

**DESIGN: KNOWLEDGE AND MISSIONS.
THE GENERALISTIC TRAINING OF 'MADE IN ITALY' INDUSTRIAL DESIGNER**

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Abstract

Since its first formulation, the term “design” has been attributed the function of driving the commercial success of a product through specialized skills capable of mediating between social needs and technical innovations. But since the 1960s the designer's work has been relegated to a form of product styling for the purpose of his ability to compete commercially, and aesthetically, on highly globalized markets. Design has become a commercial attribute to satisfy the desires of consumers at the expense of its ethical, social and environmental prerogatives.

The current socio-economic condition, the changed environmental demands, the advent of new production technologies and the triumph of new communication systems now require the training of a new figure of designer who not only knows how to worry about giving shape to things but also knows how to investigate and analyze the environmental contexts in which he is called to work in order to look for problems to which to give appropriate and efficient solutions.

The contribution intends to reflect on the theme of the foundation for the training of new designers that must be sought in the interdisciplinary and transversal nature of knowledge and skills. It is necessary to train a designer with a 'generalist' and not 'specialist' approach, able to communicate with the different cultures of 'doing' and to resist the current division of knowledge. Design must be understood as a process and an activity aimed at innovating, which means to design a transformation that aims to create something new to satisfy a need, solve a problem, improve the quality of life.

The designer must be able to interpret and coordinate various knowledge around increasingly complex problems, without giving up the 'poetic' dimension of design, understood as an expression of art. He should be able to share information and learn knowledge belonging to sectors outside the design one, in order to trigger synergies, expand research fields and rediscover the ethical dimension of the profession.

Keywords: *generalist approach, 'open' design, multidisciplinary, technology, territory, circular planning*

1. THE NECESSITY OF A DESIGNER WITH A 'GENERALISTIC' APPROACH

“In a little more than a century, the meaning of the word ‘design’ has moved from the definition of the shapes produced by the industry, to the description of the decorative and formalistic aspects of every object, of any size, in our living space.”

These are the words used by Vittorio Gregotti in his last written work, titled ‘Tempo e progetto’ (*Time and project*), to describe the deep cultural crisis which, in the last years, has affected the design sector and the figure of the draughtsman with specialist skills. The ornamental feature of the artifact and the search for formal innovation, instrumental in reaching the commercial purpose of the product, seem to have become the only interesting aspects for the global market, aiming at meeting the consumers' everchanging taste. According to Gregotti, at present, it seems that the draughtsmen's proposals “(...) have lost any concrete relation with the state of their own discipline, instead they propose groundless novelties, far from any proposal of modification of a reality that is today unrecognisable and connected to the global state of cultures, emptied of any necessary value and not recognisable in its unvarying truthful strength” (Gregotti, 2020)

Designers Andrea Trimarchi and Simone Faresin, from the firm *Formafantasma*, state: “In some cases, the designer's job has been relegated to a form of styling, instrumental to an economic expansion, where

the citizen is reduced to mere consumer, and human needs to limitless desires, just as limitless seem to be the energy sources necessary to their determination.”. (Formafantasma, 2020) At present, some draughtsmen - Formafantasma continues - some draughtsmen are more interested in searching and chasing the novelty at all costs, rather than in rediscovering the intrinsic values of the artifacts.

The present times are characterised by a feeling of uncertainty and cultural, economic and environmental crisis. In this context the designer must have the ambition to change the world transforming our society, rediscovering new values and meanings for the ‘objects’. They must subvert their role of creative artist, only pursuing a formal outcome of the artifacts, and go from being ‘problem solver’ to being ‘problem creator’ (Maffei, 2020), someone able to follow the unity of the composing process and manage the complexity of a varied specialist knowledge.

In this scenario, the designer’s role needs to be rethought, starting with an ambitious reorganisation of the designer’s academic path towards a ‘generalist’ knowledge, which would grant them the ability to exert an extensive control of knowledge and skills, so that humans can be at the centre of the project again. It is necessary to imagine a new idea of humanism, where the draughtsman has a ‘generalist’ and interdisciplinary vision, able to put the interdisciplinary knowledge to use, without renouncing the poetic dimension of the idea, and the project as a creative expression of the composition.

In opposition to education as exclusively based on the formal design of the product and on the romantic vision of the designer as creative artist, it is appropriate to encourage the exchange between disciplines in order to reinforce the multi-disciplinary value of the project and its role in society, as it was in the past in the academies where design was taught.

It is necessary to reconsider the draughtsman’s training approach, built on a university education which separates disciplines in different academic paths, based on single specialist skills, thus subjugating the project to the pressure of technical-scientific specialisations of the globalised system.

To this regard, Mario Botta writes: *“The resistance to the specialisation of knowledge is justified as an alternative to a wild globalisation which influences the cultural experience of mankind.”* (Botta, 2013) Without recalling a nostalgic idea of the past, Botta states the necessity to keep the ancient vitruvian ideas in mind, as the greatest humanists did. An example is Leon Battista Alberti who considered the architect - whose role could be the same as the creative designer - as a skilled draughtsman, familiar with geometry, arithmetics, history, literature, philosophy, music as well as law and medicine.

The figure of the draughtsman, both as an architect and a designer, based its own identity on a humanistic vision as a meeting point for knowledge and composite skills ranging from the interpretation of the historical context to the invention of new forms of sociality, from small scale to big scale projects, from plastic imagination to artisan knowledge, from the awareness of traditional techniques to the industrialised modern sector, from the use of traditional materials to those of latest generation.

In this regard it is important to claim the training of a draughtsman with a generalist approach instead of a specialist one, able to exert an extensive control of their knowledge to take mankind back to the centre of their interests, to communicate with the numerous trades and resist the current fragmentation of skills.

