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A Multilevel Approach for Social Transformations and its Implications on Service Design Education.

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Abstract: This paper is looking at two parallel transformations -in the methodological approach to service design and in the way new social initiatives are designing new solutions – to suggest a framework to re-organise service design education.

The paradigmatic framework for the service design discipline is shifting from a methodological approach that qualified services as “what is not a product” to a new approach that moves the control over the value creation process from designers and producers to the interaction among a constellation of stakeholders.

Together with this shift, a parallel transformation can be observed in society, with the emergence of new organisational forms, based on collaboration, P2P and sharing concepts, which have a disruptive power over the existing social and economic system. The new initiatives, are often promoted and controlled by citizens, users or constellation of stakeholders and are framed in production/business models that do not refer to the value-chain model that inspired the industrial paradigm.

Both those transformations are challenging the discipline of service design and in particular service design education, because it calls for a perspective shift, from a *normative* perspective, in which the designer (and consequently the service provider) was deciding modes and characteristics of value creation, to a perspective in which the designer/service provider is simply mediating the process of co-creation by generating means that support social transformation. This paper will propose a framework of new competences and tools that are being developed in design education and research, in order to address the different levels of this structure.

Keywords: Service Design, Service-Dominant Logic, Design Education

1. Introduction

Social transformation associated to the rapid evolution of technology and accelerated by the intersection of different social megatrends, from global migration to economic crisis, from population ageing to globalisation, are challenging the education systems, which are supposed to equip the future generations to deal with a context that the educators themselves have never lived.

This situation is challenging every education and research discipline, including design. Service design is part of this big transformation. This area of studies in particular, is changing under the pressure of the contextual conditions - the social changes outlined above - and the revision of the academic approach to services. A new approach to services is also challenging the role of designers in the economic and social value creation system.

The emerging perspectives call for a more solid framework for service design education, that takes into account the new role of service design and proposes new tools and knowledge for designers.

1.1 The revision of the academic approach to Service Design

The earliest courses on service design were aiming at addressing the increasing complexity of the corporate offering. Those courses were looking at services as a necessary systemic framework in which products are produced, distributed, sold and consumed. The qualification of services in that context was based on the assumption that services are a complementary offering to products and their function was considered in relation to the competitive advantage service can provide when providing products, the systemic aspects they referred to (the case of Apple is usually mentioned as a relevant example) or for the opportunity to use services as a way to design or control the experience of a product (Ulrich & Eppinger, 2003). Consequently, services were identified as “what a product is not”. This approach was very well exemplified by the “IHIP” paradigm, which listed the main characteristics that make services different from products: Intangibility, Heterogeneity, Inseparability and Perishability (Parasuraman, Zeinhaml, & Berry, 1985).

This paradigm is still very useful to characterise services and, above all, to highlight some of the main factors that are emerging when dealing with the design of services, such as time, interaction or ownership. It is a very useful point of view also because it helped introducing useful service design tools.

In the advanced economy however, the increasing relevance of value exchanges in which manufactured goods were not involved requires a reconceptualization of services. Vargo and Lusch propose a perspective shift from a product-centric perspective to a perspective that focuses on the value created by the interaction between the consumer and the service context. The shift they propose is from a good-dominant to a service-dominant logic (SDL). In this perspective, *value is created at the point of what we have been calling “consumption” and, more recently, “experience”, rather than during production* (S. Vargo & Lusch, 2014, p. 8). The implication of this new perspective are that: 1. The customer is always a co-creator of value and 2. *The enterprise cannot deliver value, but only value proposition* (S. Vargo & Lusch, 2014, p. 53). From the designers’ point of view, this perspective change implies that designers can design products, interfaces and processes supporting the interaction (Secomandi & Snelders, 2011), but they cannot have full control on the value production process and cannot prescribe or predict the exact outcome of the interaction happening through services (Morelli & De Götzen, 2016).

