way. She says: “I don’t design in a ‘sit down and draw’ type of way, because I have absolutely no skills like that” (Marshall, interview, 2018 June). Instead she works closely with heritage businesses, such as spinners, weavers, dyers and bag makers to develop the Herdwick tweed and the bag designs. Throughout the process she conveys her own vision but considers feedback from specialists.

Others place importance on the design of their packaging and work with designers to develop solutions sympathetic to their products. An example is Florence Paint Makers – a small community-based cooperative that produces artist materials in the buildings of a former iron ore mine. They work with a professional designer on their branding and packaging, which is influenced by William Morris and is of very high quality. Initially their products used haematite (iron ore) from the mine and later expanded to include paints derived from other minerals found in the region. The products are developed and produced by a small group of volunteers who gather weekly to make and pack the goods.

In contrast, Chris Blade from Cumbria Crystal has had formal training in glassmaking. Spencer and Diane Hannah who run The Herdy Company are experienced graphic and interior designers. None of these make the goods themselves, but their vision and in-depth understanding drives their enterprises and enables them to work closely with artisans to develop their products.



Figure 1. Owen Jones, swill basket.

Figure 2. Lorna Singleton, swill basket bag.

Figure 3. Cable and Blake fabric.

Figure 4. Herdwick Limited bag.



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All the enterprises owners recognise the environmental impact of their activities and this is reflected in how they conduct their businesses – in the materials they use, their environmental footprint and the longevity of their products. We also found that the lifestyles of the enterprise owners often mirrors their practices, in that their care for the environment is reflected in the way they live. Swill Basket makers Owen Jones and Lorna Singleton grow their own materials in nearby woods. This requires coppicing and woodland management skills, which means they act as environmental stewards. It also means they don't have to purchase the materials used in their products. Owen says: "it's important to use local wood, and I am providing wood for generations to come ... If an acorn is planted now I won't be cutting the tree down myself. It is important to think ahead for another generation of swill makers" (Jones, interview, 2017 February). This also highlights the longer-term, intergenerational thinking that is an important aspect of many traditional making practices. New conceptualisations of the local demonstrate the potential for re-thinking supply chains and the support of other small enterprises in creating circular and more sustainable systems of production and consumption (Manzini, 2010). Other makers may not grow their own materials, but the fabric-based enterprises we examined do source their wools from local farms that raise heritage sheep breeds. The Herdwick, in particular, is an ancient Cumbrian sheep breed. Wool is abundant in Cumbria, but its coarseness makes it unsuitable for most types of clothing. Consequently, until recently it was buried or burned due to its low economic value. In recent years, its increased use by small enterprises, often to produce accessories rather than clothes, has raised its value. This not only reduces waste from farms, it also provides farmers with an additional, albeit a relatively small, source of income. The owner of Laura's Loom uses fleeces predominantly from Blue-Faced Leicester sheep, found in the eastern part of the county. Laura says she was motivated to "make use of a resource that was natural and locally available, renewable and environmentally friendly" (Rosenzweig, interview, 2017 February). The enterprises carefully consider the environmental impact of their products. Alice, owner of Cable & Blake, which uses their own locally made woollen fabrics to upholster recycled furniture says their approach is about "not being takers, it's really trying to work with this idea of re-using things ... being able to have something local" (Blakeney-Edwards, interview, 2018 May).



Figure 5. Laura's Loom fabric.

Social meanings: Enterprise owners care for the communities in which they live and work. They collaborate with local makers and suppliers, giving back to the community and supporting other local enterprises. They support charities and good causes through 'in-kind' support or through donating some or all of their profits.

