

“Un sacco di sport”: design toward a new socially responsible production chain for dismissed textiles

*Original*

“Un sacco di sport”: design toward a new socially responsible production chain for dismissed textiles / Campagnaro, Cristian; Ceraolo, Sara. - In: JOURNAL OF TEXTILE DESIGN, RESEARCH AND PRACTICE. - ISSN 2051-1795. - ELETTRONICO. - (2019), pp. 1-15. [10.1080/20511787.2019.1623155]

*Availability:*

This version is available at: 11583/2783714 since: 2021-04-30T20:23:12Z

*Publisher:*

Taylor & Francis

*Published*

DOI:10.1080/20511787.2019.1623155

*Terms of use:*

This article is made available under terms and conditions as specified in the corresponding bibliographic description in the repository

*Publisher copyright*

(Article begins on next page)

**Journal of Textile Design Research and Practice**

*Position papers and reports of research currently in progress*

**UN SACCO DI SPORT: design toward a new socially responsible production chain for dismissed textiles.**

*Author's postal and email address*

*Cristian Campagnaro*

[cristian.campagnaro@polito.it](mailto:cristian.campagnaro@polito.it)

*Politecnico di Torino*

*Dipartimento di Architettura e Design*

*Viale Mattioli 39*

*10125 Torino, Italia*

*Sara Ceraolo*

[sara.ceraolo@polito.it](mailto:sara.ceraolo@polito.it)

*Politecnico di Torino*

*Dipartimento di Architettura e Design*

## **Abstract**

The following article is a position paper based on a case study of “Un sacco di sport”, a design driven research project for the development of a new socially responsible production chain for dismissed textiles resulting from promotional campaigns of city events. The project is based on the hypothesis that, in the city of Turin, a strategy based on the upcycling of dismissed textiles offers unseen opportunities for the development of innovative models of education for design students and circular economy chains, based on both reciprocity and social inclusion. This will be addressed in the paper through a description of the different phases of the project, with a focus on the potential offered by the dismissed textiles to shape design concepts developed by students of the Meta-Design course at Politecnico di Torino. In addition, the paper will underline the importance of collaboration in strengthening the relationship between the numerous stakeholders that took part to the process. The methodology adopted by the research presents a participative orientation and a collaborative design approach. This approach, tested by “Un sacco di sport”, was significantly influenced by the combination of relational resources, skills and capabilities offered by the stakeholders. Due to the ongoing nature of the project, it has produced a number of significant outcomes that contribute to discourse around the value of waste materials, the importance of collaboration in strategic processes and the role of design for the promotion of new frameworks of active citizenship. At the same time, issues for further research have been identified, especially in regard to the ambition to make projects such as “Un sacco di sport” the basis for a new policy-model for the city of Turin in relation to the valorization of the dismissed textiles, based on collaboration and social inclusion. This paper positions the research towards this ambition.

**Keywords:** Social design; waste material; sustainable design; social cohesion; circular economy; design education

### **1. Introduction: ‘Un sacco di sport’ project**

‘Un sacco di sport’ is a design driven research project for the development of a new socially responsible production chain for dismissed textiles resulting from promotional campaigns of city events. The research started in 2015 in the city of Turin and it is ongoing. It touches upon interdisciplinary topics such as circular economy, social cohesion, design education and agencies empowerment.

The specificity of the research process undertaken lies in cooperation within and between a network of actors from public to private sector, including city management, local cooperatives and associations. The research is led by professors and researchers from Politecnico di Torino, in collaboration with: the students from the Meta-Design course of the Bachelor Degree in Design and

Visual Communication of Politecnico di Torino; the Department of Services for disabled people; the Department of Sport and Leisure of the City of Turin, InGenio – Bottega d'arti e Antichi mestieri; and ten craft laboratories managed by social cooperatives and associations belonging to InGenio's network, which aims at social inclusion of vulnerable citizens through tailoring.