The academic approach to service design and the service design education need to be revised according to this new perspective; a new conceptual framework would be critical to map and qualify the existing knowledge and to highlight possible gaps.

1.2 Service design and social transformation

Contemporary innovation processes are very often based on the communities' capability to produce spontaneously organised social initiatives that address urgent and crucial problems using new logics and a new approach. Such phenomena have been observed by Manzini (Manzini, 2015), who interpreted them as an expression of the human attitude and capability to solve everyday problems. In other words, they are the expression of what Manzini defines as *diffuse design*.

Manzini observes that this diffuse capability to produce solutions is something often spontaneous and unplanned, that neither designers nor service providers can control, but that can be somehow supported or stimulated, by creating places for innovation, or tools for conversation that trigger or support the spontaneous innovation process.

A similar approach is proposed by Hilgren et al (Hilgren, Seravalli, & Emilson, 2011) when creating prototypes, or *provotypes* that trigger social transformation mechanisms.

Diffuse design, or a broad participation to a design process cannot be controlled with the same approach designers had when designing for product manufacturers. It is evident that this approach cannot use the same parameters and the same attitude of the existing good-dominant logic. In this logic indeed, production and consumption were part of two distinguished spheres and the value production process was fully controlled by designers and producers. The need to involve citizens and to capture their problem solving capabilities and attitudes is calling for a new design approach. A large debate is ongoing now, to discuss the tools that can be used to address larger and open co-design processes related to social innovation (Kimbell, 2013), citizens' participation (Hilgren et al., 2011) new generations of public services (Bason, 2010) or healthcare services (Cottam & Leadbeater, 2004a, 2004b)

2. Reframing design in the new value-creation process

Although interaction has always been seen as a crucial characteristic of services, the value creation process based on a clear separation between production and consumption process does not consider the actual user participation to the creation of value. Norman and Ramirez (Normann & Ramirez, 1994; Ramirez, 1999) highlight that contemporary value production processes can no longer be described through a linear model, in which different stakeholders progressively add new value to a product; value that is eventually *destroyed* by a *consumer*. The best way to represent the value production in the present socio-economic system is to look at the constellation of actors, including the users, that are contributing to qualify the value of a product or service.

This moves the value creation process from the designer's hands to a process of co-creation and from the design studio to the *theater of the interaction* between the various stakeholders that contribute to the definition of a service. In this context designers do not *design services*, but rather *design for services* (Kimbell, 2011). The challenge implied by the new Service Dominant Logic is to redefine the design competences, knowledge and skills that are required (if they are still required) in this logic.

The structure of the value creation process in the new logic is in fact more complex, and includes a broader logical space than just the service scene. In analysing the role of design in organisational transformation, for instance Sangiorgi (2011) proposes to articulate the change brought about by service design on three levels: Service Interaction, service design and service transformation. When focusing on value production the three levels can define different design focuses:

- The level in which value is co-produced, defined as *value-in-use* by Vargo and Lush (2008). At this level the focus of design activities is on the interaction among the stakeholders involved in the services and the experience resulting from such interaction. Designers can contribute by designing touchpoints and orchestrating them in sequences that support users in generating their own experience of the service.
- An *infrastructuring* level, in which service providers (enterprises, designers and/or administrators) organise the resources to activate and support the value co-production process. Here the design focus should be on the organisation of the production system for a service. The designer's task is to aggregate and organise human resources and technological elements in a consistent service proposition.
- A *Governance/transformation* level, in which service providers address framework instance that would support service scalability, reproducibility and any form of economy of scale that would make the service sustainable in broader contexts. The design focus at this level is on the identification of the elements of the service ecosystem, that would make the solutions replicable and scalable. Designers operate at this level by suggesting policies or framework actions, that may bring about incremental or radical changes in the socio-technical landscape around the service.

A different definition of design is possible for each of the levels of this structure: design represents a diffuse problem solving capability at the first level, it represents a set of professional and expert skills at the second level and a set of strategic visions and knowledge at the level of governance.

