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From prototypes to monotypes. Neo-craftsmanship in architecture and design

Juan Bravo Bravo[1]
[1]Universitat Politècnica de València, València, Spain, jbravo@cpa.upv.es

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Abstract
The paper focuses on characterizing a current design trend —sometimes called neo-craftsmanship— that uses manual processes to create unique objects. About a century ago, pioneers of modern architecture and design pushed their primary trend towards prototypes definition in their massive industrial —mechanical and serial— production. Nowadays, an opposite impulse can be identified looking for monotypes definition —single products or from limited series—, with high manual intervention and capable of being customized to assume the individuality of each user. On one side, creative strategies used by modernist designers founded their design process on objective criteria: rational, functional or economic. Nevertheless, in this other case, designers prefer subjective criteria based on expressiveness, significant forms, chance or casual associations. In some way, this trend supposes a return to the art and industry debate between crafts and design that presided over the genesis of the modern movement. It is possible to find this trend not only in post-industrial societies but also in those in their process of industrialization, where it appears as a differentiated alternative. In this last case, design methodologies or strategies are applied to push an economic development best based on sustainable exploitation of local resources or applying traditional productive techniques, skills or capacities.Finally, the paper identifies and proposes study cases as representative examples in product design and architectural activities to illustrate this trend. Some of them can also be connected to design strategies aligned with environmental sustainability positions: reuse, reduction and recycling of materials and products; preference for low-polluting industrial processes; water and energy saving; life cycle management; local production and consumption; and so on.

Keywords: *Product design; Architecture design; Contemporary trends; Neo-craftsmanship*

1. Introduction

One of the most effective and common ways of defining craftsmanship is as opposed to industry. Compared to mass production with the help of machines, handmade products are characterized by their manual workmanship which, in some respects, makes them unique. After visiting the Great Exhibition (London, 1851) William Morris and, not long afterwards, his colleagues from the Arts & Crafts movement, used this contrast to attribute to craftsmanship the ethical and social values lost to industry. In comparison to the lack of identity of the mass-produced and machine-made object —reflection of the alienation of the industrial worker— the unique artisan product appeared as the bearer of certain qualities —sincerity, authenticity, memory,…—a faithful reflection of the pleasure that the honest craftsman received as a reward for his manual labour.[1] Qualities that, in some way, were transmitted to the user of handcrafted products, bringing them greater happiness than

[1]Cfr. Sudjic, D. (2009)

to those who preferred to use their industrialized equivalents, which lacked such qualities.

Many of these Arts & Crafts principles have survived to this day. Some such as social commitment, design ethics, material sincerity or sincerity of execution, among others, because, as is well known, the early historiography of modernity linked them to the genesis of modern architecture and design.[2] Others, on the contrary, because they have resisted well on the margins of this same modernity, defending the value of manual workmanship and the specific qualities of the handcrafted product against the inexorable advance of the anonymous industrialized product.

However, recent manuals[3] on history and contemporary design trends identify a certain paradigm shift that has manifested itself in recent decades in a gradual relaxation of the conventional opposition between craftsmanship and industry. This relaxation, which initially replaced the initial opposition with complementarity, later led to the establishing of certain links between the two, seeking to take advantage of synergies.

2. Modernity vs. postmodernity

Proponents of the modern project (Maldonado, 2004)[4] aimed to extend access to decent housing to all social classes, i.e. housing with minimum and sufficient conditions of habitability. Consequently, they concentrated their efforts on mass housing construction, which involved not only the emergence of a new architectural language or research into new residential typologies but, above all, experimentation with new materials and construction processes that would make production as fast and economical as possible. To this end, they turned their gaze towards industry, which, by revealing itself as the great ally, gave rise to the modern myth of the machine. In this sense, suffice it to recall the German debate between technique and culture (Maldonado, 2002), which had its derivative in the defence, by the Werkbund, of the union between art and industry, for example, later reformulated by Gropius in Bauhaus as an alliance between art and technique. In a similar sense, we can understand —in French-speaking culture— the well-known analogy of housing as a "machine for living" enunciated by Le Corbusier or —in the sphere of the Soviet avant-garde— the dazzling machinist iconography exhibited by constructivism in its different aspects.

