



Travel Trading exhibition, June 2009. Photograph by Silvia Girardi

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Training Designers of the Future:

Reflections on a Didactic Case ‘Made in Italy’

FOCUSING ON A SPECIFIC CASE, THE POSTGRADUATE COURSE PRODUCT SERVICE SYSTEM DESIGN TAUGHT IN ENGLISH TO ITALIAN AND INTERNATIONAL STUDENTS OF THE DESIGN FACULTY AT MILAN POLYTECHNIC, THE AUTHOR REFLECTS ON THE PRESENT AND FUTURE OF DESIGNERS AS ‘REFLEXIVE PROFESSIONALS’ (TO QUOTE DONALD A. SCHÖN¹) CALLED UPON TO ACT IN UNCERTAIN AND VAGUELY DEFINED CONTEXTS, TACKLE PROBLEMS IN HIGHLY ORIGINAL WAYS AND COME UP WITH WIDE-RANGING, EXPERIMENTAL AND INNOVATIVE SOLUTIONS RESORTING TO COMPLEX AND HYBRID TECHNIQUES AND TOOLS EITHER PURPOSELY DESIGNED OR TAKEN FROM OTHER FIELDS.

‘Young people today suddenly find themselves in a situation where, as a result of life’s strange demands, an average intelligence is not enough [...]. Indeed, it is not enough to play well; doubts repeatedly arise: is this the game we should be playing now? What game is the most appropriate?’

Ludwig Wittgenstein, *Culture and Value*, 1937

Premise

The distinction between artist as genius and scientist appears clearly in the nineteenth century, giving rise— suffice it to think of France—to the difference between the didactics of artistic projects as taught at fine arts schools, and artistic training based for the most part on engineering techniques as taught at polytechnics. More recently, in

1. Donald A. Schön was professor emeritus at the Massachusetts Institute of Technology (MIT). See SCHÖN, Donald A. (1983) *The Reflective Practitioner: How Professionals Think in Action*. New York: Basic Books and (1987) *Educating the Reflective Practitioner: Toward a New Design for Teaching and Learning in the Professions*. San Francisco: Jossey-Bass.

the anthropological studies published in *The Savage Mind*², Claude Lévi-Strauss makes a distinction between mythic thought and scientific knowledge, between *bricoleur* and engineer. The *bricoleur* works with his hands, using different means to those of the craftsman, means which cannot be defined and are consequently based on a project. The *bricoleur* produces structures out of events (handcrafted means) while the engineer makes events (mutations in the world) out of the structures he has produced (his hypotheses and theories: scientific means).

By making the differences between these two figures clear, Lévi-Strauss reveals the distinction between the person who possesses a method and yet is unaware in advance of the results of his own work, and the *bricoleur* who, on the contrary, is aware of the result but has no method.

François Jacob, winner of the Nobel Prize for Medicine and Physiology together with Jacques Monod in 1965, insists on the comparison: "The engineer only starts work once he is in possession of the materials and instruments strictly necessary for his project. In his turn, the *bricoleur* makes do with what he has on hand [...] As Claude Lévi-Strauss has pointed out, unlike those of the engineer, the tools used by the *bricoleur* cannot be planned beforehand. The materials available to him do not have a precise object, and can all be used for a variety of purposes. The only thing these objects have in common is the fact that they can 'always be useful'. What for? That depends on the circumstances ³. "Nowadays we consider this distinction behind the times.

Starting from the notions of 'reflexive thought'⁴ and 'intelligent handling'⁵ put forward by John Dewey, the concept 'reflexive professional' coined by Donald A. Schön makes

Lévi-Strauss's difference between engineer and *bricoleur* obsolete, opening the doors to new profiles and formative processes that are able, as expressed by John Dewey in *Art as Experience*, to construct at once the idea and its objective materialisation, to reconsider one's own ideas via the materialisation and object of definite perception, acknowledging the close relationship between doing and undergoing ⁶.

Hence the importance of reasoning on the applicable modalities for forming this new figure of the 'reflexive professional' and considering the ways with which to 'form, stimulate and combine' practical activity reflection on action as the basis for generating new knowledge in the field of design.

This is the complex framework of the following thoughts which, rather than hoping to provide comprehensive answers, simply intend to set out the problems related to the education of future designers via the example of a recently created postgraduate course taught at the Design Faculty of Milan Polytechnic.

