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Design for social change and design education: Social challenges versus teacher-centred pedagogies.

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Abstract: Increasingly, various design-related processes are employed to address social issues. Design for social change entails the adoption of a variety of strategies that at their core are human-centred. There is an expectation that design education should cater for the competencies that will allow graduates to deal successfully with the challenge of design for social change. However, teacher-centered instructional approaches neglect end-users; they are not human-centered. This position paper argues that learner-centered instructional approaches that emphasise the use for example of ethnographic studies, action research and empathy, are better equipped to cater for design for social change. They tend to adopt an evidence-based approach that is human-centered. If design education is to contribute towards social change, then it needs to rid itself of the master-apprentice instructional model. Instead, it should adopt user-centred and evidence-based approaches, and thus move closer strategies that can facilitate a variety of social interventions.

Keywords: Design for social change, Design education, teacher-centred pedagogies

1. Introduction

Numerous organisations employ design-related processes to address a variety of social issues. For example, IDEO (www.ideo.com) employs design thinking to address a range of social issues such as poverty, lack of healthcare, as well as climate change and population growth. Similarly, La Victoria Lab (lavictoria.pe) uses design informed activities towards the improvement of aspects of the daily lives of the Peruvian people. Shea (2012) provides a list of twenty social and community-based case studies that employed the use of design-based strategies towards social outcomes. This list includes the establishment of a mobile safety centre that disseminates bilingual health information to Hispanic communities in the United States, a campaign to inform the public on the effects of global warming, and an initiative to foster contact between children of different ethnicities so as to combat

racial stereotyping. The use of design-related strategies to deal with social issues is not a recent phenomenon. In the past, William Morris, Walter Gropius, Buckminster Fuller, Victor Papanek, Richard Buchanan, John Thackara, Nigel Whiteley, and Bruce Mau made the case for socially useful design (Thorpe & Gamman, 2011, p. 218).

The gradual transition of design from a narrow focus concerned predominantly with communication and consumerism, towards a wider and more complex social and human-centred agenda, has preoccupied a number of authors (Sanders & Stappers, 2008, p. 10; Fleischmann, 2015, p. 101). Some of these authors mapped out the evolution and corresponding transformation of design into distinct stages based on the nature of outcomes. For example, Buchanan (2001, p. 10) argued that the evolution of design products went through four different and distinct epochs in the twentieth century (Table 1). He refers to these stages as 'orders' that represent different conceptions of design. In brief, the first order of design (symbolic and visual communications) deals with the challenge of communicating information, ideas, and arguments with the use of visual symbols such as words and images. The second order (artifacts and material objects) is concerned predominantly with the form and function of everyday objects, as well as their mass production; it is object-orientated. The third order (activities and organized services) focuses on how humans relate to each other through the mediating influence of products; it is action-orientated and this is encompassed in terms such as interaction design, design thinking and service design. Lastly, the fourth order (complex systems and environments) relates to the parts of a system, or the complex interrelations of various parts within individual ecologies such as a tax system or a national voting system (Thorpe & Gamman, 2011, p. 219).

Likewise, Jones (2014, p. 99) identified four generations of design evolution; each one of them represents a different paradigmatic shift in prevailing notions of design theory, as well as associated epistemologies and methods (Table 1). The first generation of design defined as 'rational', relates to the movement from craft to standardized methods; advances in engineering influenced it. The second generation defined as 'pragmatic', is associated with the customization of methods to varied contexts and focuses on natural systems. The third generation defined as 'phenomenological', deals with design cognition, i.e. notions of user-centred design, participatory design, and generally stakeholder involvement methods. Lastly, the fourth generation of design known as 'generative', is transdiciplinary, deals with complex systems, and is encompassed in terms such as service design. The main characteristic of this evolution and change is that although expertise and aesthetic commitment remain where appropriate as an objective, the design objective has shifted requiring more sensitivity to the knowledge a variety of users can bring to the design process (Cope & Kalantzis, 2011, pp. 45-63).