As stated on previous occasions (Bravo, 2011, 2014), the renewal of the continent —social housing— necessarily involved the renovation of its contents —furniture and household goods in general— and, also in this area, the industry proved to be the most faithful ally of the social housing sector. Thus, during the interwar period, industrial design emerged as an academic discipline —through institutions such as Bauhaus, Vjutemas or the Cranbrook Academy of Arts— both as a specific professional activity, with pioneers such as Breuer or Wagenfeld in Europe and Teague or Geddes in the United States.[5]

During the necessary post-World War II reconstruction, the principles of modernity were applied in a generalized manner: rational project strategies; functional priority; austerity and economy; rejection of ornamentation; material and productive sincerity; confidence in progress and technology; etc. that led to a massive industrial production, the manifestation of a period of continuous economic development described as

[2]Cfr. Read (1961, 1934) and Pevsner (2000, 1936) and, on design historiography, Campí i Valls (2013)

[3]See, for example, Fiell (2000), Branzi (2010), Wilhide (2017) or, in Spain, Galán and others (2010)

[4]Specifically, 'El Proyecto Moderno', pp. 61-74, master class given in Buenos Aires, 1984

[5]Regarding these issues, the thesis of Campí i Valls (2015) who, after reviewing the state of the art, gives four different and complementary accounts of the history of design in the West: as a professional activity; as an academic discipline; as a morphological style; and, finally, in relation to its ideological aspect.

"Fordist-Keynesian" (Harvey, 2008). In the early 70s, however, these theses of modernity began to show symptoms of exhaustion when a series of historical events —the demise of the Bretton Woods agreements, oil crisis, emergence of economic neoliberalism and political neo-conservatism— modified the *status quo* to initiate a process of important economic, political and social transformations. The advent of the so-called postmodernity then brought about the application of design principles of a very different nature: new design strategies based on irony, playfulness, chance or happenstance; morphological priority; recovery of ornamentation and primacy of the superficial qualities of objects over the corporeal; importance of the significant and symbolic aspects; historical references; emotional qualities over rational ones; etc. In short, an alternative to the current model that proposed new relationships between art, design and production, characteristic of a new era known as "flexible accumulation" (Harvey, 2008). As a result, the focus on handicrafts was also renewed to centre on other values related to the rational use of local resources; its increased focus on sustainability through a system of proximity production and consumption; its traditional link with artistic culture; its ability to create unique, singular objects, and its decorative taste or the symbolic values associated with its products.

With the coming of the new century, we are also seeing the emergence of new consumer choices which, on the one hand, are oriented towards more sustainable, environmentally friendly, locally produced and fair trade solutions. On the other hand, more and more consumers prefer unique, personalized products that they can take ownership of and which in some way identify them. Products, therefore, far removed from the disposable industrial object, manufactured in large series, advertised and sold by catalogue. And although the industry has difficulties in providing an adequate response to these new trends, its demands, on the other hand, are closer to many of the characteristics usually offered by craftsmanship.[6] In this way, artisanal trades and techniques are witnessing a resurgence from certain residual redoubts linked to the tourist market and luxury accessories where, for the most part, they had been relegated during the decades of industrial predominance. Crafts and techniques that currently seem to be emblematic of two of the basic principles responsible for the renovation of contemporary products and architecture: sustainability and universality. These are, on one hand, awareness of resource constraints—materials, water, energy— which has incorporated techniques such as life-cycle costing[7] into the design process; consideration of cradle to cradle design;[8] local production and consumption; or preference for local materials and techniques to reduce logistical costs, for example. And, on the other hand, the recognition of social diversity and of the different capacities, metrics and individual abilities that recommends architectural and universal design solutions that do not exclude anyone regardless of their physical, perceptual or intellectual characteristics.

Moreover, in times of economic globalization and the immediacy of information and communication made possible by new technologies, this revival of craftsmanship has not only affected post-industrial societies, but has also opened up a whole new range of possibilities in developing countries. In these cases, handicrafts remain the system that preferentially satisfies numerous material and even housing needs of important social groups, while reflecting their own historical and cultural roots. Ancestral trades and processes that show the application of those human skills and the development of certain processes and technical capabilities that have made the intelligent transformation of

[6]Research on future prospects for handicrafts can be found in Martínez Torán, M. (2012), whose main conclusions have also been published in English in Martínez Torán M. et al. (2017)

[7]Cfr. Rieradevall, J. & Vinyets, J. (1999) or Capuz S. F. and others (2002)

[8]Cfr. McDonough, W. & Braungart, M. (2005)

local natural resources possible, with materials available to meet their material culture needs. Some cases of this handicraft production have become drivers of local development through small interventions by cooperation organizations and groups of designers who have contributed with their own design knowledge and techniques, such as planning and selection of design alternatives, market and target-user studies, branding, packaging, presence and visibility in digital channels and promotion in social networks, among others. Alternatives which, from a *glocal* standpoint, have been able to open cracks in the markets by appearing as bearers of these principles of sustainability and universality thanks to their manufacturing quality.