Alvaro Siza says: *“As the world fills up with specialists, we become specialists in nothing special.”*

At the present time, the draughtsman is expected to question the basis of their discipline in order to accommodate the infinite forms of division of intellectual work, new processes and systems of technological innovation in the productive sector, the speed at which the market demands change, the user’s uncontrolled aesthetic and functional expectations combined with social, economic and environmental sustainability of the products. Although the project has to deal with multiple aspects, requiring a specific division of skills among the single operators involved in the whole process, it is not possible to offer a solution by summing up the single specialist skills.

Through inventiveness and knowledge, the figure of the draughtsman is that of someone who can generate responses, synthesize the creative idea and systematise multiple skills in different organisational, technical and economic contributions, helping to define the final artifact.

The term ‘generalist’ should not convey the anachronistic idea of a draughtsman with an outdated concept of ‘making’, but that of a designer with a keen critical sense, able to interpret the present times, keeping the experience of the *Modern Architecture* movement in mind. According to the modernist principle, the draughtsman has to work within an independent discipline, referencing Hermann Muthesius’s prophetic expression “from the teaspoon to the city”.

In the international Modern architecture debate, the educational aims of the Deutsche Werkbund, Bauhaus and the Ulm school were to train a modernist draughtsman within a unified discipline, univocally concerning both the micro and macro scale of the artifact. Masters such as Gropius, Le Corbusier, Mies van der Rohe insist on the unity of the process of composition on all different levels of the project, from the creative idea to the executive check of a work of art.

Starting in the 1950s, the first schools of industrial design in Italy based on the modernist international experience, have encouraged exchanges between artists, scientists and philosophers to contribute to a interdisciplinary definition of the draughtsman’s social role, and design as a subject. The didactic and research activity developed in Italian educational establishments is opposed to an education solely based on the formal design of the industrial product and on the romantic view of the designer as creative artist. This didactic was outlined by Maldonado himself when he had just moved to Italy at the end of the 60s after his experience directing the Ulm School of Design.

Through the educational experience conceived by Maldonado when he spoke of “(...) *freeing the notion of design from any discipline constraint, giving it an absolute and omni comprehensive value*” (Maldonado, 1976), some examples of ‘making’ appear in the Italian scene and describe a new figure of the industrial draughtsman, able to understand the social bearing of their activity.

The visionary research by the militant groups who defined themselves as ‘cultural operators’, such as Superstudio, Gruppo 9999, Archizoom, Alchymia, Memphis, the avant-garde experimentations of Global Tools, the concrete experience of the Lombard modernist draughtsman, such as Ponti, Albini, Zanuso, Magistretti, Mangiarotti, Aulenti e Bellini, previously encouraged a humanist culture of ‘making’, expression of a ‘generalist’ knowledge of arts and trades. Among the latter, we can still find contemporary draughtsmen such as De Lucchi and Citterio who, with an eye on the past experience, represent the last bulwark of that ‘generalist’ sense of ‘making’ capable of understanding the needs of the present time.

Retracing some of the most meaningful experiences of the past, this contribution aims to reflect on the topic of the new designers’ education, which is opposed to the separation of ‘specialist’ knowledge. This education must be researched in the transversality of skills and knowledge, so as to offer an interdisciplinary response to the user’s needs and market requests in spatial, social, empathic, functional, figurative, decorative, technical and engineering terms.

Reconsidering the value of the ‘wisdom’ inherited from the modernist masters, taking full advantage the new communication and production technologies, and keeping in mind the changing environmental, social, local and market requests, the text wants to reason about the education of a new figure of the activist ‘generalist’ designer. A creative talent with an ‘open’ planning approach, able to react to the deep cultural crisis which has affected the design sector in the last years through responsible, appropriate, efficient and poetic solutions.

2. FROM ‘GENERALIST’ TO ‘SPECIALIST’ APPROACH IN INDUSTRIAL DESIGN

2.1. The process of separation of knowledge

The figure of the industrial designer starts taking shape between the Eighteenth and Nineteenth century. At the base of this new professional figure is the confrontation between design and industrial culture, where design should consider industry as a lodestar.

Initially known as a draughtsman-artist for industry, the designer as a professional specialised in planning industrial artifacts, appears at the beginning of the industrial revolution. At that time in England, it became necessary to reorganise the means of production for standardised industrial

manufacture. The invention of machines generating artificial energy (e.g. Watt's steam engine) led to a significant reduction of prices and a broader diffusion of the artifacts.

In this scenario, England needs to train a new type of draughtsman, able to design products suitable for the new methods of production. A new professional figure, the designer, gradually appears thanks to the development of technical drawing, which overcomes the inaccuracies of the previous graphic planning of the products. The designer stands outside the productive process. The only knowledge of it comes from their school education.

This is the beginning of the process of separation between the generalist draughtsman-artisan-architect, repository of an immense knowledge, and the specialised designer, skilful interpreter of the new working processes, materials and technologies.

In this process, Henry Cole is a fundamental figure, facing for the first time the issue of how to structure and extend the design practice through the scholastic education of a draughtsman, capable of learning skills and impart knowledge beside what is learnt in the workshop.

2.2. The specialist training for a scientific and rational approach to design.

In 1836 the Inquiry commission of the House of Commons starts a reform of education. The first point is the development of the design role to improve life quality and competitiveness of anglosaxon products on the international market. In 1937 the *Government School of Design of London* was founded and later other *Schools of Design* were launched in other cities with the aim of “*designing useful objects to raise people's taste and contain the ratio between adequacy and price*”. “Function times economy” as Hannes Meyer called it. Henry Cole was a supporter of the empirical approach to the project. To him, design is a planning practice based on rational, scientific and transmissible methods.

