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Semiotics in Design Education
Semiotics *by* Design

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Abstract: Design is one of the most productive field where Semiotics plays an important role in University programs. Especially in the last twenty years, Semiotics has been inserted in design university programs and semiotic methods and tools have been implemented. The role of semiotics as a crossing discipline emerges and is gains value in design projects.
Semiotics is not only considered a discipline specialised in the study of signification processes, but also in the *production* of meaning through artefacts. In this field the semioticians work in design projects to understand and construct objects, communication and services able to satisfy the users' needs and practices. First of all, semiotic methods and tools help to analyse the users' practices, to define objectives and purposes of a project; then they help designers to transform these goals into real projects, preserving the values, the implications and the meanings in a way suitable for the stakeholders.

Keywords: Semiotics, Design Education, Project, User, Methods

1. Introduction: from semiotics of *design* to semiotics of *design projects*

Semiotics of design is a specific semiotics that has a controversial history (Deni, 2011, 2015a, 2015b): since the end of the 30s, the discipline was more quoted and practiced by designers, inspired by Morris (1938), than by semioticians (Eco, 1968; Maldonado, 1970, 1974; Anceschi, 1992)[1]. Since then, the academic contributions to the field have been occasional rather than systematic, although the number of these studies has increased[2]. Only in few cases, accurate studies on *Semiotics of design projects*[3] have been undertaken (Deni & Proni, 2008; Bianchi, Montanari & Zingale, 2010).

[1] Tomás Maldonado introduced Semiotics courses in the mid-50s at the Hochschule für Gestaltung in Ulm.
[2] Cf. Floch, 1995; Semprini, 1995; Bonfantini & Zingale (Ed.) (1999); Marrone, 2001; Deni, 2002; Deni (Ed.), 2002; Zinna, 2002, 2005, 2010; Bonfantini & Terenzi (Ed.) (2005); Fontanille & Zinna (Eds.), 2005; Zingale (2009); Darras & Belkhamsa (Eds.) 2010; Darras (Ed.), 2011; Beyaert-Geslin, 2012, 2015.
[3] In italian: Semiotica del progetto.

Actually, both the main schools of semiotics – the one deriving from Peirce's pragmatism and the Paris School based on Greimas' literature – have been interested in design and in project culture. Independently of the differences between the two schools, which surprisingly did not lead to diverging conclusions, there are multiple reasons for the absence of an acknowledged specific semiotics of design projects. These can be grouped into three main levels: the basic research both in semiotics and design; the didactics and education to a semiotic view of project design; the experimental practices and their findings.

As for the basic research, it is useful to distinguish among research *on* design, research *for* design and research *by* design (Findeli, 2015). Traditionally, applied semiotics privileges studies *on* design. An example of this is the amount of applied studies on industrial design products, on service, communication and social design, on the practices of use, on artifacts and spaces. In other words, semiotics has been used both by designers and semioticians to analyze what has already been produced and is involved in everybody's social life. The aim has been to evaluate the functions, values, uses and abuses of products by adopting regulating categories and objective principles.

The second case, semiotics *for* design or, as we prefer to define it, *semiotics for design projects*, shifts the attention from the products to the processes of the design activity. Also in this case, the focus is on understanding specific problems and processes (like in an "applied semiotics"), but here it aims at individuating methodologies for an effective design solution. In our experience, semiotics for design projects (i.e. the semiotics used during the project design phase) is only applied by semioticians. Designers still consider semiotics only as an interpretative, analytical methodology.

Whenever semiotics (*on* or *for* design projects) is applied by designers, this is just an instrument chosen among many others available for clarifying and evaluating the significance and the use of a certain material or immaterial product. Semioticians studying the products of design not only share this same need for understanding the universe of artifacts, but they also intend to contribute to the enrichment of the discipline, by extending the results of applied semiotics not only to semiotics of design projects (which we will call "specific semiotics"), but hopefully even to general semiotics.

However, it is time to wonder whether all this is sufficient, which means if this "semiotic eye" on design is the only the contribution semiotics can offer to project design culture and method.

