Reflections on co-creation: an open source approach to co-creation

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Abstract:
Co-creation is a term that spans disciplinary boundaries including design, performance studies, marketing, and business, yet it is often used without awareness of these related disciplinary counterparts. This paper reflects on some of the various definitions of 'co-creation' within academic literature, distilling them into a set of cohesive attributes. Co-creation has relevance to the design sector and beyond, particularly when it is understood and considered in the light of the Open Source Software (OSS) movement, which has close links to many of the underlying principles of co-creation. This alignment, we argue, draws on the strengths of co-creation and can lead to a wider understanding and adoption of applied co-creation practices throughout the design community, Creative Industries, HCI, and management fields.

Keywords: co-creation, free software foundation, open source software, codesign

Introduction

Co-creation is, on the face of it, a simple, seemingly self-explanatory term; namely the joint creation of an artefact, service, value system, or experience. Yet, perhaps because of its apparently easily grasped etymology, co-creation is a word used across disciplines with a range of interpretations and is strangely not a term widely adopted by the design community or Creative Industries, rather its cousin, 'co-design', is favoured. This paper considers the uses and definitions of co-creation, situating it within the wider context of collaborative, user-centred design approaches in an attempt to tease out the underlying principles associated with co-creation across disciplinary boundaries.

Co-creation, as generally understood, enhances stakeholder involvement in different phases in the process of design (Sweet, 2001: 70-84), or to consider it in a broader sense, it can be defined as 'any act of collective creativity' (Sanders & Stappers,

2008). However, as even a cursory glance at the academic literature will demonstrate, co-creation is a term that is predominantly used within business and marketing fields, centring on 'value co-creation', 'value extraction', and customer experiences. But co-creation, we argue, does not consist simply of customisation or crowdsourcing, it requires full participation of stakeholders where the skills and learning of the group enable a common goal that aligns with participants' interests (Sweet, 2001). As a metaphor, co-creation can be described as participating in a group orienteering race. The characteristics of a walking experience are navigation, cooperation and gaining personal and group experiences.

Co-creation can be more meaningfully understood and utilised through considering it in the light of the Open Source Software (OSS) movement, which, we posit, shares many of the underlying principles of co-design. This enhanced context can then, we argue, draw on the strengths of co-creation and lead to wider adoption and understanding of co-design throughout design community, Creative Industries, HCI, and management fields.

Towards a Consensus of Co-Creation

In this section we consider key definitions of co-creation in order to identify a set of characteristics that will provide us with a working definition.

As a quick examination of books containing 'co-creation' and its variant 'cocreation' indicates, it was only in the mid-1960s that the term began to gain momentum, with a steep rise from 1985 (see fig. 1). Likewise, 'codesign' (a term often used synonymously with co-creation in design circles) has a similar though slightly delayed trajectory. It is perhaps worth noting is that the hyphenated 'co-creation' is more commonly used in comparison to the compound 'codesign'.
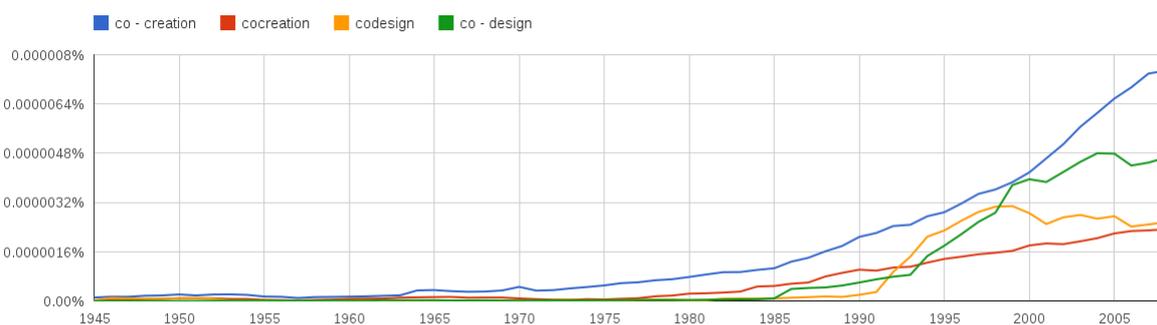

Figure 1: The use of terms co-creation, cocreation, codesign, and co-design between 1945 – 2008 (Source: Google Books Ngram Viewer.)