Postgraduate Course in Product Service System Design

Four years ago⁷ the Design Faculty of Milan Polytechnic inaugurated a new postgraduate course, taught in English and aimed at international students, entitled Product Service System Design.

It is the first course at university level offered in English in Italy, in the hope of welcoming and training talented young people in Milan, Italian and from other countries, overcoming the language barrier. Restricted in length ⁸, the

2. LÉVI-STRAUSS, Claude [1966]. *The Savage Mind*. Chicago: The University of Chicago Press. [Original edition, 1962].

3. JACOB, François. "Evolution and Tinkering", *Science*, New Series, Vol. 196, No. 4295, 10 June 1977, pp. 1161-1166. Our translation.

4. DEWEY, John [1991]. "Logic: The Theory of Inquiry", in *The Later Works, 1925-1953*, Vol. 12, Southern Illinois University. [Original edition, 1938].

5. DEWEY, John [2005] *Art as Experience*. New York: The Berkeley Publishing Group. [Original edition, 1934].

6. Ibid. Our translation.

7. As from the academic year 2005-2006.

8. The MA course welcomes forty-five students per year.

course can be considered a multicultural⁹ and multidisciplinary space.

Following the creation the course and in view of its adaptation to Italian legislation as from the academic year 2010-2011, time is now ripe to reflect on the new challenges faced by academic design programmes; on the expectations of the local and international labour markets as regards design; and, last but not least, the specific contribution that can be made to the world by Italian design today. Such significant themes focus on a key issue: to what extent can a course

addressed at international students adapt to the academic programmes providing didactic stimuli and innovations offered around the world today, and, in turn, in what measure is this course taught at the Design Faculty of Milan Polytechnic in Italy an opportunity to embark on a less official programme based on the roots and culture of what is known as 'made in Italy'? The answers to these questions are continuously fuelling the debate between internationalisation and 'made in Italy' identity, leading to the recognition of certain basic characteristics of the future academic programme that I shall proceed to set out in the following pages.



1. Faculty of Design, Milan Polytechnic. Photograph by Lab Foto, INDACO Department, Milan Polytechnic

9. As well as Italian students, some twenty per year, the international students enrolled over this period come from thirteen European countries and twenty-two non-European countries.



4. Master of Design in Product Service Systems. Logo by Valentina Auricchio

A Broader Perspective within the Field of Design as a Discipline

The first consideration derives from the roots of Italian design and its 'anomalies' as regards the international scene. Italian design was born, in fact, in the heart of Italian architectural culture. From Giò Ponti to Franco Albini, from Achille Castiglioni to Vico Magistretti, from Ettore Sottsass to Marco Zanuso, to name but a few (and it is no coincidence that Tomás Maldonado, who trained as an artist, is not Italian by birth), the fathers of Italian design were for the most part architects working on all scales—from the architectural project to the house object, from the decoration to light fittings or the latest knobs, handles or communication appliances.

Such a broad scope for action is inextricable from the leading role these figures have played, from 'advisor to the Prince' or 'strategic assessor' to 'art director', a new term for those in earlier times simply known as designers. As a result of their close ties of deep respect, trust and often even affection and friendship with visionaries in the business world, they tackle projects on several fronts, a range of fields and different levels of responsibility in Italian companies.

From this point of view, the role of the designer today is extremely up to date, both on a national and an international level, where it is no longer possible to establish limits between products, services, communication elements and internal spaces, and where the strategic dimension of design assumes increasing relevance in the context of global competition.

In other words, the object of the design project embraces artefacts in which the material, communicational and strategic dimension, not to mention that of service and interaction with users and their surroundings, become more and more interrelated and convergent: thanks to advanced digital technologies, products are becoming progressively intangible and environments increasingly intelligent; the surfaces between spaces (both internal and buildings as a whole) do not only adopt the shape but also the role of interactive communication screens; ever-more 'intelligent' materials become mutable and dynamic, etc. Similarly, increasing awareness of the sustainability of products, environments and services demands the use of 'holistic' design methods and approaches.

Given this situation, design disciplines adapt and reconfigure themselves: service design, life-cycle design, experience design, interaction design, environment design, brand design or strategy design represent diverse points of view and ways of addressing design projects that share a systemic vision that transcends the limits of traditional disciplines.