In order to answer this question, we need to observe the semiotics *for* design projects more attentively, because in this semiotics resides a question that we consider crucial: the "task" of teaching semiotics in design schools, of providing future designers with theoretical instruments allowing them to understand, and thus exploit, the semiotic nature of design. Since the purpose of any project – be it an artifact, service or system – is always a form of social mediation which conveys values, beliefs, forms of co-existence etc., semiotics must be viewed as a "mechanism" working *inside of* design rather than as a microscope to analyze the results of design. In other words, semioticians and semiotically-competent designers are individuals who take part in all phases of the design process: from the interpretation of the customer's order (often just simulated when teaching), to its reinterpretation, from the definition of a problem to solve to the identification of the product's target audience and its habits, from the functions to the values and their "successful" transmission to achieve the expected or demanded goal.

The third kind of research mentioned above, which we believe to be the most interesting, is semiotics *by* design. For semioticians, it means be involved in situations where a design projects turns into an occasion or excuse for experimenting semiotics both as analytical and project methodology, with the aim of evaluating its effectiveness for the design activity.

By examining the essays submitted for the call for papers announced by the journal Ocula[4] on the topic: *Semiotics for Design: how to teach it?*, it emerged that most semioticians and designers were focused on the first epistemological approach, i.e. on semiotic studies *on* design. In most cases, the studies were concerned with interpreting a specific design case or explaining semiotic concepts through examples taken from design. The purpose was mostly to show that both design students and professional designers activate processes of interpretation and signification (functions, values) in which semiotics can help them be more conscious of the semiosic dimension of design and hence improve their professional effectiveness. However, the mainstream – both in supporters of Peirce's and Paris School – is apparently to be stuck with studies *on* design without turning them explicitly towards semiotics *by* design. Nonetheless, we are convinced that both semiotic traditions have a huge potential for going beyond the descriptive level and trying to find the answers to those questions design poses to semiotics. In other words, it is necessary to push ourselves further to the elaboration of a semiotics *for* design that faces the challenge of a semiotics *by* design and to the actual practice of design projects. This is the only way to obtain a semiotic theory of design projects capable of accompanying the designer throughout all the design process.

What do we do then whenever we adopt semiotics *by* design and *for* the project? What do design students and designers need? Why do designers have to establish a method in the process of projecting, as the amount of traditional semiotics courses in industrial design universities in the last twenty years seems to demonstrate?

2. From semiotics *for* design to semiotics *by* design

In order to describe what happens in academic courses of Semiotics of Design Projects we can take our professional experiences in various institutions as examples.[5] In some design schools, teaching is scheduled in regular cycles, which means that semiotics classes are weekly and they alternate with the other courses, including design ones. In these cases, the courses in Semiotics are divided in to three main modules: a) a theoretical introduction to general semiotics aimed at illustrating theories and methodologies, so that the students can decide later what method is more suitable for their projects; b) a module dedicated to learning and practicing both applied and specific semiotics through an analysis of *the various signification processes* pertaining not only to design but also to literature, cinema, art, IT etc.: the aim is to provide the students with instruments and consciousness for interpreting the social reality; c) a final module introducing Semiotics of design projects to go alongside project design courses (Deni, 2008, 2010, 2014, 2015a, 2015b; Zingale, 2008, 2012, 2016a; Proni, 2012).

These three phases intend to achieve three different objectives: a) a theoretical and methodological background, b) interpretative and analytical competences and finally c) a project design methodology to construct from time to time. A further important aspect, depending on the how specific the discipline is, is the necessity of transmitting a competence that is not of immediate access, but is gradually developed in the middle or long term.

It is important to underline that the three phases presented above as three modules are continuously interwoven with references, allusions, examples and practical exercises. The introduction of the course, for example, contains exercises that allow students to apply the theoretical concepts they learn, such as Jakobson's functions, the distinctive features (Jakobson,

[4] www.ocula.it

[5] Michela Deni at ISIA in Florence from 1994 to 2014, and at Master-Course at Université de Nîmes since 2014, Salvatore Zingale at ISA in Monza from 1988 to 2000 and at School of Design of Politecnico di Milano since 1996.

