Digital Interdependence: Sustainable Innovation in Transnational Times?

Ann Light

Communication and Computing

Research Centre

Sheffield Hallam University

Sheffield

UK

a.light@shu.ac.uk

Abstract

The availability of digital means to make relations between different parts of the world more apparent begs the question of how we, as interaction designers and concerned citizens, first, show this interconnection, and, second, avoid aggravating the negative impact of innovation activities. I have termed these considerations *design for interdependence* and consider them here in the context of innovation practices.

Keywords

Interdependence, innovation, globality globalism, production, consumption, whole cost, managing resources.

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous. See [3] for help using the ACM Classification system.

Introduction

Questioning the ostensibly unquestionable premises of our way of life is arguably the most urgent of services we owe our fellow humans and ourselves.
—Globalization: The Human Consequences, Bauman [1]

The interrelatedness of technology policy, design, implementation and use across the world has been apparent since trade began and currencies first started circulating. But, as a world, we have never had such

effective tools for showing this interconnection and presenting the impact of activity in one place in terms of social, environmental or economic change elsewhere. The availability of the means to make these relations clear begs the question of how we, as designers and concerned citizens, first, show this interconnection, and, second, avoid the negative impact of innovation. I have termed this *design for interdependence*[1].

Interdependence, as it is used here, is drawn from literature on child development. A baby is dependent on care-givers. As the child grows, he or she becomes independent. But a fully rounded adult is not independent of all care, responsibility or ties. *Interdependence* is a desired state in which links with others are recognized, acknowledged, developed and celebrated. Applied here, interdependence involves an acknowledgement of the interconnectedness of life: of social, cultural and environmental factors in their richness. To work towards interdependence in this developmental sense is to recognize the impact of and collectively seek to interpret causal chains, which as individuals and societies we frequently ignore, not least because the impact is difficult to anticipate, attribute or control. And it is to welcome the interaction of social, cultural and environmental factors for constituting us and making life meaningful. If interconnectedness is a fact, then interdependence is a goal.

The reason to discuss these relations now is political; we are facing an environmental crisis precipitated by climate change and exacerbated by profligate use of resources. There is talk of catastrophe and recent examples in several parts of the world point to how vulnerable urban development can be. States are facing dramatic changes in their power to support and promote the wellbeing of their citizens.

We are also far more aware of each other and of world events than we were before the onset of, first, broadcast media with its international spread, and, now, social media such as Twitter, providing local means to respond to and/or rebroadcast materials. These developments have made news of changing conditions both instant and omnipresent.

However, there is also something particular about the applications we can build using computation combined with digital networks and their platforms for connecting. Two kinds of connection are relevant here. The first is social, characterized by Web2.0 tools, as mentioned above. Anyone with the right access can now find and organize people with specified characteristics across time and space - be that globally or in our own locale - and engage in generating materials with them. The second kind involves combining information sources. This might mean attaching data to physical objects or using specialized sensors to collect new types of information. Searching and cross-referencing major datasets to gather inferences can provide insights into physical, social and economic challenges. For instance, inference is already used to combat fraud by monitoring spending patterns; to join patients with suitable organ donors within a viable distance; and to throw up adverts targeting our particular characteristics and desires. If we add the potential of connected groups to connected data, the mix could make a powerful force for informed change.

Last, networked media do more than connect, they highlight connection. For instance, we notice people and organizations that use digital networks because they pop up on Twitter or Facebook. Networked media make this connected way of life more visible, but they do not automatically make their own impact visible. Indeed, they easily mask this impact by allowing places and people without connectivity to fall off the map. So, in considering the power of networks, we must also consider the social geography of digital connections.

---

[1] This paper owes some sections to [5], written at the same time.

The last reason to consider interdependence, then, is to consider how new forms of engagement supported by digital networks can disadvantage some while offering opportunity to others.

Light [4] describes how tracking, forecasting and management systems that allow merchandisers to control the passage of products along the value chain have proved unsuitable for use by micro-enterprises and the barriers that exist to take up, while [5] reports how the introducing these tools in one part of the world impacts on other parts, to the detriment of conditions for the poorest producers. (As the best-resourced group becomes better able to manage its data and exploit the implications of new knowledge, those without the means to do so become relatively less well-equipped. Further, the kinds of data and the form in which they are required to work in the new systems put added pressure on the fringes where old methods and new processes meet.) But this is not new… the ethical arguments for greater consideration of interconnectedness have been repeatedly made.

At this workshop, I would like to consider some socio-economic matters in designing for interdependence. They deal with innovation, globalism and globality, using Beck's [2] distinction between the latter two. This may be worth revisiting here: Globalism is the merging of politics with economics to produce an uncritical neoliberal market dominance that transcends nation states, societies, etc. Globality relates to 'world society', denoting the totality of social relationships which are not integrated into or determined by national-state politics. It is the recognition that there are no longer 'closed spaces' in the world [2:10].