Cole believed in a rational approach to design and in the necessity to educate people's taste to the new requests of mass production, which was considered “democratic”, and he regarded a rethink of the study programmes and contents as essential.

At the end of the 1940s Cole is in charge of re-organising the *Government Schools of Design*. By combining “Science and Art” (an anticipation of the 1923 motto of Bauhaus: “Art-Technique-a new unity”), Cole introduces the discipline of design and starts some academic paths oriented to the creation of specialised draughtsmen planning industrial artifacts.

According to Cole, “*the designers' new responsibility is to give shape and meaning to the artificialising processes developed by the industrial revolution*”.

In this period we witness the first contrast between the romantic, anti-industrial pre-raphaelite position of the artisan-draughtsman (supported by Morris, Ruskin and Pugin) and the mechanist, productivist and renaissance position of the intellectual draughtsman (between artist-draughtsman and intellectual draughtsman). In this stage the designer is seen as a technician, using their knowledge in favour of the functional output of the product, and taking care of its aspect in the overall management of the production processes.

2.3. Design and the debate on the mechanic aesthetics

Around the end of the 1800s, the German government had to deal with the same problems as Great Britain a few decades before: give quality to its industrial production to make it competitive.

In 1896, architect Hermann Muthesius wrote *Das englische Haus* and was appointed Superintendent of the *Kunstgewerbeschule* (Schools of Arts and Crafts). With the aim of improving the quality of teaching of applied arts, he chose the best German architects and sent them to the main cities and accelerated a revision of the didactic programmes. Turning to draughtsmen and entrepreneurs, Muthesius declared the necessity of adopting a simple style to adapt to the requests of industrial production.

A few years later, in 1907, together with the industrialist Karl Schmidt and Friedrich Naumann (author of *Art in the Age of the Machine*), Mathesius founded the *Deutscher Werkbund* in order to promote mechanised production and develop new forms of communication of the products by training professionals, highly specialised in materials, technologies, advertising and marketing.

Keeping the relation between design and industry central, Muthesius realised that to relaunch the German industrial production it was necessary to direct the educational offer to a greater specialisation of skills to adapt the “planning” culture to the new reality.

After a few years, in 1917, Theo Van Doesburg (signatory of the De Stijl Manifesto) introduced the concept of mechanic aesthetics “*made possible by the use of the machine*”, and proposed “*an elementary/basic style with elementary/basic means*” (Polano, 1979). In this period Gerrit Rietveld, among the protagonists of 1900s Dutch design, anticipated the theoretical bases of the machine language designing furniture which was mechanically produced.

2.4. Bauhaus and Vchutemas: specialist training through experience

In 1919 Walter Gropius was invited to Weimar, in Germany, to merge the School of Applied Arts (which trained specialised artisans) with the Academy of Fine Arts (headquarters of the German artistic tradition). The main objective was to train specialist draftsmen capable of working closely with the industry.

To face the problem, he introduced the *Grundkurs* (which would inspire the courses of Basic Design around the world), a Basic Course preparing to further studies in specialist laboratories dedicated to the development of monodisciplinary competences.

Based on the research of pedagogists Fröebel and Montessori, Gropius invited the students to be active protagonists of their creative process through the formula of learning-by-doing, learning through a practical experience, as proposed by the american philosopher John Dewey. He understood the need to educate students, starting from the knowledge of craftsmanship, to learning techniques and technologies of serial production to train draftsmen able to work in the industries.

In 1923 he called Hungarian Moholy-Nagy to direct the *Grundkurs*. In two years time he completed the program of laboratories and courses proposing an idea of design articulated in different paths, such as: product, graphic and visual communication, stands and outfittings, interior design. But the real turning point was in 1928 with Hannes Meyer directing the school. Meyer, supported by the exponents of the artistic movement “New Objectivity”, proposed a pragmatic educational system made to experiment and face problems related to design and production in scientific and technical terms. Meyer’s thesis is very accurate: “*modern objects are the product of a formula: function times economy. They are not works of art*” (Meyer, 1926).

In the same way, the Vchutemas, technical and artistic state laboratories were founded in Russia in 1920: it was the first soviet design school.

The Vchutemas’s structure was made of eight specialist departments (Architecture, Painting, Sculpture, Metal work, Carpentry, Ceramic, Textile and Graphics) built around the scientific and “objective method” of teaching, aimed at meeting the needs of democratic, economic and productive development of the nation.

“*Awareness, experimentation...existence of objectives, construction, technique and mathematics: these are the brothers and sisters of contemporary art*”. Ródčenko wrote this in his work “Construction” in 1921. Similarly to Bauhaus, a Fundamental Course was introduced in the Vchutemas. It was articulated in four didactic units (*Konzentr*): “*Didactic unit for the study of surface and colour*” designated for graphic designers and textile experts, “*Didactic unit for the depiction of volumes*” for the training of specialised carpenters, metal workers and ceramists, “*Didactic unit for the space configuration*” for those who wanted to specialise in visual communication.

A sort of polytechnic that was divided in departments, associated by the Fundamental Course whose aim was to train a draughtsman-artist able to affect the industrial reality through acquired knowledge, and to design objects which could be useful, socially correct and serially produced.

In support of this new orientation there is the Productivist movement (led by Brik, Ródčenko and Stepanova, antagonists of Kandinskij’s expressionist movement) which invented the term *faktura* (tr. fabrication), a concept implying that the shape of a product is given by the construction, the materials and their use. In one of Ródčenko’s autobiographical notes he said: “*I wanted the Metfak (department*

of metal work) to prepare skilful workers for our industry, qualified for an artistic and technical treatment of metals [...], artist-workers with a creative initiative and an extensive technical preparation”.