Table 1: Stages of design transformation

	First epoch/generation	Second epoch/generation	Third epoch/generation	Fourth epoch/generation
Buchanan (2001)	Symbolic, visual communications	Form and function of everyday objects	Activities and organized services	Complex systems and environments
Jones (2014)	From craft to standardized methods	Customization of methods to varied contexts	Design cognition and stakeholder methods	Transdiciplinarity, complex systems, service design

Inevitably, the gradual transformation of design brings to the forefront questions about design education and the extent to which teaching and learning in Higher Education (HE) caters for the changing focus of design. The purpose of this paper is to comment on the instructional strategies in design education that inhibit the fostering of competencies that support design for social change. As a starting point, a definition of design for social change is elaborated. This is followed by a description on some of the main strategies used to engage with design for social change. These are design thinking, ethnography, and action research. We highlight their main characteristics and identify their focus away from subjectivist epistemologies towards human-centred and evidence-based approaches that seek various forms of user input. This is followed by a critique of the instructional approaches in design education that inhibit design for social change. The overall objective of this article is to inductively contribute towards a rethink and re-evaluation of the teaching and learning practices in design education that remain anchored in the master-apprentice tradition to the detriment of human-centred, evidence-based and results-orientated design practice.

2. Defining design for social change

It is helpful to perceive design for social change as an umbrella term that covers a broad range of activities that share a focus on social issues, albeit based on different motivations, perspectives and approaches. Other parallel and similar terms are public-interest design, social design, social impact design, socially responsive design, transformation design, and humanitarian design. These terms make explicit the focus of the activities and the impetus behind them. They encompass a range of strategies informed by social responsibility and design-led social innovation (Thorpe & Gamman, 2011, p. 219). The umbrella approach to a definition was adopted by the authors of the Social Design Futures report (Armstrong, Bailey, Julier & Kimbell, 2014, p. 15), who defined the common denominator as activities that espouse various and mostly participatory approaches to researching, generating and delivering outputs towards collective and social aims, rather than pursuing an exclusive focus on consumerist objectives. Design led activities that are encompassed within this broad definition but not limited to them, include participatory design or co-design, design activism, critical design and disruptive design.

In Europe the roots of participatory design or co-design are traced back to the 1970s, and in particular to initiatives in the Scandinavian countries to engage workers in the development of systems that could improve their workplace (Sanders & Stappers, 2008, p. 7; Fuad-Luke, 2009, p. 148). Characteristic of participatory design is that it questions the notion that only experts can become co-designers. It stands in opposition to practices that built on hierarchy and control. In fact, participatory design requires that top-down control be relinquished and end-users become active and equal partners. In this respect, it adopts an egalitarian idea of sharing in the decision-making process. It entails creative input on the part of researchers, designers, and the people who will benefit from the experience (Sanders & Stappers, 2008, p. 9). Another way to consider this is that it involves diverse individuals working together, and it emphasizes the significance of networks of people over hierarchies (Fuad-Luke, 2009, p. 150).

Indicative of design activism, which was popularized by Papanek (1972), is an attitude of constant awareness in professional practice to avoid the creation of excessive and useless products. Design activism can be described as the development of new products and artifacts with an explicit consideration of social, environmental, and political issues (Deniz & Aryana, 2015). Julier (2013) places design activism within everyday contexts and processes of social and economic activity. The author argues that as an intervention, design activism responds to neoliberalism, and moves within the challenges of pre-existing environments, while also attempting to change and reprogram them. It

is also argued that design activism has explicit political intentions and usually functions outside formal government or commercial structures in settings such as grass roots activities and community groups (Armstrong et al., 2014, p. 29). At times it may seem with design activism that the element of user participation is relatively implicit in comparison to other socially aware design activities. However, it is difficult to conceive how design activism is possible without the context consisting of the social and political milieu that surrounds and informs the related process.