This structure is therefore the ground for a revision of any education program in service design.

3. The challenge for service design education

Service design education is still young¹; very few education programs are explicitly addressing the demand for specific competences for designing for services. In many cases service design represents a minor part of other design education programs (such as industrial or interaction design); however, the relevance and extension of services in contemporary economy, in corporate strategies and in the public sector is calling for a better definition of design competences related to services. This justifies the emerging demand for new service design education programs, which fully address the complexity of this area of studies.

In general terms, the tools for designers to work with services are mostly related to the basic design competences, that are (Morelli & Tollestrup, 2007):

- The analysis and interpretation of the context for the design action (*analytical tools*);
- The development of new solutions (*design tools*);
- The representation and communication of the new solutions among the stakeholders in the value-creation process (*representation tools*)

¹ The first master in Service Design was initiated in Köln in 1991. Still in 2011 however, Kimbell (2011) was pointing out that many service designers were educated within the disciplines of product or interaction design or from sporadic initiatives within engineering design programs. In the same contribution, Kimbell also notices that “although the field of service design is small and fragmented, without strong professional bodies or a developed research literature, it is visible through conferences within universities, and a professional network (Service Design Network). New, specific master programs on Service Design were only proposed in the last decade, starting from the Masters in Service Innovation at Laurea University (2009), Product-Service Systems Design at Politecnico di Milano or Service Systems Design at Aalborg University (2012).

Those competences are needed to work at all the three levels of the value creation structure mentioned in the previous section, focusing on different aspects of the design process. It is therefore possible to create a map of the competences required at each logical level. (Table 1).

Table 1 Design competences at the three levels of the value co-creation process

	Understanding	Transforming	Communicating
Interaction/experience	Identify stakeholders, Actors Profiling	Supporting participation Co-designing scenarios Triggering innovation	Inspiring participants
Organisation	Analysing networks Analysing motivations	Proposing service architectures. Creating platforms for interaction Proposing Business cases	Visualising organizational structures
Replication/Scalability	Understanding ecosystems and power relations	Proposing business models Defining policies	Communicating visions, policies and design opportunities

3.1 Design at the *Value in use* level

The value-in-use level is the level in which value is co-created by a constellation of stakeholders. The value designed at this level is the result of the interaction and negotiation between different individual problem solving capabilities. This is therefore the result of diffuse design capability, rather than the outcome of an expert design action². However, several case studies and interesting examples have been presented at this level (Cottam & Dillon, 2014; Murray, Burns, Vanstone, & Winhall), which suggest a role for designers in supporting value co-creation; in particular the activity of designers can still be relevant:

- designers' analytical competences could be used to highlight the potential of the socio-technical context, identify and profile relevant stakeholders; synthesise such profiles in personas.
- Provocations, scenarios and other forms of visualisation can be used to trigger participation and to support the stakeholders' convergence towards shared value and objectives

² It is worth noticing that such a diffuse problem solving attitude is relevant not only in social innovation programs, but also in more "normative" design actions. In many cases in which the *solution* owners (designers', producers or technical experts) do not consider the full range of usage possibilities the users (the *problem owners*) are forced to use their own tacit or practical knowledge to find their own solution (Von Hippel, 2005)

- Prototypes and other narrative representation tools can be used to inspire the stakeholders' action and figure out the experiential values to be considered in the new solution.

The tools used at this level have been widely described by several authors, such as Polaine and Løvlie (2013) and Stickdorn and Schneider (2011) and in several online platforms, such as Servicedesigntools.org or servicedesigntoolkit.org. They include, among other tools (Table 2)

- Personas, customer journey maps and cultural probes, to support the analytical phase
- Scenario building, service journeys, living labs, service jams, to support the design process
- Scenario representations, experience and functional prototypes or provotypes (Blomkvist, 2014) to visualise and inspire interaction.

