Beyond Greener Things: sustainability within communication design practice.

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Abstract

This paper reviews contemporary communication design practice in Australia through a series of interviews with practitioners, conducted to better understand the place of sustainability in contemporary practice. It is especially concerned with the expectations and experience of designers, and their attitudes towards sustainability in practice, and the contrast between designing 'greener things' and establishing more sustainable outcomes for their clients through deeper collaboration. The paper is part of a larger PhD project attempting to establish ways of expanding the understanding of sustainability for communication designers.

Keywords: sustainability, communication design, professional practice

Contemporary communication design practice has established a sense of professional identity through an alignment with business, where the primary concern is profitability and growth (Claver-Fine, 2016; Julier & Moor, 2009; Walker, 2014). Many have argued that this status quo has locked business (and by association, communication design) into systems that promote unsustainable behaviours such as accelerated consumption, increased energy use and resource mismanagement (Fry, 2009; Fuad-Luke, 2009; Walker, 2014). In other design disciplines such as industrial design and architecture, the complex or so-called 'wicked problems' of sustainability can to some extent be addressed through changes to materials and processes. However, in communication design practice sustainability is positioned within a very different setting, affected by the client's understanding of sustainability and how this may or may not appear in their desired communication; as well as by the designer's understanding of what the pursuit of sustainability in the context of the project might involve. This typically ends in reductive responses to sustainability, constrained by the tension between what designers believe is the *right* approach, the desire to create award-winning (or 'good') work, and their perceptions of what the business market will most readily accommodate.

This can result in a passivity towards issues of sustainability, and a form of 'standard sustainability practice' that reduces the goal of sustainability to its most accessible material dimensions, typically reducing waste and using 'greener things', such as recycled paper, vegetable inks et cetera, (Claver-Fine, 2016; McDonough & Braungart, 2010; Sherin, 2008) and only when the client budget can accommodate it (Benson & Perullo, 2017). However there is a growing body of literature that argues design for sustainability should aim to address sustainability more holistically and permit solutions that step outside of the realm of 'things' by considering values and the relations between people and the environment more deeply (Acaroglu, 2017; Irwin, Kossoff, & Tonkinwise, 2013; Manzini & Walker, 2008; Walker, 2014). Design for sustainability should thus encourage more open collaborations that reposition communication designers to better influence clients' business practices and steer project outcomes.

In order to gain greater insights into this problem, and how sustainability is approached in communication design practice, an analytical autoethnographic study was undertaken by author one (Wallace) with the guidance and support of author two (Crocker). Anderson describes analytical autoethnography as a study where the "researcher is a full member of the research group" and "is committed to developing theoretical understandings" (Anderson, 2006 p373). This approach differs from traditional autoethnography and evocative autoethnography in its explicit analysis and contextualisation within a theoretical framework (C. Ellis, Adams, & Bochner, 2011; C. S. Ellis & Bochner, 2006; Pace, 2012). Reflections on contemporary practice were informed by the literature, Wallace's own experiences as a practitioner, and data collected from semi-structured interviews. Thirteen Australian communication design practitioners were interviewed to establish their considerations of the norms of practice and the role sustainability plays in their own work. They performed in varying roles and responsibilities including owners, directors, employees in studios and in-house roles, sole practitioners and freelancers. Most interviewees specialised in either digital or print mediums; however, there were also three hybrid practitioners – those who worked across multiple media – and two consultants amongst those interviewed. Interview data was collated into a series of visual notations, used as a means of reflecting on the interviews, recognising patterns in the collected data, identifying themes and making connections to the existing literature. This process draws on coding methods from Glaser and Strauss's grounded theory (Barney G. Glaser, 2013, 2014; B. Glaser & Strauss, 1967; Holton, 2007), but is primarily informed by reflective practice (Schön, 1983; Yanow, 2009; Yanow & Tsoukas, 2009; Yee, 2010) fully utilising techniques of reflection in-action (interview notes) and on-action (visual notations, conversational reflections). The idea that *practitioners know more than they can articulate* (Schön, 1983) has underpinned the reflective notation process, and the reflective conversations between the authors of this paper also guided the data analysis.