Disruptive design is often associated with the term disruptive innovation. They both refer to activities that seek to provide alternatives to well-established opinions, strategies, mindsets, and ways of doing things that tend to remain uncontested (Rodgers, 2015, p. 3). Disruptive design addresses interventions that tend to be small-scale, and focus upon a specific challenge to provide a preferred alternative; an improvement on the existing situation that a specific group of people experience (Rodgers, Tennant, Yauner & Innella, 2013, pp. 4-5). In this respect it differs from design activism in that it does not seek a wider critique of a social system. The dimension of user participation exists in the form of evaluating the final outcome on the basis of whether it improves on a specific problem or not. Some notable applications of disruptive design without excluding the possibility that it can be applied to other contexts, are in the areas of entrepreneurship and business (Paetz, 2014), provision of health services (Rodgers, 2015), and architectural landscape (Rodgers et al., 2013).

As implied by the term, the objective of critical design is to cultivate and disseminate critical awareness among designers and consumers alike through design outputs (Bardzell & Bardzell, 2013, p. 3300). Characteristic of critical design is that the designer plays the role of the expert and user participation is not sought (Sanders, 2006, p. 6). Subsequently, it can be argued that critical design rests at the periphery of design for social change because the response it aims to provoke is a critique of various social issues. Critical design facilitates this critique by disregarding and subverting social conformity, passivity, and the prevalent values of capitalist ideology, and thus contributes towards social emancipation (Bardzell & Bardzell, 2013, p. 3299). The outcomes of critical design focus on outcomes that have symbolic, cultural, existential, and discursive value; it has emancipatory potential. For critical design, functionality is associated with stimulating debate about the role of design in social contexts (Malpass, 2015, pp. 60-61).

Table 2 below shows the distribution of the above four different design activities according to the level of user input and participation.

Table 2: Design activities in relation to user participation/engagement

Design for social change			
Participatory design / co-design	Design activism	Disruptive design / disruptive innovation	Critical design
Designers relinquish control. End-users are active participants.	Designers promote awareness of social issues through outputs that avoid excessive and useless designs.	Designers provide an alternative outcome as improvement on the existing situation that people experience.	Designers subvert social conformity through outputs that question the prevalent values.

3. Methodologies and strategies

As an umbrella term that accommodates a variety of design activities, design for social change defies well-established and prescriptive epistemological parameters and displays variously discursive approaches in terms of strategies that inform data collection, analysis and outcomes. At times, these methods and strategies may overlap. There is however, some consensus in terms of the prevalent research strategies used to inform the development processes and subsequent outcomes. On top of the list are design thinking, ethnography, and action research. This is not an exhaustive list, but rather the most common strategies.

The challenges posed by design for social change are open-ended, in the sense that they are not well defined, and have no right or wrong solutions. Such challenges are often referred to as 'wicked problems' (Buchanan, 1992). Methodologies and strategies that adopt a linear and strictly prescriptive approach towards addressing these problems are inappropriate because they seek to unpack what is, as opposed to what might be or can be. Design thinking entails an abductive approach to problem solving and a solution-focussed approach driven by an iterative process. A well-known model of design thinking is articulated in the IDEO booklet with the title 'Design Thinking for Educators' (Fierst, Diefenthaler & Diefenthaler, 2011). This approach entails the following five steps that a group of problem-solvers would collaboratively work through and not necessarily in a linear fashion (Table 3): a) Discovery (Understanding the challenge, preparing research, gathering inspiration), b) Interpretation (Searching for meaning, framing opportunities), c) Ideation (Generating and refining ideas), d) Experimentation (Making prototypes and getting feedback), e) Evolution (Moving forward, trying something new) (Fierst et al., 2011, p. 15).

Table 3: The IDEO design thinking model

Design Thinking					
	1. Discovery	2. Interpretation	3. Ideation	4. Experimentation	5. Evolution
IDEO model	Understanding the challenge, research, gathering inspiration	Searching for meaning, framing opportunities	Generating and refining ideas	Making prototypes and getting feedback	Moving forward, trying something new

Engagement with design thinking requires the ability to integrate different types of knowledge, such as technological opportunities, user needs, and various factors that are culture specific, as well as prototyping and testing (Rylander, 2009). The process is inherently multidisciplinary in that it requires the continuous crossing of different disciplinary boundaries. However, the one underlying factor that informs all stages of design thinking is user empathy (Köppen & Meinel, 2015, p. 16; Carlgren, Rauth & Elmquist, 2016, p. 43). Empathy is a seemingly fuzzy term but in the broadest sense it entails a deep user understanding, of the ability to place oneself into someone else's position, to adopt their perspective, and develop a mutual understanding (Köppen et al., pp. 16-17).