As an example of these intercommunicated and superimposed projection modalities suffice it to think of business premises, formerly considered a field specific to the interior designer; nowadays, according to cases and perspectives, these spaces can adopt the terms 'hyper-medial site', 'communicative artefact', 'relationship platform', 'brand stage', 'experiential touch-point' or 'service evidence', effectively revealing the complex relations between communication, interaction, strategy, management of corporate identity, services, visual merchandising, furniture design and interior design in such physical spaces, all of which creates the need to overcome the traditional borders between design disciplines and adopt systemic approaches.

Starting from these reflections, the unspecialised nature of the professional avant-garde designer, endowed with the capacity of global and strategic vision, has been the basis

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3. Milan Polytechnic Campus. Photograph by Lab Foto, INDACO Department, Milan Polytechnic

of the new academic programme. The very name Product Service Systems, however difficult to understand, makes this systemic quality perfectly clear, for the term refers to the combination of communicative and interactive products, services, spaces and artefacts that provide comprehensive solutions.

A Multidisciplinary Approach

The expansion of the 'object' of design adds to the complexity of the process of projection, which assumes a multidisciplinary quality adopting the tools and methodologies of other spheres.

The evolution of degree courses have led to new phenomena in the labour market that reveal gravitational movements in the cultural and professional activity of the project designer, from specialisation (understood as the prevalence of a well-defined field of discipline equipped with its own tools) to a growing multidisciplinary.

For some time now, multidisciplinary teams have coexisted in important international design firms such as IDEO, Philips Design or Continuum, whose designers do not focus exclusively on product design and are characterised by strategic vision and by introducing tools and methodologies from other fields such as anthropology, sociology and marketing.

After a survey carried out in 2006 on the designer of 2015 based on interviews, focal groups, workshops and questionnaires, the AIGA, or professional association for design in the United States, established a number of main trends including 'wide & deep' (or multidisciplinary, analysis capacity and broad vision), 'expanded scope' (the need to systemically confront wide and complex scales, of foreseeing problems, opportunities and solutions and not only solving specific problems), 'sharing experiences' (and therefore the ability to work in groups and co-create) and 'responsible outcomes' (seeking sustainable solutions and adopting a human-centred approach) ¹⁰.

All these signs and others we haven't mentioned reveal the need to set up, especially at postgraduate level, complex and multidisciplinary formative programmes that will follow in the wake of experiences already tested in international design schools, where design is integrated into disciplines in the fields of engineering, economy and the social sciences, as well as medicine and the natural sciences.

A Tailor-Made Approach to Responsible Construction of One's Own Professional Profile

The abovementioned principles help us shape an interesting hypothesis, by virtue of which first degrees (bachelors' degree) are attributed the role of a clearly identified solid professional identity, equipped with cultural knowledge and skills to be able to produce consolidated tools, while postgraduate courses (masters' degrees) are required to construct more complex, hybrid professional profiles characterised by a broader vision of the problems and their possible solutions; equipped with a global vision of the 'project network' (or of some 'significant nodes' of that network) capable of building the position they intend to occupy in the future.

From this point of view, the objective of first level academic education, complemented by subsequent integrated academic programmes such as specialisation and refresher courses, is training specialists for contemporary projective processes, while the second level shifts interest from knowledge and know-how or *savoir-faire* to *savoir-être*. At this level, increasing importance is attached to the capacity for relations, to listening and working in teams, systemic vision, high degrees of flexibility and adaptability to contexts in constant mutation ¹¹, not to mention the individual's leadership qualities. Hence the creation of postgraduate programmes that impose high levels of awareness and motivation and involve the student in the construction of his own professional profiles in a mature and independent way.

Carla Milani, IBM Italy's Director of Relations with Universities, identifies the figure of the service project designer introducing the metaphor of a professional profile characterised by a T shape, which presents a vertical axis that moves towards the acquisition and application of specialised abilities in specific fields, and a horizontal axis that refers to the acquisition and use of tools and cultural matrices taken from other disciplines ¹².

Starting from the T concept an interesting debate has emerged in connection with the contents of the stem of the T and the width of the transversal line, replacing the idea of a standardised T with that of different versions, in different sizes and typographic fonts.