In 1929, Novickij (the new director since 1926) said: “*Art must serve the industry[...]. The artist is specialised in quality and design[...]. The industry needs highly qualified artists, technically prepared, familiar with the materials’ technology and technological processes of production[...]*”.

2.5. The emancipation of the designer’s role in America in the 1930s

An emblematic case of how designers have acquired their own professional connotation, by developing strongly specialist skills and aptitudes, is described in the American history of design between the two world wars. In the USA, in the 1930s, a series of professionals coming from different disciplines, like Loewy, Dreyfuss, Teague, Bel Geddes and others, designed for the industry with the aim of giving, through design, an added value to their products. Their studies are links between industry and market, they are great “design agencies” working on research, development, planning, marketing and promotion. Many of them became “strategic consultants” for important companies, building their own close and ongoing relation, and dealing with *corporate image* and *product design, packaging* and *exhibition fitting*. They invented new types of products, laying the foundations for a new professional role, strongly specialised and able to support many sectors of the American industry (furniture, appliances, automotive, products and accessories for bodycare, etc.). Design became an instrument to seduce the consumer, a structural element for new sales strategies.

The variety of consulting services required by the industry needed multiple skills, and the draughtsmen understood that it was necessary to divide their studies in interdisciplinary departments, employing professionals specialised in very different sectors (architects, engineers, model makers, marketing and advertising experts).

In this same period, even the industrialists understood the importance of the designer’s role for the commercial success of their products and that they could be competitive only by designing products characterising their company. It is not by chance that one of the distinguishing feature of the American industrial design at the time was the close relationship between a designer and a company.

Collaborations between Teague, a specialist of home appliances design, and the Eastman Kodak, are an example of the new conception of the “specialist” designer profession. Besides designing many photo cameras (such as Vanity Kodak and Bantam Special), Teague was asked to create a technical office inside the company.

Another example is the relationship between Loewy, Sears Roebuck and Gestenter. As an expert in printing of metal sheets, not only could Loewy invent new types of industrial products with an aesthetic that fitted the new taste (1934 Coldspot), but he became art director.

We could continue by mentioning the synergies between Dreyfuss and the Bell Telephone Company: thanks to his previous ergonomics studies, Dreyfuss designed over 100 models of telephone, like the famous Model 300. Or even the close collaborations in the automotive sector between Loewy and the Studebaker (1947 Champion), between George Walker and Ford (1949 Thunderbird), between Teague and Boeing (for the interiors of Model 707), between Loewy, United Airlines (DC8 interiors) and Air France (Concorde interiors).

Basically, a real independence statement of a new figure of draughtsman, able to explore the specialist aspects of discipline and technology. This figure was legitimised through numerous events, such as the *Machine Art* exhibition at New York’s MoMa, where technological products were compared for the first time to actual works of art (proclaiming the golden age of industry) and the *Contemporary Industrial Art* exhibition at the Metropolitan Museum of Art where Loewy presented the *Designer’s Cabinet*, describing it as a “*clinic, a place where products are examined, studied and diagnosed*”.

2.6. *The Ulm School of Design*

Finally, it might be useful to remember the contribution from the Ulm School of Design regarding the necessity to structure a training in those sectors where design expresses itself in relation to industry and to its numerous complementary sectors (communication, marketing, etc.).

Launched in 1955, the Ulm Hochschule für Gestaltung was born with the objective of carrying on the Bauhaus vision, which was to train highly skilled and culturally prepared draughtsmen, able to associate economic, social and democratic growth on one side, and a modern and poetic design on the other. With the aim of training designers specialised in creating everyday objects through the use of new technologies, Maldonado, the school director, oriented the training towards a rational approach of the project, opposed to an artistic-generalist approach.

By promoting a rationalist methodology, Maldonado reorganised the *Vorkurs* structure (different from Bauhaus's Grundkurs) moving the attention on a project culture which conciliated technical-scientific and theoretic-humanist knowledge: semiology, information theoretic, cybernetics, system theory, the first elements of digital planning (the introduction of the first computers) will be the new disciplines alongside with the most traditional scientific paths, linked to Construction, Information, Object Planning and Visual Communication. He was convinced that one of the school's principles was a confrontation between design and industrial culture, considering aspects linked to environment and society. So, he started mixing genres and domains, from architecture to the product, from the press to the cinema, from typography to digital infographic and ergonomics, useful to broaden the design procedures and try to free design from any discipline constraint, giving it an absolute and omni comprehensive value.

3. **MADE IN ITALY AS SUMMARY OF KNOWLEDGE**

3.1. *The design practice in the visionary modernist groups*

A new profile of the industrial draughtsman starts taking shape in the 50s. The end of the war required a modernisation of the country. Entrepreneurs and artisans were gradually asked modern products, but they were aware of their lack of know-how, which is necessary to start a serial production of artifacts. However, they recognised, in designers and architects, the ability to express a new project culture. In this context, besides planning and inventing new typologies of product, designers started to have new strategic roles: they became consultants and art directors in Italian companies, they facilitated their collaboration with professionals in photography, communication and design exhibition, they mediated the high quality of the artisan tradition and the necessity to introduce new materials and technologies of serial production in the project culture.

Reality and utopia became fields of action for the new draughtsmen, who were asked to face design themes and mediate between new cultural, social and economic models and the new materials, technologies and instruments of mass communication (the Internet was born in 1962). Basically, designers went from being simple draughtsmen to professionals able to provide a service to companies and consumers.