Reflecting on the collected data reveals perceptions and understandings of sustainability varied from one practitioner to the next, however there was an important common thread: the believe that sustainability amounted to the creation of 'greener things' through technical considerations such as recycled paper or vegetable ink. Fear that pursuing greater sustainability might negatively impact the creative process, along with the perceived economic constraints of their

work appear to have led to passivity towards sustainability in most practices. For many it was not front of mind, others were introducing some 'green things' some of the time, but not much more. This paper contrasts this rather limited, materialistic approach to sustainability with deeper collaborative approaches that investigate alternative, more sustainable outcomes for clients. Sustainability in this second sense can be understood not just in terms of the physicality of practice, but also in terms of communication itself, with the designer working collaboratively to shift the beliefs and attitudes of their clients and alter the outcomes affected by the work of design.

A division appeared to occur between those interviewees focussed on 2D/print design and those working in a digital space. Digital designers made clear that it was more common to work collaboratively, and their approaches to communication revealed greater interactivity in both process and outcomes. This is also reflected in the literature which outlines high functioning relationships as crucial to successful collaboration (Bjögvinsson, Ehn, & Hillgren, 2012; Ehn, 2011; Steen, 2011, 2013) Whilst 'things' remained the focus of many, those working strategically felt they were better positioned to influence clients and believed they were treated as experts rather than resources. The connection between the use of strategy and this increased influence of the designer is also echoed in the literature (Harland, 2011; Muratovski, 2016; Tischner, 2006). This emerging model for sustainable practice appears to be underpinned by strategic thinking and crosses over the practice of digital and print design, permitting increased collaboration, greater influence and more holistic, two-way approaches to communication design.

Making money, making things: tensions between business and design

The tension deriving from business demands within design practice pressures many designers to create work with limitations that can impact their practice economically, creatively and ethically, with direct implications for their willingness to consider sustainability in more depth. This is evident in the literature (Benson & Perullo, 2017; Bierut, Drenttel, & Heller, 2012; Julier & Moor, 2009) and its implications have also been captured in the data collected as part of this research. Since the 1990s global recessions have seen the cost of design questioned by many clients. In contemporary practice, it is also recognised that during periods of slow economic growth clients' become hesitant to invest in design, often seeking the cheapest solutions possible. Unfavourable economic climates for the designer can lead to 'chasing the dollar', the result of which can compromise ethical decision-making and creativity in order to pay the bills. From the interviews, it was ascertained that when client budgets are tight the design process can be modified to accommodate – perhaps thinking time is reduced, or fewer concepts are presented, short-cuts are taken, or reference materials are drawn upon to inform the concept rather than developing a new creative approach.

These compromises made to accommodate financial constraints were also identified by Dorland in Canadian practice (Dorland, 2009) and by Springer in the UK (Springer, 2009), and could be perceived as devaluing design itself, leaving practitioners with the problem of how to re-value

their work, potentially through non-commercial means. These constraints can also impact the designer's ability to design for sustainability; shortcuts taken in a 'standardised' design process can also imply a reduction of available time to address sustainability through adequate problem definition, research and exploration of more sustainable solutions.

For the client, time pressures are usually about getting to market the fastest or by the cheapest means possible. For designers, a fast-tracked design process such as Google Venture's 5-day sprint (Google, 2016) would appear to permit some exploration, some design thinking, and some rapid prototyping for consideration, within a tight timeframe and budget. This outcome satisfies clients' desires to maximise profit, while permitting designers to create and demonstrate the value of these processes to the client. However, it could also be argued that this fast-tracked creative process also results in changed expectations. Once a client has had a taste of 'process for peanuts', it may become harder to engage them in a deeper creative process next time. Will such a 'teaser' sell a deeper exploration and the accompanying bigger budget for future projects, or will it result in a desire for more, and similarly cheap, fast teasers?

The relationship between clients and designers is usually structured around business needs, the client's needs as well as the designer's. The client engages the designer to help achieve their desired business outcomes, and the designer strives to keep the client happy in order to pay their bills. This financial co-dependence does more than impact the speed with which designers can produce work, it also has a potential to impact other areas of practice such as creativity, sustainability and even ethics. Sol Sender's essay about Herbert Bayer's work on the 1936 Nazi propaganda piece, "Deutschland Ausstellung", shows a fascinating power play between the client and designer, whose wife and daughter were both Jewish (Sender, 2002). Sender's reflections on this work also capture an interesting line of questioning: how much do we know about our clients and how much *should* we know? How much did Bayer know? How much *should* he have known? Did Bayer's desire to 'pay the bills' justify a complicit client-designer relationship with the Nazi party? Whilst this example is extreme, it demonstrates the potential harm caused by the tension between personal ethics and the designer's immediate financial needs.