1963), the primary functions (denotation) and the secondary functions (connotation) (Eco, 1968), the relation between system and process (Hjelmslev, 1943), the difference between target and Model User (Eco, 1979), the strategies of enunciation including the Canonical Narrative Path and the *Generative path of meaning* in the transfer of Values, Themes, Actors/Actants, Spatialization, Temporalization (Greimas & Courtés, 1979), factitivity and design objects (Deni, 2002). Furthermore, the process of interpretation and invention through inference, the dialogic nature of communication and project design, the project seen as an interpreting translation activity and many more concepts (Bonfantini & Terenzi, 2005; Zingale, 2008, 2012).

The above listed themes also allow some theoretical instruments and models presented while teaching to be more critical. Teaching about inferences, for example, enables a better understanding of the different kinds of logic the user activates during the practices of use: sometimes they are deductive, in other cases they are more experimental and hazardous (Zingale & Domingues, 2015). This helps overcome the generic resorting to the "intuitive" or "friendly" category of use.

The adoption the concepts like narrativity and *model user* is a further example on how to improve methods resorting to *Personas* or to the superficial concept of *storytelling*: in other words, a conscious identification and prefiguration of the project's final audience together with a deep knowledge of narrative theories to apply to various *scenarios* (practices of use), can produce more successful designers in studio as well as in co-design ateliers with stakeholders. We have often observed an over-simplification of tools like the *Personas*, scenarios presented with the *storytelling* without taking into account *narrative functions* and *roles* that, conversely, would increase designers' methodological abilities and help them rank needs and desires. If taught and clearly explained, these instruments could be extremely effective to build design strategies aimed at giving concrete response to needs and problems.

Examples, either provided by the professor or found by the students during practical exercises, allow a more conscious passage to the second module, the analytical one. It is a moment in which both teacher and students suggest and analyze deeply the *processes of signification* ranging from the *analysis of texts* (objects, films, websites, artworks etc.) to the *analysis of practices* (behaviors in situations involving users, spectators, readers, web surfers etc.). In this phase as well, the professor will continuously focus on real examples as in the first module, highlighting what our common image and comprehension of the social reality is (interpretation). This is made firstly by tutoring the students with the experimentation of a specific semiotic method to verify the initial interpretative hypothesis triggering the analysis (methodological phase). Thereafter, the attention is shifted to the design phase, underlining the importance of the *transposition* (or *translation*) from the *concept* (like values and functions of an object or service) to the object, space, service or communicative artifact it will produce and that will be used, experienced, consumed – thus *interpreted* – based on how it concretely manifests itself. It is a fundamental moment because it underlines that the awareness about project objectives and the enunciatives strategies for their achievement are a complex process composed of various levels (values, scenarios, audience, stakeholders, uses) and leading to a gradual shaping of a material or immaterial result. Such result will be *effective* and *efficient* only if, in every step of the design process, the designers are consciously able to control and verify their design projects intentions and to transpose them adequately in a finished product.

As already mentioned above, there are also other teaching contexts which are organized differently. An example of this is the Master DIS of the Université de Nîmes, where, every semester, two design projects are the supporting pillars and all the other courses are scheduled consequently. Courses like anthropology or ethnography are planned in the initial phases of the project, when the focus is on observing stakeholders. In this kind of organization, semiotics courses are normally scheduled to go

side by side with the projects from the beginning to the end: this means that the three modules described before (theory, analytical methodology, design projects methodology), though maintaining the same objectives of accompanying the project, have to be more flexible and anchored in the specific phase of the underway project. The semiotics teacher has to adapt from time to time to the students' needs and suggest theories with a high methodological potential for each corresponding phases of the project, from the analytical phase to the actual project and thus to its presentation and communication to buyers and stakeholders.

It is evident that the traditional way of organizing university courses leads to teaching *semiotics for project*, whereas the Nimes model has a more on-field structure and is able to accompany the designer favoring the *semiotics by project*.