Whilst the graph (**Figure 1**) cannot in itself explain the reasons for the rise in 'co-creation' from the 1960s onwards, from a design perspective this was an interesting decade. According to Lesley Jackson (1998), during the 1960s there was an increasing

culture of social consciousness and spiritualism that led to a creative revolution in which idealism influenced the creativity of practitioners. Jackson defines the 1960s as a period when designers and craft practitioners were looking for new methods, shifting away from market research strategies toward new collaborative models (Jackson, 1998:222).
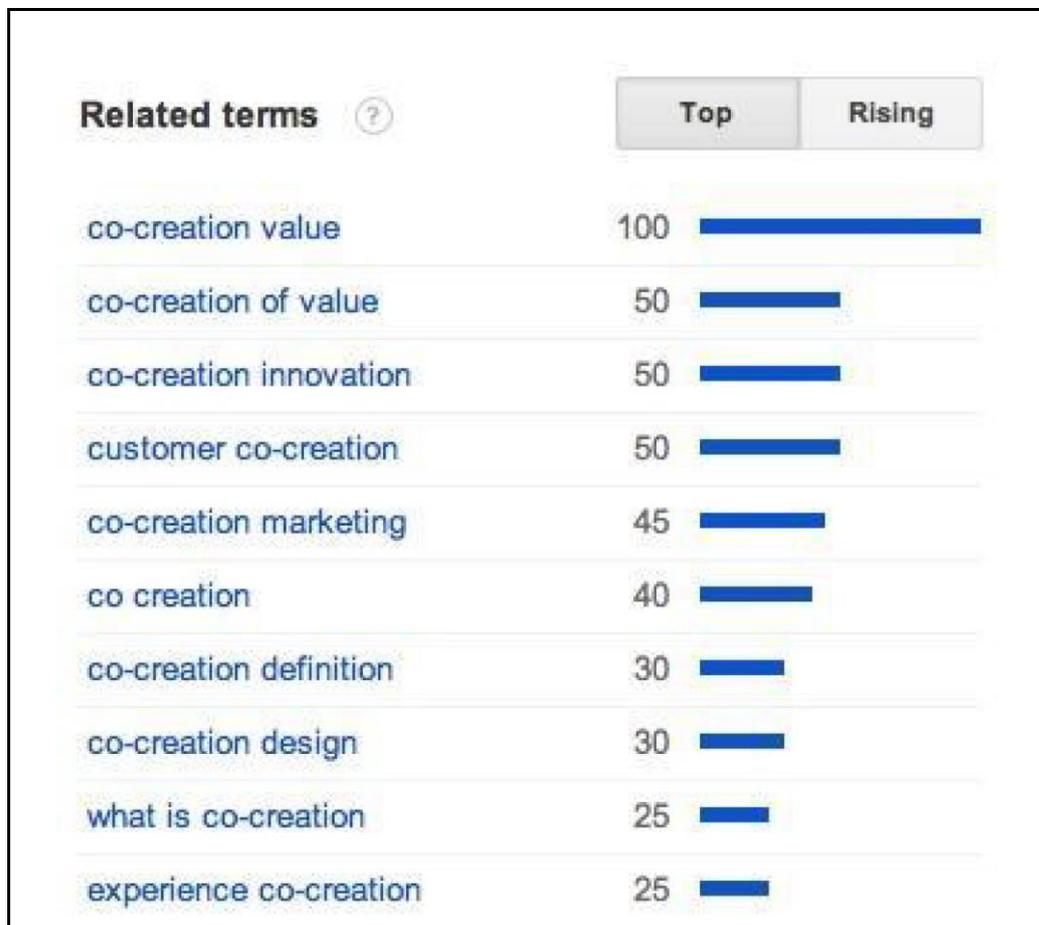

Figure 2: Related Google worldwide search terms to "co-creation, cocreation, codesign, co-design" search query between Jan 2004–Sept 2013. (Source: Google Trends, generated 8 September 2013.)

If we look beyond the realms of academic publications towards a broader picture of the co-creation landscape, browser search terms and trends around co-creation (**Figure 2**) clearly demonstrate that co-creation is often considered within the context of marketing and business (e.g. Prahald & Ramaswamy, 2004; Debenham & Simoff, 2012).

      Similarly, as public participation methods in product life cycles (that are arguably co-creation processes) become increasingly common, such as Linux development or Microsoft Beta versioning, it could be reasoned that this understanding of co-creation originates from marketing and business, rather than design practice (Sweet, 2001). In their seminal paper, Prahald & Ramaswamy (2004) use 'co-extraction' as a synonym for co-creation and incorporate value creation within their definition of co-creation, as a solution to customer dissatisfaction and manufacturers' strategies around distinguishing

themselves in the marketplace. Their definition of co-creation is centred on experience and dialogue and should, they state, incorporate the following characteristics:

- Joint creation of value by the company and the customer.
- Allowing the customer to co-construct the service experience to suit her context
- Joint problem definition and problem solving
- Creating an experience environment in which consumers can have active dialogue and co-construct personalized experiences; product may be the same (e.g., Lego Mindstorms) but customers can construct different experiences
- Experience of one
- Continuous dialogue
- Innovating experience environments for new co-creation experiences
- (Prahalad & Ramaswamy, 2004)