Action research shares common characteristics with design thinking in that it entails an iterative cycle of problem identification, diagnosis, planning, developing an output, and finally evaluating an outcome (Cassell, & Johnson, 2006. p. 784). Scholars perceive this cyclical progression in various ways. For example, Dickens and Watkins (1999, pp. 128–29) argue that action research consists of a series of steps that are interrelated and involves fact-finding, conceptualizing, planning, and execution, followed by a repetition of these phases. Similarly, Cohen, Manion, and Morrison (2011, p. 345) provide a list of different conceptualizations of action research that includes diagnosis, action and reflection, as well as planning, acting, observing, and reflecting. The most well-known model is technical action research. The latter seeks to address a pre-defined challenge, problem, or hypothesis with the researcher supervising an intervention or testing and evaluating a design artifact among a group of participants. Feedback from each iterative cycle is used until a satisfactory outcome is achieved. Due to the practical nature of technical action research, it is argued that it can be integrated into design practice (Swann, 2002).

Another model of action research worth mentioning is participatory action research, where the focus is not on the design and improvement of an artifact, but rather on seeking to better the condition(s) of a community or group of people. In participatory action research, the researcher is a facilitator who can guide, formulate, and make aware, and the relationship with the participants is one of equal engagement where the latter contribute meaningfully to the different stages of the endeavor (Cohen et. al, 2011, pp. 348-349). The researcher is likely to lose some control over the direction of the process (Noffke & Somekh, 2005, p. 91), and may even withdraw from the facilitation role (Grundy, 1982, p. 30). The participants reflect upon the different stages of the endeavour, and attempt to change themselves or how they perceive a particular challenge, and consequently aim to change their environment or circumstances (Dickens & Watkins, 1999, p. 134). This version of action research is also known as emancipatory action research (Tawe & Bland, 2007, p. 200).

The notion of empathy is more evident in participatory/emancipatory action research, and here there are similarities with co-design and participatory design; top-down control is relinquished and end-users become active and equal partners. In contrast, technical action research shares similarities with design thinking (Romme, 2004), and employs a hierarchical process with instrumental input by the researcher.

In contrast to design thinking that seeks to produce outcomes based on what might be or can be, ethnography attempts to unpack what is, and to capture in an inductive manner the patterns and characteristics of lived human experiences and the culture of communities of people in situ. It does this through careful immersion and detailed observation of the day-to-day lives of the people involved (Sangasubana, 2011, p. 567). The underlying principal is that through a comprehensive understanding of the subtlety of peoples' lives, habits, motivations, patterns of behavior and problems, better products or services can be designed, or at the very least more relevant design propositions can be made (Nova et al., 2015, p. 8). Ethnography however, is a time-consuming process that entails a long-term engagement and this could last anything from months to years. Within design practice, such long-term commitment is not always viable due to business demands and time limitations (Salvador, Bell & Anderson, 1999, p. 36; Laurel, 2003, pp. 34-35). Consequently, a condensed version has emerged among design practitioners known as design ethnography, and this has a more applied and practical dimension in that it aims to frame design decisions as opposed to develop a general theory (Nova et al., 2015, p. 34; Salvador, et al., 1999, p. 36).

Beyond the essential skills required to undertake ethnographic research, which includes the ability to collaborate with others, to observe and identify the interrelationships between people and their

environments, to practice empathy, and to accurately gather, record and evaluate diverse information (Sangasubana, 2011), there is an added complexity with design ethnography. This relates to the ability to undertake analysis of material and information closely linked to design practice, the pursuit of 'messy' tactics, i.e. not necessarily linear, as well as the use of inductive and deductive reasoning – all to be applied in a short time span. This is the 'designerly' approach associated with design ethnography (Nova et al., 2015, pp. 117-118). Consequently, in the list of essential competencies one could add – although admittedly not unique to design ethnography – the ability to employ critical thinking and synthesize relatively quickly and efficiently various forms of useful information, and to expand on them as these emerge from the close observation of the target group.