This wide alliance of actors offers a rich combination of relational resources, skills and capabilities that contribute to the development of the project by a constant interaction with each other.

## **2. Research Context and Background**

### **2.1 Dismissed textiles: the trigger for a new (sporty) challenge**

The origin of 'Un sacco di sport' can be metaphorically found in kilometres of dismissed promotional textiles laying in the municipality's storages after every big event hosted by the city of Turin. This was also the case of the one-year-long event - "Turin 2015, European Capital of Sport".

The event "Turin 2015, European Capital of Sport" embraced the legacy left by the Winter Olympics Games celebrated in Turin in 2006. On the occasion of the Winter Olympics, the city went through a deep transformation, in terms of both urban-development and residents' mind setting. Being a Winter Olympic Games hosting site turned Turin from a post-industrial town into a welcoming and friendly destination for tourism. For this reason, when the city was awarded "2015 European Capital of Sport", the municipality engaged large financial resources to celebrate the event and to recall the atmosphere of vitality and participation experienced in 2006.

The event "2015 European Capital of Sport" required a significant production of communication and promotional materials media, the so called "look of the city". The majority of these were made of textiles. Thousands of coloured flags decorated the street-lights in the city centre, kilometres of banners wrapped the facades of buildings, the sport arenas, the streets fences, or to cover the barriers used during the sport competitions.

Even if every major venue of the event had a specific name and different logo on the banners, the graphics were coordinated and presented a high-impact homogeneity. Red, white and orange were the most recurrent colours, with white striped inspired by basketball, volleyball and soccer fields. The banners were made mostly in thick PVC (polyvinyl chloride). The flags and the sheeting were made in polyester of different weights.

These materials are economic, printable and robust. However, in December 2015, after the closing ceremony of "Turin 2015, European Sport Capital", the city dismissed the visual identity system of the event and all the materials in good condition were collected in a storage centre and no longer used.

## **2.2 InGenio and Politecnico di Torino: there's a new team in town**

InGenio - Bottega di arti e antichi mestieri is a municipal service for the coordination of a network of local craft laboratories that promotes social inclusion of vulnerable citizens via occupational activities. The service refers directly to the Department of Services for People with Disabilities of the city of Turin, and it is managed by education experts in creative activities. InGenio's work consists also in the management of two locations in the city centre: a boutique and an art gallery.

The boutique is a shop where all the laboratories of the network sell the products produced by their teams of artisans. Pottery, scarfs, dolls, jewellery, serigraphy t-shirts, cards and basic furniture are some of the products that can be found in the shop. Every item is handmade and unique. Through the boutique, InGenio promotes cooperation among the cooperatives and associations in the field of "educative craftsmanship" and initiatives for social awareness and cohesion. InGenio also manages a small art gallery where temporary artistic showcases from the laboratories are displayed throughout the year.

As noted, the products sold in InGenio's boutique are produced by a network of craft laboratories held by social cooperatives and associations located in the city of Turin and the surrounding region. The laboratories promote a positive relational environment, where vulnerable citizens coming from different backgrounds and with different ages can experience self-confidence and solicit their capabilities. With the help of educators, these spaces enhance personal capabilities and creative talents through practical activities. Participants included vulnerable members of the community, from different backgrounds and circumstances. According to InGenio's philosophy, the participants of the laboratories are, first of all, creative artisans with unique abilities. Acknowledging the long experience of InGenio's network in occupational activities and sensing the possibility of valuing waste materials through craftsmanship, the Department of Sport offered to InGenio the opportunity to use the dismissed materials from "Turin 2015, European Capital of Sport" for free to create new products to be sold in the boutique.

The great amount of materials, the special features portrayed by the polymeric materials, the power of the visual identity and the willingness to sell a new series of products, which would be innovative in terms of design and would be produced jointly by all the laboratories, appeared to be the perfect opportunity to explore a collaboration between InGenio and Politecnico di Torino, underpinned within a Protocol of Agreement: instead of reproducing existing templates, the laboratories would produce upon the product concepts designed specifically by the students of the BA in Design and Visual Communication.