Co-creation, as referred to within design, enhances public involvement in different phases in the process of design (Sweet, 2001). However, the terms co-creation and codesign have often been used interchangeably, and are perceived as being closely aligned with user centred design (e.g. Norman, 1998) and participatory design approaches (e.g. Muller and Kuhn, 1993; Spinnuzi, 2000; Kemmis and McTaggart, 2000). This paper takes the stance that codesign is a specific form of co-creation (Sanders & Stapper, 2008), and should be categorised as a sub-concept under the umbrella of co-creation. Codesign's primary focus is on the development phase of a product or service lifecycle, and is centred on, the process of collaboration, innovation, and creativity between designers and stakeholders.

In their paper on the landscapes of design research, Sanders & Stapper (2008) define co-creation as:

> … any act of collective creativity, i.e. creativity that is shared by two or more people. Co-creation is a very broad term with applications ranging from the physical to the metaphysical and from the material to the spiritual, as can be seen by the output of search engines.

This definition is very wide and similar to various practices of co-creation in religion. For instance, in *The Art of Goethean Conversation*, Marjorie Spock defines it as an individual and collective experience, something very democratic which anyone can contribute to, and it is through a process of carefully listening to others' narrative and approaches towards a particular subject (Marjorie Spock, 1983).

Co-creation is also considered within performance studies, for example, where

the audience is not merely passive, but a *shared presence* in live performing arts (Prendergast, 2010). In traditional oral storytelling, the role of the listener is critical in determining the shape of the story, where 'no eyes or ears hear the same story', particularly within spontaneous storytelling, where the plot is improvised during the performance with input from the listeners (e.g. Maxwell, 2010; Drew, 2001, p. 84).

Whilst this discussion of co-creation is by no means an exhaustive review, it is clear that the uses and understandings of co-creation span a range of disciplines. However there are commonalities that the authors feel can be helpfully drawn out; namely, co-creation requires the following four components:

- Collaboration between two or more parties (e.g. performer-audience, designer-end user, company-customer).
- An element of creativity.
- A means of actively seeking engagement with collaborators (i.e. from the leading partner, such as company, performer, or designer).
- Low entry barrier (i.e. all collaborators are able to meaningfully contribute suitable to their skills sets through the co-creative tasks and context).

The Principles of Open Source Software

Open source software (OSS) development is a very successful model of collaboration for both production and development and is, we argue, relevant yet distinct to co-creation, as defined in the previous section. This section outlines the main principles found in OSS development.

Recent years have seen a movement towards the creation of many distributed, crowd sourced projects, delivered and supported by information and communication technologies. Consequently, there have been many distributed engineering projects initiated and started over the last couple of decades however there are not many successful large scale projects, due to exponential complexities in organising and managing the scale of crowds and individuals. Linux kernel development is an exemplary case; there was no conventional organisation in charge to manage or plan the crowd of developers and enthusiasts, rather it was primarily volunteers and interested individuals who were working on it and submitting code and documentation (Moon & Sproull, 2000).

The social and legal conventions of Linux were (and still are) based on the free software foundation's (FSF) philosophy as follows:

A program is free software if the program's users have the four essential freedoms:
- The freedom to run the program, for any purpose (freedom 0).
- The freedom to study how the program works, and change it so it does

your computing as you wish (freedom 1). (Access to the source code is a precondition for this.)

- The freedom to redistribute copies so you can help your neighbour (freedom 2).
- The freedom to distribute copies of your modified versions to others (freedom 3). By doing this you can give the whole community a chance to benefit from your changes. Access to the source code is a precondition for this.

(Free Software Foundation, 2013a)

These four statements along with the communication facilities and leadership model made Linux Kernel developments one of the most successful distributed engineering systems in the world.

Specific OSS principles (drawn from Raymond, 1999; Moon & Sproull, 2000; Proffitt, 2009) relevant in the context of this paper include the following:

- **Scratching a personal itch:** This is one of the major reasons for open source projects; i.e. a person initiates an open source project or starts contributing to it due to personal needs.
- **Social motives:** This includes a sense of competition amongst contributors that is not generally present within the marketplace, rather it is a positive mechanism for motivating contribution (Hertel et al., 2003; Barabási, 2002).
- **Intrinsic or personal motives**: These include incentives around personal or professional development and learning, technical challenges, and elements of fun, as well as boosting external perceptions and reputations of the contributor for taking part in a voluntary project.
- **Inclusiveness:** Open source projects enable anyone to contribute to projects, providing that contributors have the required specific skills and knowledge to be able to access and edit the code.
- **Ownership**: In accordance with the FSF philosophy, the four freedoms will be in place for any contributor to be involved and part of the shared ownership.
- **Easy to opt in/out:** Contributors are not bound to take part and are able to stop their development and contribution at any point.
- **Modularity, clear responsibilities and connectivity:** The characteristics, realised through both asynchronous and synchronous collaboration tools, facilitate and make sure that the contributors' needs have been met. Modularity ensures that the system is flexible and adaptable to individuals' needs, whilst allowing participants with different interests

and levels of skills to contribute. Both asynchronous and synchronous connectivity enables contributors involved in the project to work to their own time zones and constraints guided through clear responsibilities and release policies. This allows individuals to recognise and be recognised for the importance of their contributions.