Our research reveals the importance of localisation to social aspects of sustainability. Localisation fosters face-to-face contact and human relationships, a sense of community and belonging, and a sense of responsibility to others and the local environment. It also results in reduced transportation of materials and goods, decreased energy use, and packaging, all of which are essential in terms of developing sustainability within enterprises (Manzini, 2010). By working with local suppliers, enterprise owners have not only helped raise the value of wool (Mullagh et al., 2019) but have also developed close working relationships and fostered a sense of belonging within their local community. Laura spoke of a sense of belonging in the community resulting from these relationships, as she had very few social connections when she moved to the area. Mandy, of Herdwick Limited, also spoke of the importance of the relationships she had developed with farmers and the development of her enterprise as a 'personal journey'.

We also found informal support networks were important to the wellbeing and social life of enterprise owners, particularly through via other makers in the area. Florence Paint Makers are all volunteers. They spoke of the importance of community to their enterprise and the sense of wellbeing and fulfilment they feel from getting together each week. We also found that enterprise owners support other makers just starting out, or who are unable to produce enough goods to support themselves. The owner of Herdwick Limited supported a new furniture maker by purchasing wood for her to make footstools upholstered in Herdwick Tweed; these were then sold under the Herdwick Limited brand. Similarly, Cable & Blake support makers in the area who produce goods using their Herdwick fabric, which they sell via their shop and website. Three enterprises we interviewed donate to good causes, reflecting the importance they place on contributing to their community. Florence Paint Makers donate all their profits to the Florence Arts Centre, where they are based, to support creative activities in a community that has faced economic challenges in recent years. Their motivation is "to get the Florence Arts Centre



Figure 6. Herdy Shop Interior

Figure 7. Florence Paint Maker artist materials.

going ... it's a new product, it's something positive since the iron industry came to an end" (Florence, 2018). Laura's Loom donates a percentage of a particular line of throws to a local training charity as she believes in giving something back to the community. For the owners of Herdy "being responsible is really important – we need to be part of the Lake District and the Lake District needs to be part of us ... How you respect and invest in place, everywhere, this is important". When they set up the company they also created a charitable fund, as they felt it was "the right thing to do" (Hannah, interview, 2017 June).

It becomes clear that the enterprise owners are motivated to support their communities and local good causes, and through their own first-hand knowledge, they are aware of the impacts of this support. Knowing the people who are positively affected, rather than donating to anonymous concerns, creates a sense of personal wellbeing and roots the enterprise within the community – socially, economically and environmentally. Such endeavours also reflect and encourage intrinsic values such as self-respect, benevolence, equality and unity with nature (Crompton, 2010) and relates to the conservation of traditions and of the natural environment.

Personal meanings: Enterprise owners find their work personally and spiritually fulfilling, their practice is rooted in place through their materials, communities and as inspiration for their work. Their enterprise enables them to feel a sense of belonging and to be morally satisfied.

When talking to enterprise owners about their motivations, no one expressed a desire to become wealthy, or to make more than was required to sustain themselves and their business. Rather, we found their work creates a sense of wellbeing, connection to place and creative fulfilment, all of which lie within the intrinsic, or self-transcending aspect of personal values (Crompton, 2010a). Also, all find their enterprise or making practice meaningful and fulfilling. For those who are not involved in the making, creativity and personal achievement provide a sense of fulfilment. For Alice of Cable & Blake, a life-long love of the local Herdwick led her to start an enterprise that commissions fabric made from their fleece. She says, "I always wanted to do something with Herdwick, I was amazed to think they were burning fleeces ... [in my primary employment] I do such a black and white type job, so anything that is a bit outside of the box is ... very nice for me to be able to do something much more creative on this side" (Blakeney-Edwards, interview, 2018 May). Swill Basket maker Lorna Singleton says: "It's deeply spiritually satisfying for me to do this ... Once I realised I could make a living creating things then there's not really any going back from that, it's too satisfying ... Doing something that's rare is appealing in a way". (Singleton, interview, 2017 February). Her fellow maker Owen Jones spoke to us about finding the repetition making process 'meditative' and the whole journey from growing and cutting the wood, making the baskets and meeting the customers to be deeply fulfilling. For some makers, the practice is often intuitive and physical. Chris of Cumbria Crystal loves the traditional glass-making process, "It is purely addictive, glass being blown is primeval and primordial, fire and heat is very elemental and fascinating. I like the challenge of trying to turn the business around" (Blade, interview, 2017 February). Laura of Laura's Loom weaves every day and finds that if she does not weave she is not personally fulfilled, and the feeling is visceral. She spoke about her initial experience of weaving and why