3.4 Design at the infrastructuring level

The level of infrastructuring concerns the designers' specific professional expertise, that can be used to:

- Analyse and map actors' network that can support the value co-creation process, highlighting motivations and incentives that would support participation
- Propose new service architectures, or platform that support interaction by lowering the threshold of competences and skills required for participation and activation
- Represent the service architecture, using the most appropriate communication tools to visualise the systemic aspects and concrete potential of solutions

The concept of service architecture is not new to service design studies, it was introduced with the HiCS project in 2004, (Manzini, Collina, & Evans, 2004) together with a series of tools to support designers in organising resources for new service solutions. The architecture of the solutions of the HiCS project were aimed at organising networks of stakeholders to provide well defined results (a "normative" approach that is also common in the good-dominant logic). More recent projects, such as the *Citadel on the Move* (citadelonthemove.eu) and *Open4Citizens* (Open4Citizens.eu) explore the possibility to create platforms of tools to code new applications using open data to empower citizens to create new services based on open data. In the service-dominant logic the role of such platforms should be on generating tools, services, channels and filters to support and stimulate the mutual interaction between value producers and users (Choudary, 2015)

The tools used at this level include (Table 2):

- Analytical tools: Actors' network maps (Morelli, 2006) customer value constellation (Patrício, Fisk, Falcão e Cunha, & Constantine, 2011) and service ecology maps (Polaine & Løvlie, 2013) to highlight the relevant systemic components;
- Design tools: Motivation matrix (Manzini et al., 2004) to highlight incentive to interaction and use cases (Morelli & Tollestrup, 2007) to qualify the details of the interaction; and
- Design and Representation tools: User Journeys, Service blueprint (Polaine & Løvlie, 2013; Stickdorn & Schneider, 2011) and service architecture maps (Manzini et al., 2004).

3.5 Design for scalability and transformation

Although the academic attention of service design is quite recent, service scalability and reproducibility is not a new issue in a good-dominant logic, where franchising and large scale-information-based distribution systems are providing efficient solutions. The perspective change to a service dominant logic however, opens new questions. When services are seen as a mean to support value co-creation, collaboration, and stakeholders creativity, their potential to create highly personalised and localised solutions becomes more evident; but consequently the issue of scalability and reproducibility emerges as a need to ensure the economic sustainability of such solutions. New public services to address local social problems, such as social integration, active assistance of elderly people, prevention of social diseases, are often designed around specific communities, although their economic sustainability depends on the capability for public administrations to extend them to larger geographical contexts (Morelli, 2015b). Furthermore in this context it would be important to take into account not only the shape of the new solutions, but also the tools, skills and organisational capabilities to ensure ongoing change (Burns, Cottam, Vanstone, & Winhall).

Scalability and transformation of the context however, are not a trivial problem to address. Ehn (Björgvinsson, Ehn, & Hillgren, 2010) highlights the link between concrete and local design initiatives to support participation and the democratisation of innovation and Morelli (2015a) is emphasising that the mechanisms of scalability require an accurate analysis of a service ecosystem and its possible replication mechanisms.

This logical level calls for designer's capability to

- Understand and address strategic and power relations within local or logical ecosystems (local communities or organisations)
- Propose models that address the issues of business or social sustainability of the new solutions
- Communicate visions that amplify local initiatives into a broader policy or framework change

Tools to visualise stakeholders' maps, business model canvasses or motivation matrix could prove very useful to address the higher level of abstraction of the issues emerging at this level (Table 2).