Benson and Napier explored how design decision-making can be guided by designers' values (Benson & Napier, 2012). Their research along with that of the Public Interest Research Centre (PIRC) (Holmes, Blackmore, Hawkins, & Wakeford, 2011) reveals that if more intrinsic (and typically more ethical) values underpin the designer's approach and thinking, then project framing can become more sustainable, and a greater consideration can be given to ethical issues, such as those relating to social justice and the environment. This same literature can be used to argue that extrinsic values such as financial security and reputation can drive business concerns and impact on client-designer relationships and the ensuing design process. As Jelly Helm (Helm, 2002) asked when considering the concept of ethical neutrality in client relationships, "if our clients are leading us down a path that is not socially or ecologically sustainable, or that is harmful to human nature, do we resist, and how?" Helm's essay does not answer this question, poignant as it may be, but it does highlight how an ethical framework or lack thereof can create a

point of tension in practice, where demands on the designer can push them into greater passivity and conformity with client wishes.

Some clients may request consideration of sustainability, which can prompt designers to design accordingly, however the norms of the designers interviewed, echo a significant supporting literature, indicating that sustainability is not at present a standard consideration for communication designers or their clients in most contexts. Sustainability in practice is usually misinterpreted as a technical consideration e.g. recycled paper or vegetable ink. This limited understanding of sustainability can be readily translated into standard practice, yet many designers remain passive and do not bother with these very limited emblems of sustainability in their practice.

In addition, it is apparent in the historical evolution of communication design, and the recent technical shift to digital processes (Meggs & Purvis, 2016), that an older distinction between the practice of graphic design and the practice of communication design could also influence how sustainability is understood and applied in practice. The longevity and significance of this distinction is perhaps most apparent in the tendency for practitioners to identify as one or the other, as a communication designer or graphic designer. During interviews, practitioners who identified as communication designers also implied they had a deeper and more strategic approach to design, and this was often underscored by a tendency to work with broader business strategies that crossed over between digital and print approaches. Whereas those who identified as graphic designers appeared to adopt an aesthetic approach to communication design specific to their area of specialisation, and to focus more on designed outcomes in response to a given brief.

When considered in terms of sustainability, an aesthetic focus could limit a designer's attention to the object of the process, and result in making 'greener things'. Whilst in principle this appears a valid undertaking, in practice, project stakeholders such as clients and suppliers can hinder this approach. In the introduction to *Design to renourish*, the co-author/designers describe their challenges in creating a book about sustainable graphic design that could act as a case study, an outcome that despite their best efforts, was derailed by their publisher due to financial concerns (Benson & Perullo, 2017). A communication designer could have more potential to respond to matters of sustainability through strategic approaches that extend beyond this limited focus on 'greener things'. It seems that once designers' thinking expands beyond an aesthetic finish, space can be created for sustainable outcomes that are less object oriented, or 'thing' focussed. In this space there is room to consider people and the environment, and greater potential for collaboration that can lead to a more influential relationship with clients. From this influence comes the capacity to steer projects towards outcomes that are more sustainable.

The reductive approach of designing 'greener things,' seems driven by routinisation and the unquestioned tradition of designing as a form of making, but this approach is quite distinct from design for sustainability. 'Greener things' might create surface level technical improvements through material selection and use, but as Benson and Perullo demonstrate, this can be limited and impacted by external forces such as clients and suppliers. Furthermore, it does not

adequately address the ‘wicked problems’ of sustainability, particularly in relation to consumption. Design for sustainability, by contrast, can affect deeper change through what Ezio Manzini calls *enabling solutions* that “enable people to live as they like, and in a sustainable way” (Manzini, 2006 p11). Manzini and Walker describe design for sustainability as strategic; it involves deeper thinking, collaboration and facilitation (Manzini & Walker, 2008). With the creation of ‘greener things’ designers can still contribute to the status quo, whereas design for sustainability is fundamentally aimed at creating change.