she chose to continue learning, “Because that’s what I love. Don’t ask me why, I have no idea why. I wasn’t trained as a weaver, I’m a scientist, and I learned to weave 20 years ago and I got the bug within ten minutes, literally, and that’s never happened before or since, that I’ve done something and thought ‘this is for me’” (Rosenzweig, interview, 2017 February).

A further motivation was a sense of responsibility to one’s practice and those who have gone before. Owen Jones spoke of this, “I am driven to make just because that’s what I do and that’s my routine in my life” (Jones, interview, 2018 January). For Owen, his sense of responsibility resides in the notion of continuing the skills he was taught by his predecessor, saying he feels a moral responsibility to his teacher for passing the skills on and he would feel bad if he took the craft to the grave with him, so it is important for him to also pass the skills on.

Economic means: Enterprise owners earn enough money to make a living and to ensure the sustainment of the enterprise into the future. They may embed ethical pricing into their business model, meaning their goods are available to a wider range of customers. They share the wealth, through investing locally and employing local people, using local suppliers and selling their products locally.

We found interviewees did not necessarily create their enterprise with the sole intention of making money. Rather, they expressed a wish to generate sufficient income to make a living and to support employees. Makers talk of sufficiency, having enough to live on, giving back, supporting the wider economy and supporting local makers and the wider ecology of place-based goods. Even though enterprise owners do not wish to become wealthy through their enterprise and just wish to make a living, they face significant challenges in generating enough income to support themselves. Often, they have to rely on another source of financial support, for example another job or support from a spouse or partner. In particular, key issues faced by enterprise owners include a lack of suitable outlets through which to sell their products; producing enough stock to sell; pricing their goods adequately and lack of suitable business-related support from regional development agencies. While there are a small number of high-profile commercial galleries and other retail outlets in the region, they tend not to sell products made by the small enterprises in the area even though their products are often of very high quality. Also, there are a plethora of gift shops in the popular tourist centres, many selling products made elsewhere and only notionally related to the area. Typically, they sell artisanal food and drink, toiletries and jewellery. Lorna Singleton says: “Souvenir and tourist shops rarely sell anything made in Cumbria. They may have a Herdwick sheep [a distinctive Cumbria breed] on the label but they aren’t made locally. They don’t reflect rural life ... there isn’t really anywhere ... that has any crafts for sale or on show” (Singleton, interview, 2017 February). When asked whether he would sell his baskets through galleries, Owen Jones stated “I have sold them there before ... I’m not on a huge hourly rate but shops would want their own profit margin ... they’d want to squeeze the price down” (Jones, interview, 2018 January). This means that for a basket he normally sells for £68, which he feels able to justify for four or five hours work, he would only get £45 at trade cost to the gallery. The gallery would then double this amount and add VAT, meaning it would be sold for ca. £110. Owen has what might be considered an egalitarian approach to pricing, in that he doesn’t believe in charging what he

thinks is too much for what was traditionally a simple utilitarian artefact, saying “I don’t want to make them available only to the elite for who money is no object” (Jones, interview, 2018 January).