Table 2 An overview Design tools to address value creation

	Aims of the design activity	Understanding	Transforming	Communicating
Focus of the design activity	Tools for: Value production	Analysis	Design	Representation
Interaction	Value in use	Service Encounter analysis Customer Journey Map Personas	Scenario co-design Experience prototypes (Polaine & Løvlie, 2013) Provo-types (Blomkvist, 2014)	

		Interviews Cultural probes	Service Journey Cards Workshops Hackathons Living Labs	Video Prototypes
Organisati on	Infrastructuring	Actors' network map	Service Journey Service Architectures Blueprints	
			Motivation Matrix Use cases	
Replication /Scalability	Governance	Actors map (Polaine p84)	Service Architecture	
			Business Model Canvas Motivation Matrix	

4. Discussion

The tools proposed in this paper are certainly not new; they have been developed since the earliest studies in the service design discipline as part of a progressive definition of a toolbox for designers and they helped designers to deal with the most peculiar aspects of service, such as time and interaction. Indeed the design discipline has immediately pointed out the relevance of those aspects.

The full complexity of the picture of a professional profile for service designer however, can only emerge when shifting from a good-dominant logic, in which services are considered as a product or a complementary component of product-related offering, to a service-dominant logic, which moves the control over the value production processes from the designers' hands to the users. The new perspective is particularly effective in describing processes that imply social innovation in a new generation of services based on peer-to-peer interaction, bottom-up initiatives and participatory processes. It highlights the dominant role of users/citizens/customers in shaping services and clarifies that service designers and service providers are *producing services*, but rather *organising supports for value creation*.

The mind set implied in the Service Dominant logic however, has a broader scope than social innovation initiatives. S. Vargo and Lusch (2014) argue that the Service Dominant Logic is a way to look at all economies as service economies, and therefore this logic suggests a new framework for any design action aimed at producing value: when this value is embedded in material products the value co-production process happens through the interaction between the product and its users; when instead, the value is embedded in a service proposition the value creation process is performed by the constellation of stakeholders interacting in the service. In both cases the designer must understand his role in supporting the value creation process (through the design of the material and immaterial components that trigger or facilitate the process), and must be able to identify policies and organisational structures that will facilitate the diffusion and replication of the solutions.

This perspective shift need to be included and properly addressed in service design educations, in order to qualify a professional profile for service designers. The high number of design programs including service design are often limited in time and scope and therefore only focusing on some of those aspects. Service design teaching modules are often focusing on aspects related to interaction, experience or communication, when they are framed in industrial or interaction design programs. Other teaching modules are instead emphasising aspects related to the organisation of the service as

a production system, thus looking at expert knowledge for the organisation of service architectures or platforms for interaction. The existence of such modules in other educational programs are certainly a good way to introduce relevant aspects of services, according to specific perspectives of each educational program. The need to focus on a specific service design education however, is calling for a wider and more complete perspective. The three levels of the logical structure proposed in this paper imply three different areas of competence, that service design educations need to address, in order for service designers to *design for services*, which means working in a systemic context, negotiating and communicating with experts from other disciplines: interaction/experience/industrial designers when working at the value co-creation level, engineers, IT system expert, and even social scientists when working at the infrastructuring level and managers and policy experts, when working at the scalability/governance level.

Conclusion

This paper aims at creating a broad and comprehensive framework that can make service design education more adequate to the emerging societal challenges. Far from being exhausting, the framework proposed in this paper is a first attempt to provide a unifying picture of competences and skills required for designers to play a relevant role in the development of new services. The new service configurations emerging in the last few years, based on new roles and new aggregations of stakeholders are suggesting new forms of value-production and consequently new ways of dealing with the design of services. The Service-Dominant Logic suggest the best perspective to deal with such changes and to frame the activity of service design.

The role of designers in the new logic is shifting from solution providers to enablers. Designed are now required to build propositions, rather than creating normative processes, to enable transformation, rather than defining solutions. The design competences to develop in the new logic should aim at supporting change at different levels, from the changes in the value-creation process to organisational innovation and transformation at the broader scale.

Even though this perspective is not adding new methods or tools to the service designer's toolbox, it is changing the way designers relates to their context and their everyday practice. The landscape is changing and it is calling for a new way of framing competences and skills service design education should provide. The framework proposed in this paper should therefore be interpreted as a window opened on a changing landscape.

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