3. The experience of the Workshop

Semiotics *by* design cannot be studied through the traditional "class" only, as the transmitted knowledge risks of remaining detached from the project practice in this way. Since it is essential to experience and to experiment, the typical lecture is necessarily replaced by the workshop, where semiotic categories can turn into operational instruments for the project.

The two authors of this paper have recently organized and run a workshop at the Design School of the Politecnico di Milano[6], in which the development of a project was *at the same time* an experience of applied design semiotics. The workshop assignment was to conceive a new wayfinding system for the *Museo del Novecento* in Milan, whose spatial organization poses critical issues for visitors. The workshop, as usual, consisted in two phases: the first was an analysis of the place and its issues; the second was the formulation of possible project hypothesis. Due to the short time available, the students where asked only to work on *processes* rather than on a detailed proposal of a specific product or service.

The students of the Design School have worked together with a group of students of the Master DIS of the Université de Nîmes. Considering the specialist areas of study of the two universities, it was the right occasion to think about design of communication as part of design for social innovation (Catoir-Brisson, Vial, Deni & Watkin, 2016), which of course cannot exclude good communicative instruments. This, though, has not been the only virtuous encounter. The two phases of the workshop have proceeded with a good coexistence and an appropriate division or roles between the two key concepts of the two traditional schools of semiotics: *structure* and *interpretation*. This has highlighted the validity of the argument we are supporting here: design processes are semiosic processes and vice versa, independently of the theory of reference. Consequently, teaching semiotics in design schools does not only enrich the cultural sensibility of the student, but also completes and systematizes the projecting knowledge even regarding the reflection upon the method.

4. A space to interpret

If we consider, as we did earlier (Marrone & Pezzini, 2006), the architectonic space as "text", or more appropriately as a process of signification, then a designed wayfinding system is a kind of hypertext facilitating the interpretation of the first text, though often in a concealed way. As a matter of fact, visitors of a social space, especially a museum, need to be guided with their least possible cognitive effort and to detect paths, passages, nodes and relevant destinations relatively to their interest or to

[6] From 21th to 25th November 2015. Professors: Michela Deni, Salvatore Zingale, Andrea Bergamini, Georges Schambach.

the museum's floor plans. The visitor must be completely *oriented* towards the works of art. In these cases as in analogue cases, the design of communication presents itself as a service instrument or a device for accessibility. The spatial architectonic elements and the signage must favor the "semiotic affordance" of a place by means of spontaneous abduction (Zingale, 2012): the capacity of encouraging use, directing and guiding. The interpretation of the itineraries must happen therefore through unconscious but reasonable inferential acts (Zingale, 2014).