Strategy, technology and interaction: more communication, less ‘thing’

A splintering in what could be considered ‘standard practice’ emerged from the interviews in relation to strategy; designers following a more strategic approach appear to have differentiated themselves in ways that could add value for their clients. Strategic designers indicated they were engaged at much earlier stages of a project, and felt they could influence their clients more significantly, especially in terms of more sustainable outcomes. Some still remained focussed on the ‘thing’ to be designed, and described their use of strategy as a means to better position or target a designed outcome. Others were less focussed on the immediate outcome of the design itself and instead aimed to create integrated and connected experiences. These experiences sometimes utilised designed ‘things’, however these designers’ more holistic and strategic approaches also resulted in them occupying more influential positions with their clients; they were viewed as experts, respected as such, and not relegated to a resource, to add finishing touches to a predetermined outcome.

The overarching trend amongst those interviewed suggested that most maintain a focus on ‘things’ as an end-outcome. Most print designers spoke of their focus on making tangible, 2D ‘things’, and many digital designers had a focus on making digital ‘things’ such as websites or animations. Reflection on the interviews brought more clarity to the problems inherent in this focus on outcomes, on ‘things’, and the closed end-point that comes from deliverables that are mainly product or ‘thing’ focussed. Once such an outcome, a ‘thing’, is delivered, the client-designer relationship also ends; the relationship becomes symmetrical, and is defined by the transaction between the two parties for the (final) delivery of a specified product (Sennett, 2003). However, designers working more strategically appear to be carving a richer, more active space for themselves, facilitating meaningful long-lasting, more asymmetrical, mutually beneficial relationships with their clients.

Despite this overemphasis by many interviewees on products and outcomes, analysing their approaches to design revealed that the digital design process allows for a greater awareness and willingness to engage with sustainability within the broader context of the client’s work and audience. This is apparent in a number of areas including human-centred approaches used in user experience design, and more engagement in collaborative processes in the creation of digital/experiential/service-based ‘things’ (Bjögvinsson et al., 2012; Ehn, 2011; Steen, 2013).

Collaboration is an important agent of change in contemporary practice, and has become an increasingly valued part of the digital design process, usually described in terms of 'co-creation' or 'co-design' (Sanders & Stappers, 2008; Steen, 2013). There is a large body of literature describing co-creation in its many forms, highlighting that each method is unique, whilst also overlapping in process, desired outcomes and the inherent challenges within them (Bjögvinsson et al., 2012; Ehn, 2011; Karasti, 2014; Mulder & Stappers, 2009; Sanders & Stappers, 2008; Steen, 2013). Marc Steen highlights that virtues such as curiosity, cooperation and creativity underpinning this process is key to successful collaboration (Steen, 2011) reinforcing Sennett's *asymmetrical relationships* as a key component in designing for sustainability (Sennett, 2003).

From the literature, interviews and observations from practice, it is evident that each collaborator can bring a unique skillset and body of knowledge, an aspect that creates more effective teams. At its core, collaboration builds relationships that acknowledge differing expertise and allows for a richer understanding of the end-user's experience. Co-creative collaboration seats the designer and the client at the same table (along with other experts and stakeholders such as end-users), and has already successfully influenced sustainability within other sub-disciplines such as fashion and industrial design (Chapman, 2009; Niinimäki & Hassi, 2011; Vuletich, 2013). From a re-positioning also comes the potential for designers to step away from their role as a job-specific resource, and plant themselves firmly in the expert's seat. The resultant synergy between those who are considered experts can facilitate the creation of services and experiences that are less reliant on the material outcomes or 'things'.

Paradoxically, engaging more directly with the life and work of the clients and their audience or 'end users' can also lead to a longer-term 'asymmetrical' relationship and better financial returns. Digital designers described the benefits of a greater acceptance of pre-project scoping fees, providing a budget for better identification of the true needs and problems to be solved, and more opportunity for influence over project direction and end-outcomes. Despite these beneficial advantages, very few digital designers being interviewed acknowledged this as something distinct or different to other sub-disciplines of design, and even fewer harnessed this power towards more sustainable outcomes. It would seem that regardless of a practice's specialisation in print or digital, sustainability is rarely considered as a native part of the design process but rather as a series of pragmatic fixes to be applied within each practice. Despite this, there are methods used in the digital design process that are more akin to design for sustainability (even if unintentionally so) and as explorations of these methods deepen, they reveal potential benefits for print designers too.

Digital design has gained another distinct advantage through its responsiveness to its surroundings, and ability to facilitate greater interaction between people and 'things'. During interviews, print designers expressed an affinity towards the tactility of 2D 'things', however the lack of two-way interaction between a printed 'thing' and its audience brought to the fore an interesting question: are print designers transmitting one-way messages through the 'things' they design, whereas do the digital 'things' created by digital designers create opportunities for a more interactive process of exchange? In some sense, the collaborative and interactive nature of digital design appears to fulfil the role of communication design more deeply through its ability

to engage in two-way communication and through its enabling of longer lasting asymmetrical relationships.