## **2.3 The concepts by Design students from Politecnico: a revolutionary game plan**

The course of Meta-Design is embedded on the BA Design and Visual Communication of the Politecnico di Torino. The course is held at the second year of the Degree and it aims to provide to the students cultural and technical skills in order to design new types of product or product systems that bear in mind the various demands of use, the various technologies available and of the relative

environmental fallout. The students experience the process of collaboration in constructing a design scenario (De Giorgi and Germak, 2008) in which social, cultural, ethical, biological and technological values are accumulated contextually and systematically, to make a critical mass of data. According to De Giorgi and Germak, in fact, a scenario is “a critical mass of data and references built up around the issues in hand. It is a survey of the consumer situation carried out in order to find the characteristics of the end users the project is targeting”.

The students worked in coherence to the methodology of the meta-design process, which is described by Silvia Barbero (2008) as a procedural support logic to be followed in structuring the design process, or rather the mental organization schema that is not sequential or linear, but arranged in map-like or network configurations, intended to orient the creative and executive convergence of ideas ‘in the field’. Students’ project experience consisted in 4 phases: experimentation with the materials, definition of the design scenario of the concept, definition of final concepts, prototyping of the concepts.

Every year, the course of Meta-Design of Politecnico di Torino challenges the students with the investigation of given materials in order to develop innovative and socially engaged products connected to the idea of circular economy. The material assigned to the students changes every year and the course upholds a sustainable design approach based on the championing of waste resources and reuse techniques, such as remanufacture, repurpose, recycle, toward the production of new artefacts.

On October 2015, the professors presented the project ‘Un sacco di sport’ to the students as a focus for their project: they were asked to design a sports bag made of the dismissed textiles from “Turin 2015, European Capital of Sport”, to be produced by artisans from InGenio’s network and to be sold at InGenio’s shop.

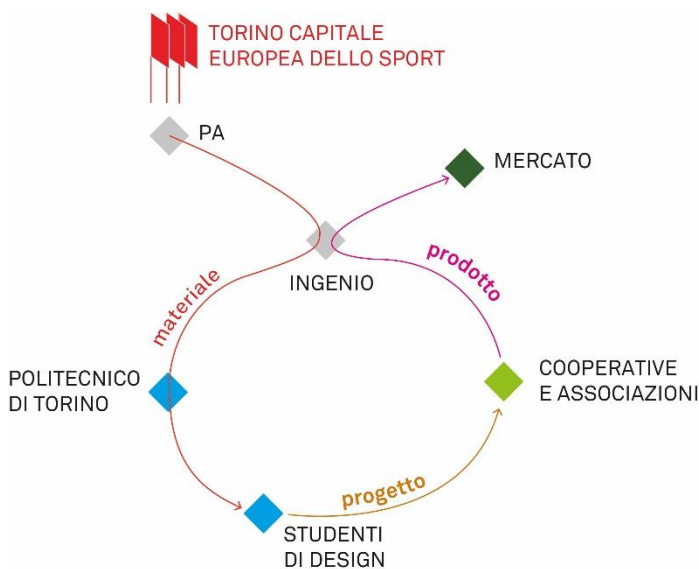


Figure 1. The journey map of the waste materials from “Turin 2015, European Capital of Sport”

### **3. Approach**

#### **3.1 From the textiles to the concept: defining the tactic**

Each group of students was assigned to one of the textiles available. The groups started experimenting with the material in order to investigate its mechanical, aesthetic and expressive attributes. These tests can be intended as a practice coherent to what Douglas and Isherwood describe when they present the idea of a “metaphoric appreciation” (Douglas and Isherwood, 1979). They write that ‘metaphoric appreciation’ as “an apt name for what it is that designers are particularly skilled in, in ‘reading’ the world of goods, in translating back from concrete objects to abstract requirements, through their design codes”. In our case, this “reading” focuses on the specific attributes of the materials.