There is minimal research that identifies the competencies and skills that foster design for social change. The methodologies and strategies described above, suggest that the required competencies can often overlap and entail a balancing act between them as circumstances arise and the respective contexts require. Overall, however, the list – not unique to design education – includes the ability to demonstrate empathy, adaptability and flexibility. In addition, of significance is the ability to develop awareness of the respective environment and the factors that influence it, to exercise effective collaboration and communication, and to practice abductive and critical thinking including the ability to evaluate and integrate different types of knowledge, and finally a persistent attitude towards life-long learning. This list to a large extent coincides with that of a study by the Communication Initiative (2003), which includes skills in understanding the target audience and their context, ability to listen and observe, use of participatory methods, ability to build partnerships and trust, ability to plan and implement tasks including research, and an attitude of tolerance, openness and sharing.

4. Teacher-centred pedagogies in design education

It is generally acknowledged that Swann (2002, 1986) articulated one of the earliest critiques of teacher-centred pedagogies in art and design when he questioned the instructional value of the traditional atelier model. The author castigated the traditional methods of teaching that relied heavily on one-on-one tutorials, often resulting in the tutor demonstrating skills to improve aspects of the learners' work. This instructional approach has never been valued for its challenge to the intellectual development of the learners (Souleles, 2013, p. 250). Along similar lines and some years later, a critique articulated by Belluigi (2016) about studio learning, suggests that mimetic learning, i.e. focusing on the master's practice, rather than the learner's process of learning, makes this model inappropriate for contemporary studio learning because the emphasis is on mimesis and the objective is for students to develop tacit knowledge and not analytical thinking skills.

The crit is another derivative of the teacher-centred approach, and one of the most-widespread learning methods used by art and design educators. It involves the individual presentation of completed student projects to a group of peers in the presence of the teacher and sometimes an appropriate industry expert. The purpose of the crit is to provide informal feedback and to function as a form of formative assessment. However, since the dominant view of the teacher prevails, often without a challenge or discussion, the crit has been described as a powerful vehicle for the induction and enculturation of students into the dominant mores and beliefs of a programme and its discipline (Souleles, 2011, p. 73).

Feast and Melles (2010) describe these mores as containing a limited understanding of the nature of research outputs. Combined with a tradition of professional practice and lack of doctoral level education in the sector, they treat designed artifacts as equal in status to empirical research. Thus, they accentuate the practice-based nature of design as the distinguishing characteristic of the related

disciplines. Practice-based research appeals to students and academic staff who have limited exposure to academic scholarship and a limited view of research methodology. In this tradition of instruction one often encounters the presence of subjectivist epistemologies and a corresponding emphasis on design concerned with personal expression. This emphasis on individualism is a complete antithesis to notions of empathy and the ability to develop a deep user understanding, to place oneself into someone else's condition and to adopt their viewpoint, and finally to develop a mutual and commonly-accepted understanding.

Muratovski (2011) argues that teacher-centred learning experiences are responsible for design students exhibiting an aversion of or incapability to deal with the content of other disciplines outside of their core practice. Often through these instructional processes, student misgivings, prejudices and knowledge gaps usually go unattended because their instructors are products of the same learning process and hold similar viewpoints. Subsequently, the continuous crossing of different disciplinary boundaries, which is an essential component of design for social change, is not catered for. An immediate by-product of this gap is that students exposed to mono-disciplinarity do not learn how engage with wicked problems, complexity, ambiguity, unpredictability, the crossing of different disciplinary boundaries, and evidence-based approaches to design, all of which are associated with a plethora of social issues.