Positioning Design: Getting more than an empty seat at the table

Designers acting as traditional intermediaries between a client and their audience have less impact on their client's decision-making (M. Glaser, 2001, 2004; Soar, 2002) and their position as resource rather than expert reduces their potential to influence clients and project outcomes. This leads to greater passivity and conformity to clients' desires and often results in unchangeable briefs for unsustainable end-outcomes. Glaser, Heller, Wild and others have all identified designers' positioning as an area of weakness, and open to improvement (Bierut et al., 2012). During an interview, one designer declared, "I might be *at* the table but it is still not *on* the table"; revealing one of the many challenges designers face in repositioning themselves. Getting the seat is hard enough, doing something meaningful with it is a challenge in itself.

'Standard practice' within communication design appears to be heavily influenced by the requirement of meeting clients' needs, and many designers agree that clients can impact their practice in a variety of ways (Julier & Moor, 2009). But these needs, as defined by the client, are often at odds with what the designer might discover if they could engage more directly with the problem to be solved. Leyla Acarglu's *Disruptive Design Methodology* outlines problem mining as key to designing for sustainability (Acaroglu, 2017), however this mining process can be ineffective if constrained by preconceived notions of needs. Issues arising from this too ready acceptance of the constraints created by the client can have significant financial, creative and methodological impacts. Most of these stem from attempting to meet the clients' needs within restricted budgets and timeframes, and specifically without the time to investigate the larger context of the problem or to engage directly with the relevant stakeholders through collaborative processes.

AnneMarie Dorland discusses the limitations that financial and time restraints placed on creativity in Canadian practice (Dorland, 2009) and Paul Springer notes the new trend for transparency and post-project auditing in practices in the UK in response to these budgetary pressures (Springer, 2009). In Dorland's exploration of routines in design studios she highlights the reality of contemporary practice as being less a space of play and more a space of routine and structure. This space presents systems described by Negus in Dorland as "well-established production and occupational formulae", (Dorland, 2009 p116) performed to meet client needs within restricted budgets. In Australian practice, many of these same problems were identified through interviews with practitioners. Sentiments of *doing whatever it takes to get the job done* were common, and the shortcuts described repeat those found by Dorland in Canadian practice, where routine and structure replace fluid creative processes.

The positive impacts of creativity on business are now widely documented, and the benefits that businesses can gain from design thinking are being widely discussed and recognised (Kimbell, 2011; Leavy, 2012). However the same cannot necessarily be said about the impact of business

on the designer's creativity, where financial concerns and imposed time constraints can place undue pressure on the designer's most essential creative work. Project budgets set by clients are an accepted part of professional practice. Sometimes budgets are generous, but more frequently they limit the possibilities for creative exploration as part of design thinking, design making (production) and design implementation (printing/launch). This hampers and reduces a designer's potential to explore alternative approaches for design and production, an issue that can also result in less sustainable end-outcomes that focus on aesthetics rather than ethics. Again we are faced with this idea of using "occupational formulae" (Dorland, 2009 p 116) in order to meet deadlines and budgets, and because the principles of sustainability are not part of this typical formulae, project constraints leave little space for their consideration. Designers have much to contribute towards solving the 'wicked problem' of sustainability, but will require appropriate time for problem definition, design thinking and creative work as well as an expanded understanding of what design for sustainability means.

The formulaic responses present in contemporary practice not only limit the potential to address sustainability through the work, but also undermine the value of design as a creative whole. The goal of creating 'great work' and winning awards appeared to be common amongst the designers interviewed, who valued creativity and felt it was a key contributor to design culture, thereby increasing the value of design. Whether the desired personal goal of those interviewed seemed to be the art of design or just wanting to leave their mark, most agreed on the importance of high quality creative work. Some practitioners implied that for some projects they would go over budget and wear any associated financial loss, suggesting that regardless of the financial implications, designers value the creative currency of practice. However, it was evident in these interviews, as well as in design literature that this creative currency is one of the first to be de-valued through processes of routine in many design practices (Dorland, 2009; Lasky, 2012). Also evident was the belief that sustainable design and 'good' design were mutually exclusive, a barrier that could be overcome through broader education on what design for sustainability entails and what it is capable of achieving.