As part of the design process, the students undertook a series of test with the aim of exploring the physical performances and symbolic nature of the textiles. These tests were carried out by the students working in groups both at the university and at home, by setting up experimental environments or using the techniques of mental maps and allegories to generate creative insights. The following table presents some of the questions investigated by the tests:

Physical performance	Structure	Is the material suitable to be assembled in compositions or disassembled into smaller units that can be joined as modular structures?
	Shape	Do the mechanical transformations modify the performances of the materials?
		Can these attributes be useful to find new functions of the textiles?
	Chemicals	Does exposure to weather conditions, temperature, solvents affect the response to the materials to specific stress?
Do these attributes represent an opportunity for the development of a objects that needs that specific performance to answer its function?		
Symbolic nature	Expressiveness	What kind of in-built expressivity do the materials offers in terms of colours range, textures, tactile perception, smell of the materials?
		How could this observation can contribute to the development of an innovative bag?
	Users gestures	How does the feeling of the textiles impact on the development of the concepts and how can interaction with the human body be designed in order to improve the functioning of the bags?
		What kind of gestures and usage modes can be designed with these materials?
	Storytelling values	What narratives can the products develop in terms of local cultural heritage, also recalling the previous “life” of the textiles?

*Table 1. Tests on the materials*

After that, the analysis focused on the target of the products: the clients of Ingenio’s Boutique. The boutique is placed in the city centre, close to the most popular monument of Turin. Every day many people walk by the storefronts, both tourists and residents. The ones that enter the boutique are

usually tourists, in search for a handmade souvenir, attracted by the unconventional selection of artisanal products with a strong reference to the name of the city or to local attractions and iconic places. On the other hand, Turin inhabitants choose to shop at Ingenio's because of the unique aesthetic and the strong functionality that characterizes every product. Generally speaking, the target can be described as composed by families, young adults, university students, both tourists and from Turin, with an easy-going and urban lifestyle and with an interest in products that embed values such as sustainability, uniqueness and social inclusion. The commercial offer of Ingenio's boutique at the time of the project, however, didn't include any functional and resistant bag.

The characteristic of the textiles explored by the students were organized in order to highlight specific performances in terms of the opportunities to design a series of bags. These clouds of performances/design opportunities, together with the definition of specific target users according to the description of Ingenio's clients - for example sporty mother with new-born, businessman, urban biker, skater, wheelchair-user - enabled the students to work on their design scenarios, creating a complex picture of the project's issues and defining the project question. According to this, each group of students carried out a new concept for different bags.



*Figure 2. The projects by the students*

### **3.2 Prototyping with dismissed textiles: the perfect training strategy**

Soon the concepts evolved into “study-prototypes”. Testing and collecting “first hand” feedback from tangible models is crucial at this stage of a concept’s development and, more in general, in design education. The prototype makes it possible to explain and to test the concept. It does not propose solutions, but it helps to observe complexities and to eliminate ambiguities (Campagnaro and Ceraolo, 2017).

Direct experience of the material was crucial. In this sense, the use of waste textiles for the project had great educational potential: many of the students knew some sewing techniques but the ones who did not filled the gap by seeking advice from those in their communities with experience in this area. Experience of other materials such as metals or glass wasn’t enough to enable this hands-on designing process because they couldn’t be transformed directly by the young designers. Further to this a participant in one of the laboratories was invited to meet the students at Politecnico. This participant gave instruction and tips to the young designers about stiches and folding techniques and, even more relevant, she stood as representative of the “manufacturing users” that the students were going to confront with in the production phase. As a result, the students directly experienced the importance of designing products that could be produced with basic techniques and ordinary sewing equipment, in order to enable the non-professional sewer artisans of social laboratories to participate in the realization of the bags.

### **3.3 The show and the bag’s adoption: passing the baton with a ceremony**

In June 2016, the students delivered the final concepts and a show was set up at the university. The show was intended as a key point to enhance the next phase of the co-creation process. Moreover, since “Un sacco di sport” is a learning pathway, meeting the stakeholders provided the chance to test some essential skills in the students such as giving public speech to present their ideas, gathering feedbacks and negotiating improvements about their concept.