The industrial designer serving the technique and the function stopped existing. Rationalist architecture was considered as "bearer of desolation", a new project culture was found, cancelling the distinction between disciplines and proposing a size change and language contaminations. Designers didn't work on their own anymore, but they were organised in groups of theoretic research and design action, facing crosswise the themes that move from the product to the built and natural environment, using design as "*statement of a counter-culture, different from the past parameters and from the diktat of the masters of Modern Architecture*". Through visionary proposals, from Superstudio's *Continuous Monument* to the Archizoom's *No-Stop City*, these groups, whose members wanted to be called 'cultural operators', proposed a hybrid of all the disciplines affecting the domains of planning, artistic and visual experimentation, to state the necessity of synchronising and contaminating knowledge, with the aim of offering a new idea of total architecture and a new way of imagining, building and inhabiting the world. Andrea Branzi, one of the founders of Archizoom, synthesised this concept as follows: "*Although design operates differently on goods, it becomes a fundamental design instrument to actually modify the quality*

of life and territory". In order to do that, it is necessary to "*Move from the idea of architecture and design as problem solving system, to a theoretic system to find problems by crossing different disciplines*" as Cristiano Toraldo di Francia, co-founder of Superstudio with Adolfo Natalini, states in his last interview (2016). Basically, these groups bore an anti-rhetoric profile, criticising the institutionalisation of design practices.

Starting with an attempt to transform the academic teaching system, from 1973 to 1975 the protagonists of those movements decided to give birth to a series of proposals and experiments linked to education and training, known as Global Tools, an alternative structure built around a system of interdisciplinary project laboratories (probably inspired to pedagogist Ivan Illich's ideas expressed in the essay *Deschooling society*) urging to "*leave universities, schools, and taking from the original sources of culture, ideas, of what spontaneously comes out of the most unexpected places of society*". A participative experience with the aim of expanding the borders of planning possibilities "*beyond any specialist skill, which remains a value, but not an exclusive or dominant one. Competences have value only when they can attract creative forces, when they can raise them, go with them and organise them*" (Dalisi, 2018).

The Global Tools emerged from the context of a much wider reflection on education which Gruppo 9999 and Superstudio were already developing since a few years as an indirect comment to the inability of the universities to renew themselves in regards to a new generation of students. It was a way to be, an ideological and pragmatic example which gave its members the freedom to move, pushing them to go out of closed domains, beyond any verified, organised, structured and hierarchised certainty.

All this led to the necessity of overcoming the rational sphere, beyond the charm of what is clear and controllable, in favour of a transdisciplinary educational approach, which worked on languages contradiction and crisis, both in the field of visual arts and design. Graphics, communication, art, theatre, music, architecture were all interwoven. In this context, a new "model of life as global and permanent education" was defined, based on integration processes deriving from the exchange of visions, technologies, products and other cultural aspects.

All this aimed at subverting, erasing "*institutional education, considered in its historical impossibility of finding new valid criteria for the future. [...] Ultimately, the school consist of living instead of learning*", wrote Alessandro Mendini on the magazine *Casabella*, of which he was the director from 1970 to 1976.

At the end of the 70s, the message of the *Radical* avantgarde would echo with the design activity of Alchymia and Memphis, militant collective of international designers, who highlighted the necessary geographical extension of design and the object's "narrative and emotional" value. The experimentations developed by Alchymia and Memphis wanted to move the design logics towards a different relationship with the object based on affectivity, communication, and sensory experience as aesthetic relation with the object. They opposed to a disciplined and institutionalised design, to the value of sobriety and cohesion to the artifacts' simple function (of modern tradition).

For the collective Alchymia, founded in 1976 by Alessandro and Adriana Guerriero together with Alessandro Mendini and Ettore Sottsass, it was crucial to find the reasons behind architecture and artifacts, beyond functional and practical efficiency. It was necessary to move the object function from a utility plan to an ironic and emotional one, through a deconsecration as an act of reappropriation. Design couldn't be conceived as a product of strictly functional values, but it should have corresponded to the ampler human attitude of giving life to objects, as if they were friends, part of our lives.

Project Memphis was born with the idea of changing the condition of design, bringing it up to date with modernity, proposing a series of architectures, furniture, interiors, and objects which are full of semantic, sensory, emotional and figurative value. Objects which have a remarkable aspect, unequivocal and metaphorical at the same time. They are eclectic thanks to their formal and material compositions, born from calculated assemblies of volumes. Memphis's architectural and object experimentations started distancing themselves from any logic of serial production.

Following Memphis's steps, Sottsass proposed design as a vehicle of direct communication in the attempt of updating its contents and perfecting its dynamic and semantic potential. Both ludic and eclectic, the "emotional" and iconoclast design replaced the rigour of the rational one, paving the way to new seasons of Italian design, where art is one of the main references again.

Thus, we see the effort of replacing the rationalist paradigm - blamed for its functionalist and scientist rigidity - with one based on art as a model, on anti-industrial craftsmanship, on the exaltation of life's mythical and magical aspects, on the idea of creativity as expression of free subjectivity.

3.2. The design practice 'tout court' in modernist Milanese draughtsmen

Lombardy's strategic position and the presence of industrial areas, allowed the region to become an open and vital laboratory of planning experimentation in the Italian society. In particular, Milan became a very active research field for design, thanks to the industrial, economic and financial development, to the distance from the political establishment and to the industriousness of the local bourgeoisie.

At the beginning of the 1900s, numerous important art galleries opened in Milan, various publishing projects specialised in architecture and design were started, such as: Domus (1928), La Casa Bella (1928, Casabella since 1933), Edilizia Moderna (1929), Interni (1954), Casa Novità then Abitare (1961), Zodiac (1957), Caleidoscopio (1964), Ottagono (1966) up to Stile Industria (1955-63), Artecasa (1958-60), Modo (1977) e Spazio e Società (1978).

In this context, a particular cultural ferment started, in which the designer interpreted the expression of 'living' and the taste for modernity.