The ability of enterprise owners to generate sufficient income to sustain their business is often limited by a lack of knowledge and skills in areas such as marketing, branding, website design and routes to market. Support is available, but enterprise owners are either unaware of this or are unable to access it due to limitations of time or finances. To explore these issues further and understand the wider policy and support landscape in the region we visited the Cumbria Local Enterprise Partnership (LEP). One of the main roles of the LEP is to drive growth and support the economy in the county by working with local authorities and private businesses. The representative we talked to spoke about their need to work with enterprises to help them grow, but noted their reluctance to do this, saying: “Our difficulty in Cumbria is that a lot of these businesses don’t want to grow to that next level ... The difficult thing for us is keeping everyone happy, so for us the LEP’s role is to develop the economy and ensure growth. The difficulty you’ve got ... is that you’ve got to have businesses that want to do that and a lot of them don’t” (LEP, 2018). None of the small maker enterprises we interviewed expressed a desire to grow their business in the terms described by the LEP, instead they talked about focussing on product development and consistency rather than taking on staff or growing the business financially.

For Florence Paint Makers, growth is not something they can consider due to the limitations of volunteering and the space available to them. They sell their products all over the county, predominantly through art supply shops but also in several galleries, and through online orders have shipped their products abroad. However, they are unable to fulfill large orders. As a small volunteer-run enterprise, which the members enjoy, an increase in production and pressure would lessen their experience.

Discussion

This research has examined how eight *Located Making* enterprises embody Walker’s *Quadruple Bottom Line of Design for Sustainability* through their personal values and the ways in which they conduct their businesses. The findings offer clear examples of how enterprise owners, whilst facing challenges, manage to conduct their businesses in ways that are economically and environmentally viable whilst providing the owners with meaningful work and a fulfilling life.

This research reveals the importance of an integrated approach to sustainability. The *inter-relationships among practical + environmental; social; personal; and economic* factors are fundamentally important. It is not enough just to understand the individual components as separate entities. This is evident with makers such as Lorna Singleton. She considers her environmental impact whilst assessing the practical aspects of her work – through stewardship of the woods and coppicing – all of which she finds deeply fulfilling. Hence, like the other makers we have examined, Lorna’s practice accords with the four interdependent elements of the *Quadruple Bottom Line of Design for Sustainability*, through:

- The sustainability of the local environment, through woodland management practices.
- The future of the craft practice by ensuring resources for generations to come.

- A sense of belonging to the community.
- A deep sense of personal meaning, wellbeing and fulfilment through the practice, including time spent in the local natural environment and in the making process itself.
- Through her practice and her commitment to creating new and often innovative products that can be categorised as ‘innovation within tradition’, she manages to generate enough income for her enterprise to be viable.

Lorna is but one example of the importance of identifying the inter-relationships of sustainability principles as an integrated whole. Elkington (2018) has acknowledged that his Triple Bottom Line (TBL) (Elkington, 1997) is not working as it should because companies prioritise profit over wellbeing and other factors. This highlights a critical concern in how sustainability is being understood, how it is being addressed, and how compliance with sustainability goals is being implemented and reported.

In our research, it is evident that the different aspects of the *Quadruple Bottom Line* can and are being integrated at the local level, which is an appropriate and effective place for holistic implementation to occur. We have observed in our research that enterprise owners embody the four principles *intuitively*, usually because the way in which they operate ‘feels right’, rather than setting out primarily to be sustainable, this is also evidenced in research carried out by the UK Crafts Council (Yair, 2010). Their enterprises are built on their *values*, with the economic means playing a supporting role, rather than being the primary motivator.

This research reveals the values and motivations of the individuals in the enterprises and how a sense of personal meaning affects the nature of the business, the kinds of materials they use and where those materials come from. Their relationships with the community in which they work, with suppliers, other makers and so on highlights the importance of personal values and motivations with respect to a sense of responsibility to the social and environmental fabric of place.