Subsequently, we posit that where there is over-reliance on teacher-centred instructional strategies, there is a corresponding inability to foster the competencies needed to practice participatory design, co-design, design activism, disruptive design, critical design and other design related strategies that are human-centred. In fact, it is argued that the competencies supported by teacher-centred instructional strategies are diametrically opposed to notions of user-centred and evidence-based design.

5. Conclusion

Design for social change entails the adoption of a variety of strategies that at their core and in various degrees, are human-centred. The increased expectation that design education should cater for the skills and competencies that empower design graduates to deal successfully with the challenge of design for social interventions, brings to the forefront reflections on the pedagogies that rely upon teacher-centered and master-apprentice instructional approaches. This position paper argued that if design education is to contribute effectively towards social change, then it needs to rid itself of the master-apprentice instructional model and the reliance on subjectivist epistemologies; the latter are in direct opposition to the range of competencies needed to support design for social change. Instead, design education needs to adopt user-centred and evidence-based approaches, and thus to move closer to design strategies that can facilitate a variety of successful social interventions.

References

Armstrong, L., Bailey, J., Julier, G., & Kimbell, L. (2014). Social Design Futures: HEI Research and the AHRC. Swindon: Arts and Humanities Research Council.

Atweh, B. & Bland, D. (2007). Action Research in Contexts of Change and Inequality. In B. Atweh, M. Balagtas, A. Bernado, M. Ferido & I. Macpherson (Eds.), Ripples of change: A journey of teacher education reform in the Philippines (pp. 193- 219). Philippines: Commission on Higher Education (CHED).

Bardzell, J., & Bardzell, S. (2013, April). What is critical about critical design?. In Proceedings of the SIGCHI conference on human factors in computing systems (pp. 3297-3306). ACM.

Belluigi, D. Z. (2016). Constructions of roles in studio teaching and learning. International Journal of Art & Design Education, 35(1), 21-35.

Buchanan, R. (2001). Design research and the new learning. Design issues, 17(4), 3-23.

Buchanan, R. (1992). Wicked problems in design thinking. Design issues, 8(2), 5-21.

Carlgren, L., Rauth, I., & Elmquist, M. (2016). Framing Design Thinking: The Concept in Idea and Enactment. Creativity and Innovation Management, 25(1), 38-57.

Cassell, C., & Johnson, P. (2006), Action research: Explaining the diversity, Human Relations, 59(6), pp. 783–814.

Cohen, L., Manion, L., & Morrison, K. (2011), Research Methods in Education. London: Routledge,

Cope, B., & Kalantzis, M. (2011) 'Design' in Principle and Practice: A Reconsideration of the Terms of Design Engagement, The Design Journal, 14(1), 45-63.

Deniz Çetin, Ö., & Aryana, B. (2015, April). An analysis of the influence of design activism and socially responsible design approaches on design education. In 11th European Academy of Design Conference.

Dickens, L., & Watkins, K. (1999), Action research: Rethinking Lewin, Management Learning. Special Issue: The Action Dimension in Management: Diverse Approaches to Research, Teaching, and Development, 30(2), pp. 127–40.

Efeoglu, A., Møller, C., Sérié, M., & Boer, H. (2013). Design thinking: characteristics and promises. In Proceedings of 14th International CINet Conference on Business Development and Co-creation, Enschede, Continuous Innovation Network (CINet) (pp. 241-256).

Feast, L. (2010, June). Epistemological positions informing theories of design research: implications for the design discipline and design practice. In Proceedings of 'Design and complexity', the 2010 Design Research Society International Conference, Montreal, Canada.

Feast, L., & Melles, G. (2010, June). Epistemological positions in design research: A brief review of the literature. In Proceedings from the 2nd International Conference of Design Education, Sydney, Australia.

Fierst, K., Diefenthaler, A., & Diefenthaler, G. (2011). Design thinking for educators. Riverdale, CA: IDEO.

Fleischmann, K. (2015). The democratisation of design and design learning: how do we educate the next-generation designer. International Journal of Art and Sciences (IJAS), 08(06), 101–108.