Since the 1950s, technological innovation and economic development in the productive sector, allowed the draughtsmen to contribute with their works to the transformation of Italian design into an autonomous discipline. These draughtsmen, with a deep knowledge of craftsmanship techniques, new industrial technologies, traditional and new materials, became promoters of a humanist culture of 'making', through a 'generalist' approach of arts and knowledge.

The design theme has been explored on different scales, from architecture to design, through a skillful and continuous confrontation of architects-designers, with the enlightened industrialists and bourgeois intellectuals in the Lombard salons. From the complicity among entrepreneurs, high bourgeoisie, and some visionary draughtsmen with a transversal approach, and from the opposition to knowledge fragmentation, typical of that age, the idea of modernisation was born and was mainly found in that time's domestic setting and life styles.

Design participated to the idea of renovation of the society which hadn't been reformed and which researched the wellbeing of a renewed and important productive market.

In this context, some legendary objects were produced under the 'Made in Italy' trademark. They were the result of collaborations between draughtsmen 'tout court' and the medium-sized companies such as Ponti with Cassina, Albini with Bonacina, Zanuso with Brionvega, Magistretti and Mangiarotti with Artemide, Aulenti with Kartell and Bellini with Olivetti.

Gio Ponti can be considered one of those draughtsmen 'tout court', pursuing a "*research of a compromise between a reset of traditional codes, promoted by the rationalists, and the uncritical continuity supported by the conservatives*" (Portoghesi, 1998). Although he wasn't always in complete harmony with the avantgarde tendencies, Ponti developed his research within a domain including urban planning, architecture and the design of objects and pieces of furniture (colours, fabrics, wallpapers) able to define the nature of a certain environment. The Milanese master can be considered as a precursor of renewal, opened to conservatives, innovators, and transformers from various disciplines. Besides being a draughtsman, he can be defined as a populariser of the cultural debate carried on in Domus magazine, which Ponti founded and directed. His idea of change was made clear in the continuity and transversality of knowledge, willingly far from its fragmentation.

In Franco Albini's work, we can find the figure of a draughtsman with a transversal approach. As Andrea Branzi says, "*he represents, in the clearest way, that 'artistic rationalism' which has always stoked the contradictory souls of Italian design (...)*" (Branzi, 2019). His work was distinguished for its rigour and

interdisciplinary approach, through which he equally dealt with architectural projects, interiors, fittings, and objects, on different scales. Albini's culture of 'making' had a particular humanist trait and could be distinguished based on: the research of a constant creative relationship with new technologies; the extreme accuracy of the essential details; the relation between the client's requests and the conditions of the context, both for architecture projects and design artifacts. His research and experimentation can be considered as a representation of modernity, fully aware of the civic role of the draughtsman, he recognises design as an independent discipline, a link between different skills.

Marco Zanuso can be included among those draughtsmen 'tout court' in Lombardy area. He represented the alliance between designers, entrepreneurs who were interested in innovation as a business and the reformist intellectuals of the high bourgeoisie. Zanuso was perfectly aware of the possibilities that innovative technology offered in the industrial sector. He adopted a transversal method, which referred to the learning-by-doing process, where the designer-architect worked in collaboration with factory operators, from engineers to workers. He coordinated the different specialist skills and had them interacting with each other. The artifacts that Zanuso designed can be defined as 'concrete technical objects', namely 'pieces' of design where each element had many functions at the same time. This was the result of the interaction and confrontation shared by the different specialist skills which participated during composition and realisation.

Vico Magistretti, heir to the "*polytechnic and humanist tradition of the architect as complete figure*" (Irace, 2006), reproduces the image of an 'educated' draughtsman who interpreted modernity by combining the ability to simplify the different parts of the project with the intention of using technology in an appropriate and relevant way, in each specific situation. His approach aimed at researching an '*experimental neo-classicism*' (Branzi, 2019) obtained with the connection between disciplines and the continuous confrontation with the artisan workforce and the industrial operators, in order to obtain artifacts able to meet the needs of 'living', both on a domestic and a social scale. The continuous pursuit of integration between trades and disciplines is highlighted by the attention to re-designing featureless everyday objects and by the design of architectural spaces suitably inserted in the context.

Angelo Mangiarotti can be considered as an architect, an industrial designer and a sculptor. Fully aware of the standardised production techniques, he experimented innovative solutions, ranging from the micro to the macro scale. His experimental projects focused on the 'collage' process, with architectural elements and industrial objects.

With a poetic approach, Mangiarotti directed his research on the combining and interchangeable features of single parts, and on the autonomy of the different functional parts of the artifact. This simplified the process of production and installation. His project approach used technical knowledge to delete the specialisms that reduced the project to mere technical, mechanical and repetitive act, as well as to start a process of transversal simplification of ethical, social, cultural, economical and political problems orbiting the composing act.

In her work, Gae Aulenti faces the theme of the project in an organic and fluid way, through a transversal vision of experience and skills. In her works of interior design, urban installation, museum fittings, scenic design, architecture and design, she highlighted a 'generalist' project approach, where each field of action is not just the result of separate disciplines but the outcome of a univocal dialectic of knowledge. According to Branzi, Aulenti's work was the result "*of a creative process converging towards one result: the realisation of an enigmatic 'scene' turning reality into a 'theatre', not as a replacement, but as a contribution to the theatrical relevance; almost revealing a secret 'genius loci'.*" (Branzi, 2019). The milanese designer's projects were like a tale full of quotes of a 'different' knowledge, which can't be reduced to mere formal language, but to the result of a cultural synthesis.