- **Release policies:** That is, sets of standards and rules for publishing the outcomes from the collaborators. This could be code, design, documentation, or prototypes of a product. These policies ensure that the quality of the outcomes and overall project standards are acceptable.

Discussion

A reflection on the OSS principles as outlined in the preceding section suggests four key areas that are currently underrepresented and limited in scope within co-creation processes. These are *openness and clear responsibilities*, *participative leadership*, a sense of *shared ownership* and *efficient use of skillsets*.

Openness and Clear Responsibilities

This is a prominent feature of Linux development and in general an important aspect of a successful OSS project. Individuals function differently at different times, so having the ability to join and leave a group easily and the ability to communicate and contribute to the project at different times, i.e. synchronicity and asynchronicity can be important elements of co-creation models. This approach to membership and participation brings other complexities and inter-dependencies with it.

Participative Leadership

There are various models used across peer production or collective acts, such as cooperative distributions of goods, as alternative more ethical ways of sourcing foods etc. However, in general they are managed by a small number of people and not the whole community. In OSS development the leadership model is generally based on participative leadership concepts with a relatively flat hierarchy, for example see Burke & Kraut's (2008) description of Wikipedia's structure. The participative leadership aspect of OSS development means that all individuals can be part of the collective decision making process. A shared, open model such as this is perhaps more easily achieved in online or software projects, which naturally lend themselves to collaborative, asynchronous technologies and tools. Despite this, the use of web-based collaborative technologies in product design and management does exist and has been used previously, for instance mass customisation products such as NikeID or in value co-creation on websites such as eBay. This proves that translating this principle into co-creation from OSS is indeed possible.

Shared Ownership

Another important property of OSS is its ownership and transparency. This parameter could be viewed from various different angles such as trust-based modes of organising production, from a cultural and social point of view or from internal motivations and their role in peer production or peer creation. Shared ownership also brings questions about contributions and quality control, i.e. how to qualify them and who takes these decisions. In many OSS projects it has been resolved through rigorous peer reviewed processes to guarantee the integrity of the whole system and the quality of the contributions in a semi-democratic and participative manner. Ownership is one of the key resistant factors against co-creation from companies according to Sanders & Stappers (2008), who argue that it is very difficult for successful companies who own product IP rights to begin to relinquish this control and ownership amongst contributors.

Another outcome of the ownership model is localisation, which means that communities can have local supports for the product, which economically supports the community. For instance in OSS developments many software solutions have been adopted by governments of developing countries such as Brazil, China, India and South Africa through customisation and support services (Henley & Kemp, 2008).

Efficient Use of Skillsets

Whilst it is possible to argue that OSS development is *not* inclusive and that only individuals with certain skills can contribute to these projects, from another point of view, these environments are entirely inclusive within their own community of users. In the case of Linux Kernel for instance, the highly customisable and modular design allows more developers to be able to contribute to it based on their own range of skills and interests. This modularity enables developers to take the basic building blocks of Linux and create their own distributions based on their interests, for instance the Linux distributions designed and developed for musicians or media artists. This ability, although not perfect, may raise concerns about small user base and specialisation, but the OSS approach offers a way to utilise diverse skillsets through parallel versioning without compromising customisation.

Closing Thoughts

This short paper has presented some of the complexities surrounding 'co-creation', noting the disciplinary variety and ambiguity of its use. We have also attempted to juxtapose the characteristics of collaborative open source software (OSS) development processes into the co-creation context, and have suggested four areas from OSS that could be built on within current co-creation practices. The 'best fit' definitions for co-creation may in fact be open source development schemes, where participation is

facilitated by both personal and common understanding and alignment in the objectives of the individual members and creative communities.

This connection between OSS and contemporary co-creation in business, design and performance is at an early stage in research. More work is required on unpicking and examining the correlations and significance of the relationship and characteristics, and this may be most helpfully realised through in-depth case studies and empirical data mechanisms. However, this enhanced context can, we argue, draw on the strengths of co-creation and lead to wider adoption and understanding of co-creation throughout the design community, Creative Industries, HCI, and management fields.

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