During the event, those responsible for the laboratories meet the students in person and their coordinators choose the bag they were interested in manufacturing. Each laboratory made the choice according to the resources (tools and abilities) of the artisans involved by their cooperative or association. Each laboratory found the most suitable design to produce due to the fact that the students’ designs offered a variety of concepts with different levels of complexity.



*Figure 3. A student presenting the bag designed by her group to the representative of the laboratories during the show at Politecnico*

### **3.4 Students in the laboratories: moving the game to another field**

The manufacturing process of the bags was hosted by the laboratories within their workshops. Each group of students was invited by the educators and artisans to their respective headquarter. There, the collaboration process reached a new stage: going through the details of the production process together, the students and the artisans worked together on the designs to make the improvements needed to fit the abilities of the artisan that would produce each bag. The aim was to check the progress of the realization phase and to find solutions together, in case constraints emerged. In doing so, the students learned the designer's double-sided ability of both preserving the essential elements of his/her product while, on the other hand, re-negotiating minor details in discussion with the artisans in charged with the production.

The visits of the students in the laboratories were coordinated by the professors and they started in February 2017 until June 2017. The visits involved approximately 50 students participating to the activities of 10 laboratories. The number of visits, their frequency and their nature depended on the organization of work of each laboratory. In some cases, the students visited the laboratories only three times: at the beginning of the production phase in order to start the process with the artisans; in the making; and at the end of the production. In other cases, the presence of the students in the

laboratory was continuous and they took part to every step of the production working together with the artisans. The students documented their experience in the laboratories using field journals, photos, and regular reports to the professors.

The didactic experience included another significant aspect: being hosted by the laboratories for few weeks, the students worked “in the field” (Ingold, 2013) in a socially sensitive environment according to the principles of Design Anthropology. They took part in the activities of the laboratory, learning the skill of positive negotiation and the ability to adjust the projects on an on-going basis. They practiced context reading and the development of problem-solving strategies.

Moreover, textiles, paper patterns, stiches and needles acted as trigger for social cohesion: they were tools for the creation of a meaningful environment of cooperation and collaboration between the students and the vulnerable citizens involved as artisans.



*Figure 4. A student participating to the manufacturing process of the bag she designed in a social cooperative's sewing laboratory.*

### **3.5. The launch of the collection: everybody on the podium**

In June 2017, one year after the show at Politecnico di Torino, the first collection of bags ‘Un sacco di sport’ was launched on the market with a party at the InGenio's boutique. The laboratories and the students celebrated the success of their cooperation. The bags represented a meaningful achievement

for both: the students had the opportunity to have a project that they had developed, manufactured, and sold; the laboratories acknowledged the breakthrough in terms of the quality of the products resulting from design students' creativity compared to the basic template they used to produce. They also reported a positive contribution to the atmosphere of their services due to the presence of young students.

The first collection of bags is currently on sale and Politecnico and InGenio are investigating the social, economic and creative impact of the project and the opportunity to rerun it. In this sense, some focus groups are being conducted both with representatives of the laboratories and with the students. The focus groups' goals are to identify weaknesses and strengths of this co-creation process in order to improve the experience for all the actors involved.



Figure 5. The windows display set up at InGenio's shop for the launch of the collection

#### 4. Outcomes and conclusions: a bigger match for the team?

In reflecting on the 'Un sacco di sport' project, several areas for further analysis and future research, both from a design and from a social perspective, became clear.

#### **4.1 The value of the material**

The products manufactured from the dismissed textiles of city events present a remarkable storytelling power. The colours and the graphics of the bags evoke the values of the event. They stand as a memory of the event and they are products by which the costumers can express pride in the city and a sense of belonging to Turin. In this sense, these textile materials present a higher value after their use during the event, so when they became “waste”.