Giving up the calligraphic metaphor and returning to educational profiles, we may infer that the offer of formative itineraries to be chosen by each student, according to their specific background, the tools and experiences they have acquired, their future skills and abilities, i.e., their specific and personal way of 'being designers' are fashioned, just as a hand-tailored suit is.

10. AIGA in collaboration with Adobe, "Defining the Designers of 2015", a study organised by AIGA, 2006.

11. An American survey has revealed that in 1960 a person changed job 7.7 times on average over the course of his lifetime, while in 2020 it is estimated that the figure could well rise to 10.2.

12. See Carla Milani, "Service Science and Smarter Planet", Milan Triennial, 14 May 2009.

An Experimental and Research Approach

Starting from the reflections introduced in the premise, another issue arises based on the links between Italian design, research and industry.

Andrea Branzi, scientific curator of the first two editions of the *Design Museum*, set up in the framework of the Milan Triennial¹³, postulates that Italian design didn't emerge as a result of the Industrial Revolution but has its origin in artists' workshops (as in the cases of Futurism and Metaphysical

Painting). It is not, therefore, a mere expression of productive and market options but the expression of theoretical research hypotheses. Its roots do not only lie in industry, for it preserves elements of the artistic culture that has generated it and of former ages. What emerges is a genetic heritage of 'anomalous' Italian design, a mutable, contradictory, unstable and complex sort of design capable of enhancing the prevailing visions of design on the international stage.

In the case of Italy in particular, as a result of the lack of a strong model of welfare and residence model other than



4. *Travel Trading* exhibition, June 2009. Photograph by Silvia Girardi.

13. *Le Sette Ossessioni del design Italiano* and *Serie Fuori Serie*, exhibitions supervised by Andrea Branzi (scientific curator), opened at the Milan Triennial on 7 December 2007 and 21 March 2009, respectively.

that of the aristocracy (such as the Victorian style, or that of the Second Empire), even today “the mechanisms defining a domestic space and the objects that form a part of it are open-ended, an area of research that is always starting from zero”¹⁴, a field of continuous experimentation.

The emphasis on the experimental and research nature of Italian design and its connections with industry was the object of the second edition of the *Design Museum*, recently opened. Andrea Branzi sees design and production as two activities that have never merged into a unique logic or reality, thereby creating a circuit which, like a voltaic pile, takes advantage of the potential difference between materials in order to create an active magnetic field. The result is a circuit based on two poles, “in which industrial production receives energy from spontaneous experimentation which, in turn, is fed by a productive open territory that makes available everything from the experimental prototype to mass production, and in which the rule always foresees the exception”¹⁵. “The energy released by this circuit generates a high productive flexibility and a continuous renewal of languages: “In the age of market niches and globalised competition, these two factors are an important developmental feature of the projection of Italian design”¹⁶.”

Hence the intention of returning, in the framework of didactics of design, to an unspecialised approach characterised by a great capacity for criticism and reflection, for project research; an approach not only meant to respond to the demands of industry and the market but also to generate alternative visions of territories, urban environments, domestic spaces and lifestyles in general; an approach that will not only take into account innovative productive processes of an industrial nature but will also appraise the capacity of Italian handicrafts and art. The values of criticism, anticipation, constant interconnection between professional activity and research, intervention not only in

form and/or function but also in the constitutive structure of products and environments in cultural, environmental, technical-constructive, commercial, distribution and socio-economic terms, represent a vision of design that is still extremely contemporary, valid for Italy and for the rest of the world. This cultural approach also has significant consequences for the educational model.

The first refers to the need to integrate didactics and research culture as a driving force for creativity and talent, and therefore to the importance of bringing students into closer contact with new methods and tools and the forms of visualising results. Non-theoretical research, clearly project-orientated and not only meant to *solve problems* but above all to *raise problems*; research grounded in the recognition that the correct answer is unknown and therefore on the need to create hypotheses and repeatedly construct prototypes in order to come up with solutions and verify their impact; research based on consolidated tools but also on the conviction that tools must be continuously reinvented, borrowed from a range of disciplines (social, artistic and scientific) in an ongoing dialogue.

The logical result is a high measure of experimentalism, an ability to ‘make’ and not only conceive, of testing and verifying projects through more or less successful prototypes without losing sight of the fact that if they appear on the market they must adapt to the methods of industrial productions. This approach, therefore, moves away from the idea of an ‘arts & crafts’ design and is much more in keeping with the ‘poly-technicality’ of the environment of the postgraduate course.