Mario Bellini is among the last Milanese masters 'tout court' with a modernist style. He is still active as an architect and industrial designer. Bellini has become a careful interpreter of the age of technological development, witnessing the shift from analog to digital tools. Branzi says he is a "*great 'modern designer' living the age of 'modernity's downfall' and working while the formal properties of the machine moved to the performing, virtual and intangible ones of electronics.*" (Branzi, 2019). Still today, his work concretely and transversally represents the relation between nature and artificial

language through the interdisciplinary knowledge of the technological universe. In this respect, Bellini perceives the emergence of a 'second generation design', born from the interaction between people's needs and the unexpressed potential of technology, able to relocate the person at the centre of the project's attentions and improve the culture of 'living'.

Besides the great masters like Mario Bellini, Michele de Lucchi and Antonio Citterio are among the milanese designers 'tout court' with a modernist style who are still working at present. They are draughtsmen designers of the 'middle generation', active protagonists in the international landscape and interpreters of the contemporary productive, technical, socio-economic and financial issues of a product, besides its formal and functional ones.

Michele De Lucchi works simultaneously as an architect and a designer, with a great sense of balance he defines and blurs the contours of the two disciplines without ignoring their paradoxes. The Milanese draughtsman has always searched a new perspective for the observation of 'things', and what he calls the "*right blend of contributions*", especially after the experience with groups such as Cavart, Alchymia and Memphis, had with his masters and friends Mendini, Branzi and Sottsass. According to Branzi, his work is the expression of a path "*which is based on the multiple development of parallel cultural tracks, rich of innovative elements, both about language and method, which developed without fractures after many years of work (...)*" (Branzi, 2019). De Lucchi's project approach is of a 'generalist' type, able to engage the different 'skills' on the various scales of the project, from small serial productions (often autonomously made) to experimentations with architectural artifacts. De Lucchi's role as a draughtsman is that of an intellectual facilitator serving society, and able to catch the potential of cultural, technical and social phenomena, all at the same time.

Antonio Citterio is another architect - designer who refers to an 'educated' project tradition, based on the experience of the 1900s great masters and on contemporary art. He directs his research to a transversal interest for the spacial structure, material technology and design process, paying particular attention to socio-economical dynamics. The Milanese draughtsman is interested in the definition of the 'living' space as part of a totality of objects and furniture, able to characterise and define it with a specific identity. According to Citterio, the draughtsman has to manage the complexity of the process, coordinate all the articulated and interdisciplinary skills which participate in the different steps, from creation to marketing. His works show the ability of operating in very different project domains, always using different exploration modalities according to each case and scale of the intervention.

4. CONCLUSIONS

4.1. Towards a technology and territory oriented design

For a long time, design has experienced a sort of drift from normality. It has forgotten its own roots and the original principle stating that designers should take care of the man-made environment, should try to improve it and pass it on to future generations.

In a sort of entropic transformation, design has turned to dust, or *gas*, as Andrea Branzi would say. The notion of design permeated deeply in our culture, in our imaginary and everyday life that it is not perceived anymore (Bonsiepe, 1993). We live 'amidst a lot of things' and we produce 'thousands of objects' satisfying our desires, but still creating new needs. 'Tons of stuff' *coevolving* (Gold, 2008) because of a necessary hyper decorative style and the wrong idea that design promotes, passing off what is necessary for what is "luxurious" or "beautiful" (although useless).

Such situation is the outcome of two decisive factors: on one hand there is a distortion of the designer's figure through multimedia channels (social networks, tv, etc.) by unprepared journalists and influencers who pass off any type of product as design and push people to become designers themselves; on the other hand the educational institutions (design schools or universities), push future designers onto highly specialised training paths, because this is what the job market is asking now: skillful draughtsmen, 3D model makers and renderers, to the detriment of the project's quality.

“The modern school focuses on science and technology, it promotes a knowledge assuming an external world made of objects and facts, invalidating local systems and ways of knowledge”. (Haraway, 2019)

But a third way is possible, it exists. It is not a straight road, but a thick network made of connections between old and new knowledge, between artisan and industry, between analog and digital, between local and global. Rethinking the designer’s role does not just mean to break the established rules, but implementing the old rules with behaviours oriented to a new way of planning, affecting the environment, the territory, the cultural systems and the communities.

Within these terms, education, technology, territories and environment are the fields of action for new forms of an aware “experience of making”, projected to the future.

Training. The number of designers, teachers and students of design is growing around the world. In Italy, a number of schools of design have appeared since the mid 1990s. We went from an elitarian profession to a very common one. The task of schools and universities is to contribute in the training of independent personalities, able to find the necessary information for any type of project, as well as value driven personalities, so as to manage the constant and complex changes in lifestyles. (Castells, 2012)

In order to let future designers learn and innovate, it is necessary that the training centres activate processes facilitating the *analog making* and the *digital thinking*. In one of his recent lessons, Alberto Meda talks about *“a circular economy of creative thought, because experiences produce ideas that, in their turn, become traces, paradigms for other experiences”*. Making things helps to think. It lets us go from the imaginative phase to an executive one. Thinking and reflecting on what has been done allows us to evaluate the gap between what was imagined and what could be practically made. Learning means engaging in a series of explorations that have to turn into something real (John Dewey calls it *productive inquiry*). English expresses this concept through the word *tinkering*, a mix of two terms: to think and to tinker. It means to think while doing things or, even better, reflect on what was done before making new things. It is a new way of thinking the learning processes in the ‘awareness society’, in order to innovate and participate to the economic and social life in the world we live.