3. Contemporary craftsmanship cases

In the commodity area, it is possible to find artisan-designers of precious metal work and small personal accessories, singular products or very short series usually linked to manual workmanship. This is the case of Enric Majoral (Sabadell, 1949),[9] a designer based in Formentera since 1971, where he draws his inspiration to design and produce different series of jewellery —crafted in fair trade mined metals — which he sells from premises in Barcelona, Ibiza and Formentera to customers worldwide and, of course, also online. In 1993, his son Roc (1976-) joined the company to ensure its continuity by taking responsibility, on his own since 2003, for certain collections of the firm, some of which have been acknowledged in different international competitions. In terms of equipment and ephemeral architecture, it is worth mentioning the work of the studio led by Mariano Martín,[10] an architect from Madrid

Fig. 1. Enric Majoral: *Blat,* 2020. (Source: www.majoral.com/portfolio/colleccio-blat)

whose production includes interesting examples of exhibition and furniture design, usually resolved with an exceptional economy of means and always showing his concern for applying the three rules of responsible consumption: reduce, recycle, reuse. For example, the series designated *Botox* consists of a set of pieces based on the recovery of different discarded structures of seats and tables of different types on which new elements of dyed methacrylate — the Botox— are applied to the objects, to give them a renewed lease of life that brings them back into use. Likewise, the design of the *Serie Juste*, a set of office furniture —an electrified conference table, containers— entirely made of cardboard.

[9]Cfr. www.majoral.com/ A young Valencian company Simuero (simuero.com) is working along similar lines — promotion and distribution closely linked to social networks and digital channels— which in addition offers the possibility —to order— of customizing your jewellery by creating unique pieces.

[10] Cfr. www.marianoweb.com

Fig. 2. Mariano Martín: *Serie Botox,* s/f
(Source: www.marianoweb.com/portfolio/serie-botox)

In collaboration with architecture, it can be cited the well-known case of Cerámicas Cumella,[11] the third generation of ceramists established in Granollers (Barcelona) since 1880, with a long series of collaborations. An example of good craftsmanship in confluence with contemporary technology, he has worked on the recovery of historical pieces necessary for the restoration of masterpieces of architecture from modernism to modernity, from Gaudí or Domènech i Montaner to Antoni Bonet. But also producing new pieces designed specifically for singular works of contemporary architecture —both Spanish and international— such as, for example, the Santa Caterina Market (Barcelona, 2004) by Miralles-Tagliabue; the Spanish Pavilion (Zaragoza, 2008) by Patxi Mangado; the Museum of Architecture, Art and Technology (Lisbon, 2012-16) by Amanda Levete; or the Botín Art Centre (Santander, 2011-16) by Renzo Piano. Precisely in an interview about the pieces made for the facade of the latter edifice, the master ceramist himself described his work as "technological craftsmanship", because:

"Showing his mobile phone, he comments on how he can keep track of what is happening in the oven. The times, temperature, humidity… Everything is synchronized with the application and yet none of it ensures success; 'we live on the brink of failure'. Researching, always creating new pieces, new colours, new systems, gives rise to permanent insecurity. Doubt remains present in each new assignment, each new project." (González Blanco, 2019)

Fig. 3. Cerámicas Cumella: Restoration (2005) of the roofs of *La Ricarda* by Antoni Bonet.
(Source: www.cumella.cat/portfolio/la-ricarda-antoni-bonet)

A more specific case in the context of vernacular architecture can be the one constituted by Artifex Balear,[12] a Mallorcan non-profit association founded in 2002 whose main objective is the recovery and sustainability of the Mediterranean landscape and ecosystem. To this end, it undertakes three different and complementary lines of work: the recovery of traditional trades of popular construction;[13] soil and landscape regenerative agriculture; and what they call appropriate technology, which seeks to respond to the basic needs of comfort —water and energy for domestic use, food preservation and preparation, etc.— and to basic tools and trades— furnaces, mills, etc.—through the application of local techniques —accessible, sustainable— low impact and low consumption. The group is headed by Miquel Ramis, a master stonemason and sculptor who, on the outskirts of Palma, has assembled a varied team of people

[11] Cfr. www.cumella.cat

[12] Cfr. artifexbalear.org

[13] Along similar lines, Esteve-Sendra, Ch. and others (2012) reflect upon new and traditional uses in design and architecture of such a prolific material as bamboo.

who hold courses, seminars, workshops and conferences through which they disseminate knowledge and teach different skills resulting from their research and experience in the aforementioned triple line of work.