The Design Faculty actually forms a part of Milan Polytechnic and the matrix it stems from has always been a part of polytechnic culture. This is no coincidence. As is well known, around the world designers are trained at a

14. BRANZI, Andrea (2009). “Sperimentazione come destino”, in *Serie Fuori Serie*. Milan: Electa, p. 34. Our translation.

15. Ibid., p. 30. Our translation.

16. Ibid.



5. *Travel Trading* exhibition, June 2009. Photograph by Silvia Girardi.

range of institutions, engineering faculties and fine arts academies, architectural faculties and independent design schools. The fact that in this case we have an independent faculty within a polytechnic context is a significant identity trait, not only because of the chance to integrate teachers and students from a range of disciplines but also because of the sort of infrastructures available at the centre. Rather than ‘workshops’, students have sophisticated experimental laboratories on hand (from the laboratory of models to that of photography, book binding, the laboratory of light and colour and even that of virtual prototypes and reverse modelling), that they can use both in their coursework and in the development of their personal ideas. What emerges is thus a ‘polytechnic’ idea of being a designer, in keeping with the history of Italian design and with the identity of Milan’s

Design Faculty, capable of integrating different forms of knowledge and to experiment with them using the available infrastructure.

The Entrepreneurial Capacity of Designers

We could also say that the DNA of Italian design—the origins of which, as we have seen, lie in certain anomalies in the process of industrialisation in Italy—has strong connections with small and medium-sized companies set up spontaneously and dotted throughout the country, and with a weak entrepreneurial class on which it centres both its production and its projection. The recent history of Italian design has been enhanced by the presence of significant designers-cum-businessmen,



8. Students of Product Service System Design, academic year 2008-2009. Photograph by Silvia Girardi.

who have succeeded in combining creativity and technical knowledge with a strategic vision and a talent for articulating around the product-system a business system meant to last. This feature is the new and, in view of the context, and the last identifying element of the postgraduate profile in Product Service Systems Design: designers capable of promoting their resources for producing projects and of understanding the entrepreneurial dynamics related to them. In their turn, these resources are further developed thanks to the contribution of teachers in the field of economics and management, and to the experience accumulated in the Concept Design laboratory over

a year of study¹⁷, that led to an end of year 'market' at which students could sell the products they themselves had devised and created in limited series. The *Talent Trade Show* that enlivens the Design campus at Milan Polytechnic every year is a particularly effective way of stimulating and testing the ability of students of Design of Product and Service Systems to 'set up businesses', although that is not all. The event is also a means of putting into practice knowledge, tools and creative talent, of simultaneously developing ideas for producing projects and materialising those very ideas, and finally, of acquiring new knowledge through experience.

17. Course imparted as from the academic year 2005-2006 by Silvia Girardi and Norman McNally, in conjunction with Manuela Biondi and Marzia Mortati.

In short, these are the first reflections to have emerged from the discussion held by lecturers in the Design of Product and Service Systems programme ¹⁸, notes that I would like to compare with the experience of other initiatives and international contexts, taking heed of Ernst Gombrich's suggestion of not reducing all university problems to a matter of figures, resources or diagrams, for "What is needed in the humanities is not yet another lobby for more grants and research projects, but rather a forum for the exchange of views on what constitutes worthwhile research, and what dangers threaten to distort its progress ¹⁹."

18. The scientific committee of the Product Service Systems Design course is made up of Norman McNally, Anna Meroni, Giuliano Simonelli and Cabirio Cautela (Milan Polytechnic), Fabio Di Liberto (Continuum, Milan), Fabrizio Pierandrei (Pierandrei Associati, Milan) and the undersigned. Gianluca Brugnoli, Ezio Manzini and Valentina Auricchio (Milan Polytechnic), Cindy Coleman (The School of the Art Institute of Chicago), Peter Di Sabatino (School of Architecture and Design, American University in the Emirates, Sharjah) and Neil Frankel (University of Wisconsin, Milwaukee, School of Architecture and Urban Planning) have also collaborated with the committee.

19. GOMBRICH, Ernst H. "Research in the Humanities. Ideals and Idols." *Daedalus* 102 (Spring 1973), pp. 1-10. Reprinted in *Ideals and Idols. Essays on Values in History and in Art*. Oxford: Phaidon (1979).