Technology. *“We have to take advantage of technologies and reconsider the value of the wisdom we inherited from our masters, not as a return to the past, but as a form of trust in our community.”* (Chipperfield, 2020)

The web and the diffusion of new instruments for on-demand digital production, with 3D printers and specialised techniques, have a decisive role: they contribute to making the productive process more democratic. If the web showed us a new consumeristic culture and created new social connections and new dynamics of knowledge sharing (Miceli, 2016), it can also develop a different critical project awareness, starting new learning dynamics, essential ingredients for innovation (Mari, 2004), which are possible only through a link between ‘specialisms’ and ‘specialists’. In terms of new production tools, digital manufacturing technologies represent new great opportunities, both for designers and companies, to weld the project with the production, the manufacturing tradition (which could otherwise disappear) with the digital aspects of the production of artifacts, and training with profession.

Territories and environment. This is exactly the point. Territories, particularly in Italy, have productive, touristic, and cultural resources which need to be enhanced. Very often, though, companies, especially smaller ones, or public institutions don’t have the know-how to develop enhancing processes. *“The scattering of young designers and their know how, is probably able to contribute to the development of these enhancing processes. All this implies a new and growing relation between design and territories.”* (Pasca, 2016)

A connection with local cultures to learn and understand the territory, creating new values and adapting to different contexts. A new way of meaning the designer’s profession, whose activity reorganises the main asset of its mission towards a necessary sustainability of the design action (as claimed by Papanek in the 1970s) for real actions which extend and improve the quality of life and of the environment. This is done with an ‘open approach’ to the project, critically reclaiming apparently distant skills which are deeply interconnected.

For this reason, it seems more and more important to find a meeting point between digital knowledge (present in all our activities, distancing us from real problems), and a wider analogue knowledge, stockpiled in nature. *“This implies the need to activate interactive meetings, outside the disciplinary domain. It is necessary to reconnect people and knowledge to learn, side by side, according to the formula ‘xskool’ where ‘x’ stands for ‘breathing the same air’. The connection is not established just with words and signs, but during the meeting and in the community”.* (Thackeray, 2017)

Being a designer implies great responsibilities. It assumes a global/circular approach which looks at innovation. Designers can move the social, economical, cultural and aesthetic standards of entire local/territorial systems (communities, industries and environment), etc. Being a designer means to always think and act in terms of cultural, political, and economic participation among those who, in a way, are fascinated by a departure from normality. *“A tailor’s job”* (Munari, 1996) requiring the rediscovery of values and collective awareness, which can be used in possible exchanges or confrontations, in order to understand together, when and where we should act in a system of parallel worlds, with fading outlines.

A healthy dose of insanity is also necessary.

4.2. Towards a design keen on knowledge circularity

In the context of the current cultural crisis, which has affected the design sector and the figure of the ‘specialist’ draughtsman in recent years, it is necessary to outline a new perimeter of the project discipline, able to answer the complexity of the present time.

So as it happened in the past with some virtuous experiences of the ‘Made in Italy’, started by visionary groups or single draughtsman ‘tout court’ with a modernist style, design, conceived as an independent discipline, should return to a ‘generalist’ knowledge and skills approach. Design should extend its individualistic borders to welcome interdisciplinary competences and generate a radical and epistemological change of mindset, where the project is a field of experimentation and contamination of skills, directed to a different way of imagining the future. Andrea Campioli says about this: *“The control on the project activity has today uncertain borders, especially if we consider the always wider reference in traditionally exterior practical fields, requiring in some cases to spot new study domains.”* (Campioli, 2021)

In the current phase, it is necessary to renovate design possibilities through an ‘open’ approach, wide, articulated, intellectual, aimed at the construction of complex knowledge systems, taking new lifestyles, new technological and communicative systems into account.

The design discipline, too long confined among the intellectualist principles, specialism, professionalism and self-referentiality, struggled to evolve in terms of process, productive and qualitative approach, and it is still struggling.

The ability to look at the future must be welcoming of a merging between creative thought, technical act and concrete action of the working practice so as to reconduct knowledge to the art of ‘making’, and ask other disciplines, from philosophy to literature, anthropology, science, and engineering to indicate the direction of the project’s development.

The interdisciplinary attitude, the sharing of information, the knowledge of ‘other’ skills, belonging to external sectors orbiting the project’s discipline, create a synergy able to give space to research and define a new position of the ‘making’ ethics, respectful of the theoretical and practical knowledge of design.

Economist Herbert Simon maintains that design is a process activity aimed at creating *“(…) Something new (or reshaping something already existing) for a goal, to satisfy a need, to solve a problem or to transform an unsuitable situation in a better one.”* (The Sciences of the Artificial, 1988)

Without giving up the ‘poetic’ dimension of design or its artistic expression, it is appropriate to redefine the draughtsman’s role, so that they can combine the ethical dimension with the technical one, interpret and coordinate the great knowledge around problems that are always more complex. A designer who is

able to confront within an intelligent network, able to interact with different methodologies, used in the research shared by all the actors involved in the process, from the client to the producer, to the user.

A careful and aware draughtsman will be necessary, someone able to understand and coordinate transversally different competences inside a productive process, from the project to the marketing phase. This method will be at the base of a different 'making', able to control the quality and the success of a product in sustainable, social, environmental and economic terms.

In order to be able to give a new shape to the planet, it will be necessary to imagine design as an inclusive and open discipline, embracing other cultures, multiple relations and the complexity of the present time, through a 'circular' project approach.

The future generations of designer will be required to act via an aware and responsible 'making', to generate questions thanks to the circularity of knowledge, to their creative thoughts and skills. An 'intellectual mediator' draughtsman, dowed of a creative thought, using their knowledge on the concept of 'circular thought', where everything can be regenerated, readapted and recovered quickly, without any difference regarding the scale and typology of the intervention, researching every time what Alberto Meda defines as 'solved complexity'.

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TRANSLATOR'S NOTE

In the translated version of this article, the translator chose to use the word 'draughtsman', meaning 'a person that makes technical plans or drawings', to translate the word *progettista* used in the Italian version.

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