Whilst our findings indicate that enterprise owners often do not wish to use design to develop new products, we have identified areas that design could help in sustaining these kinds of small enterprises:

Product Design. Where appropriate and desirable, designers can contribute in the area of product design to create: new products using existing materials and techniques, or in combination with other materials and contemporary techniques; a unified range of products that are attuned to contemporary needs and lifestyles; and products that supplement or serve as accessories for existing products. One example of this is Lorna Singleton’s adaptation of traditional oak swill basket-making to create a contemporary women’s handbag. This product, which features leather fittings, is based on the designs of traditional fishing creels. When the existing products are very traditional, any product design contributions – if indeed they are warranted – should be approached with care and sensitivity.

Branding and Packaging. Design can be used to develop strong branding, in ways similar to the approach of Herdy, who have taken the iconic Herdwick sheep found in the Lake District and built a distinctive narrative around it for the enterprise itself, the products they produce, and, more broadly, for the

place itself. The development of a Located Making brand and associated, environmentally responsible packaging that seeks to promote and develop place-based products could potentially assist enterprise owners by raising the profile not only of their own enterprise, but collectively across the region.

Storytelling. This can be a key contribution of design. Many of the enterprises have fascinating and compelling stories to tell, whether they relate to the history and heritage of their products and/or the materials they use, or the craft or business, or the connections to the region. The stories relate to and are rooted in place through materials, deep concern for the environment and personal connections. They are living examples of sustainability that can be brought to the fore by conveying personal journeys and using design to effectively curate and communicate the stories of place.

Online Presence. A further area in which design can contribute is through the design and management of websites and associated areas such as photography and social media. As discussed, enterprise owners feel they lack the skills, time and often the financial means to develop an online presence to market and sell their products. All of the enterprises we interviewed use the internet to some extent, but many struggle with designing their own website, adding content and photographing their products in a professional and appealing manner.

Enterprise Service Hub. Several enterprise owners suggested the creation of a 'hub' would be highly beneficial, through which they could access the services of design professionals. While our interview with the Local Enterprise Partnership (LEP) highlighted that these skills are available in the county, the take up among small maker enterprises is low due to issues relating to communication of what help is available and the practical limitations of accessing it, such as the demands placed upon sole traders in terms of time.

Bridging by Design: A further area in which design could make an impact is through the design of effective services and their communication, for example working with the LEP to develop engaging and accessible training and support for marketing, website or design suited to the needs of small maker enterprises. The relationship between the enterprises and policy agendas is an area where our research revealed tensions due to different priorities and motivations.

Whilst design is not a panacea to all the issues faced by enterprise owners, based on the findings from this research, we have highlighted practical areas in which interventions at a local level could have a positive impact. By their nature, the enterprise owners all possess creative skills, but these are often focussed on the design and production of goods rather than wider business acumen.

Conclusions

When we began this research, we anticipated opportunities for design to update and extend the product range of small maker enterprises through re-design. Our findings show that, while in some cases, product design may be appropriate, it is often inappropriate because, for example, the design of the product is long established and key to its cultural value.

However, there are important design opportunities in other areas, including branding and packaging; storytelling, online presence, development of an enterprise service hub; and developing bridging opportunities between regional business development organisations and small enterprises. All such design contributions will rely on designers getting to know local enterprises, the values and motivations that drive the businesses, the current and potential customer bases, the culture, heritage and natural environment, and a willingness and sensitivity to contribute by helping develop well-designed business models, raising awareness of local products, their provenance, their life cycles and their relationship to place and to sustainability. At the regional level, raising awareness among development agencies, tourist boards, etc. of the presence of maker-enterprises and making-the-case for appropriate kinds of business support. On this point, our research identified a mismatch between the needs and wishes of small-scale maker enterprises and the agendas of regional economic development agencies.

While each may be small in themselves, taken together there is potential for these kinds of maker-enterprises to be a significant part of a region's cultural draw for visitors. In this way they would become part of a larger ecology of art, design and other creative aspects of a region, including music, theatre, literature and so on, adding to the colour, vibrancy and attractiveness of a place for visitors, while also enhancing a sense of cultural identity and belonging among residents as well as providing income to the region through increased visitor numbers and sales of locally made products.

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