Friedman, K. (1997). "Design Science and Design Education." The Challenge of Complexity. P. McGrory (ed.). Helsinki: University of Art and Design Helsinki UIAH, 54-72.

Fuad-Luke, A. (2009). Design activism: beautiful strangeness for a sustainable world. Earthscan: London.

Grundy, S. (1982). Three modes of action research. Curriculum Perspectives, 2(3), 23-34.

Jones, P. H. (2014). Systemic design principles for complex social systems. In Social systems and design (pp. 91-128). Springer Japan.

Julier, G. (2013). From design culture to design activism. Design and Culture, 5(2), 215-236.

Köppen, E., & Meinel, C. (2015). Empathy via design thinking: Creation of sense and knowledge. In Design thinking research (pp. 15-28). Springer International Publishing.

Laurel, B. (2003). Design research: Methods and perspectives. Cambridge, Massachusetts: MIT press, pp. 34-35.

Malpass, M. (2015). Criticism and Function in Critical Design Practice. Design Issues, 31(2), 59-71.

Muratovski, G. (2011). In Pursuit of New Knowledge. The Need for a Shift From a Multidisciplinary to a Transdisciplinary Model of Doctoral Design Education and Research. Conference proceedings on

'Doctoral Education in Design' (Hong Kong, 22-25 May 2011) organized by Hong Kong Polytechnic University School of the Design and the Swinburne University of Technology Faculty of Design.

Noffke, S., & Somekh, B. (2005). Action Research. In B. Somekh & C. Lewin (Eds.), Research methods in the social sciences (pp. 89-96). London: SAGE Publications.

Nova, N., & Léchot-Hirt, L. (Eds.) (2015). Beyond Design Ethnography: How Designers Practice Ethnographic Research. Geneva: Haute école d'art et de design

Paetz, P. (2014). Disruption by Design: How to Create Products that Disrupt and then Dominate Markets. New York: Apress Media.

Papanek, V. (1972). Design for the real world. New York: Pantheon Books.

Rodgers, P. (2015, July). Designing with people living with dementia. In K. Christer (Ed.) Proceedings of the 3rd European Conference on Design4Health, Sheffield. Sheffield Hallam University: Sheffield.

Rodgers, P. A., Tennant, A., Yauner, F., & Innella, G. (2013, April). Disruptive Design Interventions as Change Agents. In The 10th European Academy of Design (EAD '10) International Conference (pp. 17-19).

Rylander, A. (2009). Design thinking as knowledge work: Epistemological foundations and practical implications. Design Management Journal, 4(1), 7-19.

Salvador, T., Bell, G., & Anderson, K. (1999). Design ethnography. Design Management Journal (Former Series), 10(4), 35-41.

Sangasubana, N. (2011). How to conduct ethnographic research. The Qualitative Report, 16(2), 567-573.

Sanders, B. N., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. Co-design, 4(1), 5-18.

Sanders, Elizabeth B. N. (September 2006). "Design Research in 2006". Design Research Quarterly 1 (1): 1-8.

Shea, A. (2012). Designing for social change: strategies for community-based graphic design. New York: Princeton Architectural Press.

Souleles, N. (2013). The evolution of art and design pedagogies in England: Influences of the past, challenges for the future. International Journal of Art & Design Education, 32(2), 243-255.

Souleles, N. (2011). Elearning in Art and Design: Perceptions and practices of lecturers in undergraduate studio-based disciplines and the rhetoric of innovative practices (Doctoral dissertation, Lancaster University).

Swann, C. (2002). Action research and the practice of design. Design issues, 18(1), 49-61.

Swann, C. (1986) Nellie is dead, Designer, April; reprinted in Art Design and Communication in Higher Education, Vol. 1, No. 1 (2002), pp. 50–3.

The Communication Initiative (2003, January, 27). Mapping Competencies for Communication for Development and Social Change: Appendix C-1: Preliminary Results of Delphi Study. Retrieved from http://www.comminit.com/job_vacancies/node/1310

Thorpe, A., & Gamman, L. (2011). Design with society: why socially responsive design is good enough. CoDesign, *7*(3-4), 217-230.

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