As noted previously, the experience of ‘Un sacco di sport’ stimulates the discussion about the powerful role played by textiles as matter for prototyping (instead of other dismissed materials). Making an abstraction, we can state that the process undertaken consisted of two levels of prototyping: at a smaller scale, the students’ prototypes tested their concepts and became a relational tool for the collaboration with the laboratories; at a bigger scale, the project ‘Un sacco di sport’ itself is a prototype of a new collaborative and socially orientated manufacturing chain. At both levels, textile materials were an enabling element, due to their attributes of adaptability, softness and warmth: it was the shared basis for the actors to start their cooperation, fostering the positive connections that enabled the success of the process so far.

#### **4.2 Co-creation**

The power of the ‘Un sacco di sport’ process lies in the collaboration and co-creation that gathered around the material focus - the dismissed textiles. Every actor of the production chain offered what he/she can do best: creativity, capacity of vision, craftsmanship skills, relational approach, didactic strategy.

The result is a new production chain based on co-ownership, sustainability, active citizenship and social inclusion and its effects are higher in value than the sum of the single contributions by each stakeholder.

The staff of InGenio’s boutique acknowledge that their clients are attracted to the bags among all the products sold in their boutique because of the quality of the designs. The bags are sold because clients like them, not because of a sympathetic approach to the condition of vulnerability experienced by the artisans who produced them.

#### **4.3 Design at two levels**

In the ‘Un sacco di sport’ project, Design (as a discipline) performed at two levels: as a strategy to develop multidimensional knowledge that can inform dynamic processes based on the interaction between products, services, market, communications (Celaschi, De Morales, 2013); and as a creative approach, contributing to the development of innovative functional products that can subvert the idea of “waste materials” as being useless. This happened due to an approach based on conscious design, meeting the needs of the users and taking advantage of the narrative power provided by materials, forms and graphics.

From a wider perspective, the process described fosters a (re)location of design's potential, roles, and limits, electing design as a "game changer" among many other "game changers" being raised, as pointed out by the report on the structured discussion workshop at the EAD 2017 (Herlo et alii, 2017), which revolved around practical, theoretical, and normative approaches in an effort to critically reflect on socially and politically oriented practices in design today, focusing on the role of designers as increasingly involved in transdisciplinary processes that are committed to rising societal complexity.

The idea of Design as a discipline able to act simultaneously on different levels is also coherent with literature researching on the "domains of design" (Jones, 2014). 'Un sacco di sport' interacts with all the contexts pointed out in Jones' (2014) analysis: artefacts and communications (traditional design practice); products and services (design for value creation and integrating); organizational transformation (design of work practices and strategies); and lastly social transformation (design for social systems and policy-making) (idem). This ladder domains can be intended as part of the future research based on the analysis of the outcomes of the project "Un sacco di sport". The challenge is to consolidate the upcycling approach as innovative strategy to develop a new chain based on reciprocity, circular economy and social economy.

By 'Un sacco di sport' project, the students had the chance to experience a complete design process, from the concept's definition to the release of the product on the market, with the help of their professors. This professional experience is unlikely to happen to students still in training.

The didactic value of the project enhances the idea of 'designerly ways of knowing': an access to a wide knowledge in terms of its intrinsic educational value, and not to the instrumental terms that are associated with traditional, vocational design education (Cross, 1982).

The students also had the chance to approach a socially sensitive manufacturing system, where the production process focuses on the abilities of the artisans and adjust the project to fit to their best capabilities instead of the contrary, and where creativity acts as a path for educational interventions and social inclusion opportunities.

#### **4.4 Audience development and active citizenship**

Lastly, 'Un sacco di sport' can be also acknowledged as a cultural process fostering audience development through applied arts.