Unfortunately, most current innovation is closely linked with globalism. The usual innovation processes seek to globalize products and services for maximum return on investment. This form of global reach can create common experience across the world, but does so without any commitment to the outcomes, or only in terms of market domination and brand tie-in. The need for regulation frequently transcends national boundaries into a stratosphere where only voluntary codes of conduct exist. Real accountability is most often only to a small group of shareholders. Individual designers are relatively powerless to affect this dynamic and many, while keen to take an ethical approach to designing, do not extend their critique to policy, regulation and other contexts of production. There may be work done to glocalize (consider local issues in a global context), but only in as much as users require something more regionally attuned to ensure market penetration.

Light [5] considers innovation in interaction design to support awareness of and a desire for interdependence – tools to manage resources, balance needs and highlight cause and effect. Interdependence requires *whole cost* assessments of innovation and an engagement with socio-technical aspects of systems. This casts world society in an active role - gathering and sharing information - and requires knowledge about cultures of production as well as of consumption. With these activities comes another set of challenges. How can such data be gathered and conveyed to where it is most use? How might the regulatory environment be made stricter to support the generation of this data? How would decisions about cause and effect be managed – would there simply be too much data and too many necessary trade-offs to make it meaningful? Would innovation cease without more confident business models? Or can world society supply an alternative survival strategy?

This workshop's participants are likely to be critical of both globalism and neoliberalism. Researchers interested in transnationality are unusually likely to have a strong political sensibility and a rich mixture of cultures in their upbringing. They will seek out opportunities to explore how others live, and, as a

result, often have a foot in many camps. They may be world citizens, prepared to travel and call many places home, for whom the quality of life in far-away cities is a matter of immediate concern and not beyond the imagining. They understand the significance of cultural heritage in its widest sense [3] and attempt to respect it. Simultaneously, they recognize that neither 'national' nor 'transnational' are political constructions that define culture or identity. But world citizens are not common and 'world society' may be a convenient term rather than a matter of mass self-identification.

Can we really aspire to a global social reach? How does one cultivate a sense of global interdependence in people at the other end of the scale from transnationality researchers, whose sense of communality is based in a small area and in a close network? In Britain, many environmental activists deliberately eschew a world view; some border on nationalist politics, others have adopted the mantra 'Think global, act local'. Local energy saving can support a world initiative on peak oil, but does local caring scale? If so, what promotes relations that result in a wide weave from small threads of activity and concern? Rebecca Solnit [6] gives an optimistic - though not naïve - account of thousands of unacknowledged people working to respond to disasters, reminiscent of Star's observation of the invisible management of mundane caring work [7].

Would the act of thinking globally and negotiating outcomes across a wider group of stakeholders automatically reduce some of the differences that are currently prized by communities? Probably. All contact results in cross-fertilization. So, is there a bland utopia at the finishing point of any designing for interdependence programme?

Perhaps this is an unnecessary concern. Negotiation between cohabitants in and across regions began thousands of years ago and continues to be a balancing act. Even if cultural factors were to stabilize, there will always be changes in local conditions (especially in the environment, cf recent floods, earthquakes and volcanic eruptions) to reset the potential equilibrium that could be reached. Interdependence cannot meaningfully aspire to a stable end state. (It might be more realistic to conceive of interdependence as only attainable in the dystopia of constant flux and anarcho-syndicalism.)

These sets of questions, about the nature of innovation and the people who would constitute a world society that puts pressure on current models, concern more than technology. The new forms of organization made possible by computation, networking and inference make interdependence more topical than it has been at any other time, both in terms of impact and in terms of our scope to manage that impact through assessing, reporting and working together to mitigate and channel it. And even by opening the conversation about it, we start to move the equilibrium a little further from globalism. And that has to be a good thing…

If you don't like the effect, don't produce the cause.
Funkadelic, 1972

1. Bauman, Z. Globalization: the Human Consequences, Polity Press, Cambridge, UK, 1998
2. Beck, U. What is Globalization? Polity Press, Cambridge, UK, 2000
3. Council of Europe Framework Convention on the Value of Cultural Heritage for Society (http://conventions.coe.int/Treaty/EN/Treaties/Html/199.htm)
4. Light, A. Bridging Global Divides with Tracking and Tracing Technology. IEEE Pervasive 9(2), 2010 28-36
5. Light, A. Digital Interdependence and How We Design for it, Interactions, Mar/Apr (2011).
6. Solnit, R. A Paradise Built in Hell: The Extraordinary Communities That Arise in Disaster, 2010.
7. Star, S.L. and Strauss, A. Layers of Silence, Arenas of Voice: The Ecology of Visible and Invisible Work, JCSCW 8(1-2), (1999).