Accolades for the creation of great work can form part of a designer's creative reputation, which in turn gains them greater respect from their clients. This respect can add value to the design process, acting as a platform from which the designer might leverage greater creative freedom or a bigger budget. Without this leverage, the designer can become confined to a space that is constantly pressured by considerations of time and money. Reflecting on the interviews also revealed a sense of fear or trepidation felt by designers who believed that practicing with the principles of sustainability could also impact their ability to create 'great work', by imposing limitations on their aesthetic. Interestingly, feelings expressed here were similar to those evoked by the limitations of client budgets, suggesting that the decision to avoid sustainability is underpinned by the perception that sustainability is about 'things' that could impose additional costs onto an already-strained budget and was therefore 'too hard' to contemplate or include.

Conclusion

Analysing contemporary communication design practice reveals the legacy of a long-term professional investment in outdated approaches that are more narrowly tied to routinized practices and immediate material outcomes. While the rapid evolution of digital technology is reshaping and disrupting this space, communication design practice remains entrenched in old ways of working, and the evolution towards more strategic modes of practice is somewhat slower than is required. Practitioners are knowledgeable yet underpowered to affect real change, and a routinized 'standard practice' tends to maintain this status quo.

There are untapped opportunities for overlapping methods from print and digital that are underpinned by strategy, but until methods that consider environmental and social sustainability become integrated into the norms of practice, communication design will most likely remain unsustainable in its focus and outcomes. Reviewing the literature and reflecting on interviews with Australian practitioners reveals that a broader understanding of sustainability is needed if it is to take on any kind of significant role in communication design practice. Engaging in deeper collaborations and repositioning the designer from resource to expert holds potential in creating approaches to sustainability that extend beyond making or using 'greener things'.

The ever-growing network of specialisations and niches within communication design also open up opportunities for deeper strategic engagement and collaborative approaches that would require relationship building and extended thinking; beyond 'things', beyond aesthetics and beyond profit. Systems thinking and design thinking can provide structure and space for a broader, richer consideration of sustainability; strategy could be harnessed to better align projects and their potentially sustainable outcomes. By celebrating difference, appreciating unique skillsets and synergistic flows, the use of these lateral thinking processes along with reflective practice can be targeted towards sustainable solutions. To fulfill the role of communication design more completely, designers must recognise the role that collaboration plays in strengthening designer positioning, and focus on outcomes that facilitate a shift from 'things' towards more interactive forms of communication. The 'wicked problems' of sustainability require clever solutions, and through deeper engagement with the principles of design for sustainability there is a clearer path for communication designers to tread in order to create significant change.

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Niki Wallace

Niki Wallace is an Australian-based communication designer, illustrator and copywriter. Her sustainable design practice provides unique personalised creative services that intersect print and digital design, and has recently begun to embrace elements of interactive/service design. She is a PhD candidate at University of South Australia with a research interest in sustainability for communication design where she is investigating sustainable design methods that could help dematerialise communication design through collaborative approaches underpinned by design and systems thinking. Niki is an early career academic and strives to live a zero waste lifestyle both professionally and personally; her personal zero waste experiences are also shared on her blog, Almost Zero.

Robert Crocker, D.Phil (oxon)

Robert Crocker teaches the history and theory of design and design for sustainability in the School of Art, Architecture and Design at the University of South Australia, where he is currently Deputy Director of the China Australia Centre for Sustainable Urban Development. Beginning his academic career as a historian of early modern science and philosophy, he became interested in social and environmental sustainability whilst working as a volunteer for a local pedestrian advocacy group in the 1990s. This led him to develop an interest in other aspects of social and environmental sustainability, and particularly the role of consumption behaviours and systems and their technologies in generating our present environmental crisis. His research focuses on the escalating role of consumption and consumerism in the production of wastes, pollution and emissions, and the designer's critical role in solving this 'wicked' problem.

His latest book, *Somebody Else's Problem: Consumerism, Sustainability and Design* (Greenleaf/Routledge UK 2016) won gold in the Axiom Business Book Awards for 2017. Other recent publications include two edited volumes, *Motivating Change: Sustainable Design and Behaviour in the Built Environment* (Routledge, 2013) and *Designing for Zero Waste: Consumption and Technologies in the Built Environment* (Routledge 2012).