Within the framework of Creative Europe program, audience development is a "strategic, dynamic and interactive process of making the arts widely accessible. It aims at engaging individuals and communities in experiencing, enjoying, participating in and valuing the arts through various means available today for cultural operators, from digital tools to volunteering, from co-creation to partnerships" (Bollo 2017). Adapting the original definition from Bollo that is based on traditional arts, the vision promoted by the project "Un sacco di sport" is that design, as applied art, generates the opportunity for all the stakeholders to participate in a creative process, and, by collaborating with each other, it acts as a strategy towards activation.

Universities and “real world” are often perceived as distant universes. It can be argued that the mission of academia is firstly to shape young citizens. ‘Un sacco di sport’ creates a connection between the students and the services for vulnerable citizens: through education that happens on a human and personal level. Working with the artisans inside the social laboratories discussed, enables young designers to grow more aware of, and sensitive to, local social issues.

In conclusion, ‘Un sacco di sport’ opened a new perspective on the use of textile waste resulting from the promotional materials of a city event. In doing so, design and design education can be perceived to offer concepts that, through the development of new products to be manufactured within a diffuse production process, can meet the needs of development and auto determination of vulnerable communities (Campagnaro, 2014).

## References

Barbero, S. (2008), Meta-design in *Man at the Center of the Project. Design for a New Humanism*, Turin: Umberto Allemandi & c. Spa, p. 159.

Bollo, A. (2017), Le politiche per lo “sviluppo del pubblico” tra Piemonte ed Europa, Osservatorio Culturale del Piemonte, [www.ocp.piemonte.it](http://www.ocp.piemonte.it), accessed on September 2017.

Campagnaro, C., (2014), ‘Social Design An Interdisciplinary Dialog In Order To Plan The Societal Development’ in Ceppa C., Lerma B. (ed.), *Towards Conscious Design. Research, environmental sustainability, local development*, Turin: Allemandi, pp. 166-177. ISBN 9788842223191.

Campagnaro, C., Ceraolo, S., (2017) Fighting food waste towards a new social food chain: The Egg of Columbus workshop. In: *International Journal Of Food Design*, vol. 2 n. 1, pp. 103-116. - ISSN 2056-6522.

Castro-Spila, J (2016), ‘The relational university: social innovation and entrepreneurial skills in creative industries’, in Schramme, A., Kooyman R., Hagoort, G., (eds.) *Dynamics between the creative industries, knowledge institutions and the urban context*, Delft: Eburon Publishers.

Celaschi, F., De Moraes, D. (2013), Futuro, benessere, interdipendenza: parole chiave per il design contemporaneo, 2013, <http://www.flavianocelaschi.it/wp-content/uploads/2013/06/Artigo-CelaschiMoraes-Italiano.pdf>, accessed on September 2017.

Cross, N. (1982) ‘Designerly ways of knowing’, *Design Studies*, Vol.3 No.4, pp. 221–227.

Cross, N. (2001) ‘Designerly ways of knowing: design discipline versus design science’, *Design Issues*, Vol.17, No.3, pp. 49–55.

De Giorgi, C., Germak, C. (2008), 'Exploring design', in *Man at the Center of the Project. Design for a New Humanism*, Turin: Umberto Allemandi & c. Spa, pp. 53–70.

Douglas, M, Isherwood, B (1979), *The world of goods*, London: Allen Lane.

Herlo B., Unteidig A., Jonas W., Gaziulusoy I. (2017), Perspectives on socially and politically oriented practices in design, *The Design Journal*, 20:sup1, S4710-S4713, DOI: 10.1080/14606925.2017.1352969.

Ingold, T. (2013), *Making: Anthropology, Archaeology, Art and Architecture*, Oxon: Routledge.

Jones, P.H., (2014) 'Systemic Design Principles for Complex Social Systems', in Metcalf G. (ed.), *Social Systems and Design. Translational Systems Sciences*, Vol.1, Tokyo: Springer, pp. 91-128.

Manzini, E. (2015), *Design, When EveryBody Designs: An Introduction to Design for Social Innovation*, Cambridge, London: The MIT Press.

Papanek, V. (1971), *Design for the Real World: Human Ecology and Social Change*, New York: Pantheon Books.