Fig. 4. Artifex Balear: *Drywall course in Deià,* s/f (Source: artifexbalear.org/con_tra)

Finally, an illustrative case on the contributions from the design discipline where industry is practically non-existent and the local material culture consists basically of handcrafts. This is the area of the cooperation projects of the Free Design Bank,[14] a Valencian organization led by the designer and teacher Manuel Bañó. Their aim is to provide knowledge, techniques and strategies in the field of industrial design to groups of artisan producers from different countries in Latin America, Africa and Southeast Asia, in order to improve their production, open new distribution and marketing channels and thus improve their quality of life.

Fig. 5. Free Design Bank: *Handmade soap design workshop,* El Rosal, Ecuador, 2017 (Source: asociacionelrosal.org)

3. Conclusions

At this point, it is worth asking about the characteristics of this new model of relations established between industrialized production and craftsmanship. What are these new links between design and craftsmanship? What specific advantages does the alliance between them contribute, especially in those two important and highly topical areas: eco-sustainable and universal design and architecture? In relation to sustainability, from the ideation, conception and formalization phase, the application of digital information and communication technologies to handicraft production makes it possible to explore new possibilities for data collection, analysis, study and verification of variants and alternatives, introducing the necessary modifications.[15] Tools such as algorithmic or generative design make it possible to optimize the energy savings of buildings or dynamically test geometric variants in order to select the most appropriate morphological solutions to the problem posed, be it diversity of supply, functional adjustment or material and productive optimization.

"One of the contributions of algorithmic design to the creation of objects is that it puts into crisis the classic definition of series as we have been using it (currently, craftsmanship sometimes uses moulds to obtain a repeated or serial element on which later works individually, not losing its original character). These new procedures facilitate the production of series with unique and differentiated individuals, which accentuates the concept of exclusivity and enhances the final product. The association between algorithmic design and digital manufacturing with artisanal techniques gives us a very powerful arsenal to be able to face the future with all the rigour and creativity that will be necessary for survival of the trades." (Cabrera Castro, 2020)

[14] Cfr. freedesignbank.org

[15] Cfr. Martínez Torán, M. (2020)

In the functional area, design has developed analysis and optimization methodologies which, when applied to craftsmanship, allow the evaluation of models and types in order to introduce those evolutionary modifications that make their improvement possible. At the same time, designers are accustomed to working to regulatory standards and applying quality control techniques to guarantee the homologated production required by consumer laws.

In terms of materials and production processes, scientific support makes it easier for craft workers to comply with their ethical and social commitments. For example, testing new materials to justify their preference for the most sustainable, environmentally friendly alternatives; requiring eco-labels, fair trade raw materials or recycled and recyclable raw materials; committing to local sourcing, production and consumption; life-cycle management (LCM); or incorporating responsible production and consumption criteria, among others.

In relation to logistics, distribution and product marketing processes, it provides market research and survey strategies, branding and promotion processes that help to position products or project them to new target users, optimizing packaging techniques to reduce waste, as well as storage and transportation techniques to save energy and resources. Last but not least, in the field of universal design, the production of monotypes or short series allows for the consideration of the diversity of users, taking into account their different perceptual, motor or intellectual abilities. Product customization, beyond adapting to the consumer's particular tastes, allows adjusting the dimensions of the product to the user's particular anthropometry, thus achieving a kind of "bespoke" design or custom manufacturing. Contemporary technologies such as 3D printing or computer numerical control (CNC) machines are becoming more and more accessible and allow for the manufacture and marketing of unique models, adapted to each specific user, not only in terms of finishes, to satisfy the customer's particular tastes and integrate into their environment but, above all, to fit the anthropometric characteristics or specific capabilities of each user and thus improve their user experience.

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