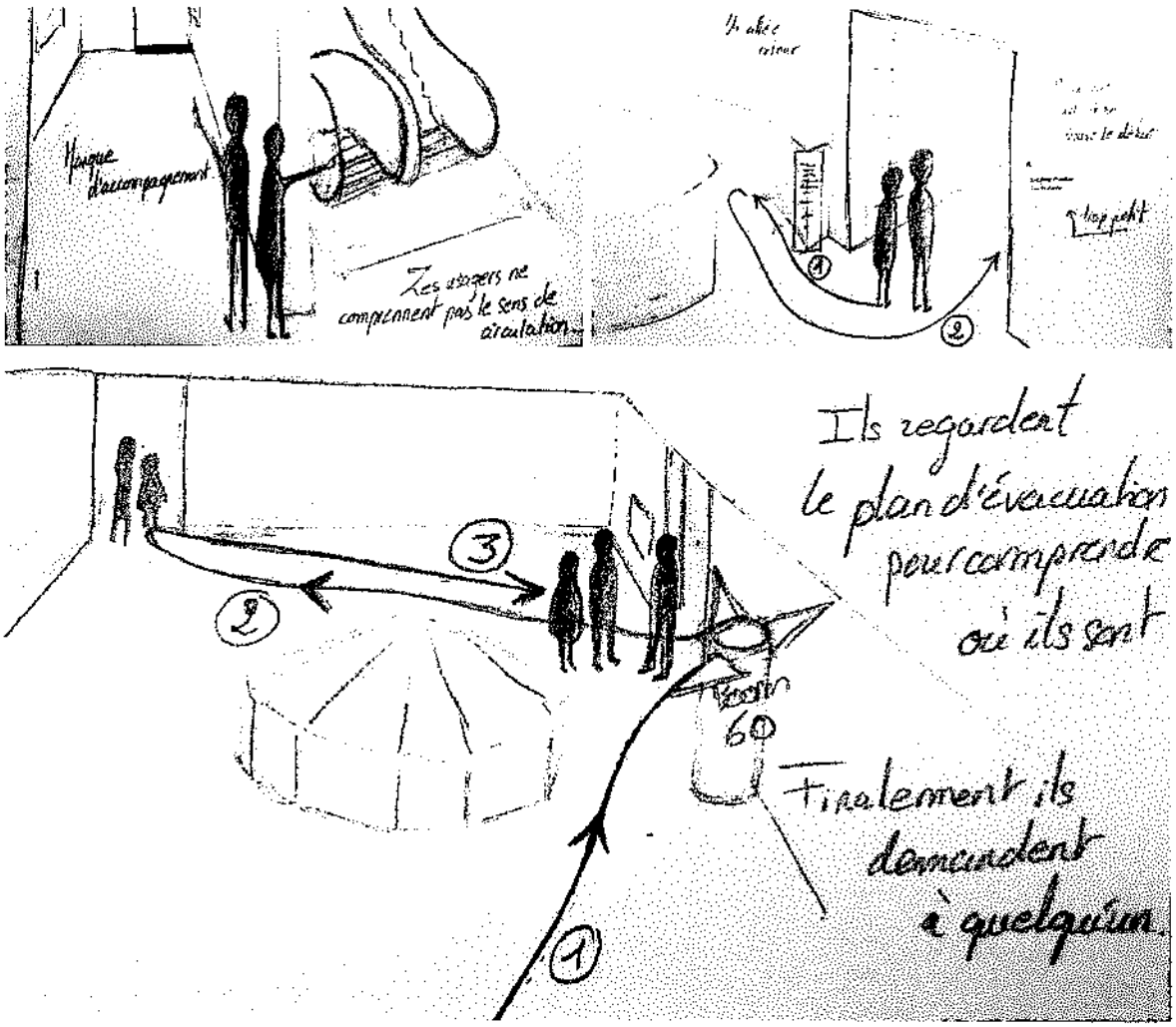

Figure 1. Observation of the orientation issues at the Museo del Novecento. Sketches of analysis. Students: Samanta Blanchard, Solene Chirossel, Caterina Orlando, Federico Regalia, Daniel Salvi.

The processes of interpretative semiosis majorly at stake here are three: the construction of a mental map of the place, the sensory recognition, and hence the *inferential understanding*. In the first two cases, being a design and thus the result of Enunciation strategies, the project directs both the indexical connections and the iconic stimulations. In the latter circumstance, the iconicity must be viewed as the ability of interpreting the elements of a place through the recognition both of their sensorial qualities and of their resemblance to "objects" already present in the mind of the subject-user via mental associations and evocative images. This is for example the way to underline the semiotic potential of notions such as *landmarks* (Lynch, 1960) and *props* (Stevens, 2006), indicating not only two kinds of spatial elements but also two true and proper communicative acts.

At the same time, a communicative act must be attributed to further elements suggested by Lynch: paths and nodes. These have an indexical value. Their task is to make the navigation scheme of a space evident by designing the logic and topologic positioning of every factor at stake: architectonic elements, signage systems, furnishings, lightning etc. It is therefore possible to re-textualize the space of the museum according to a "semiotics of connections" that makes the objects' position and orientation in space *enunciating*.

In this operation, the students have taken into account not only the logics of paths and the syntax of the museum, but also the way in which visitors might interpret and experience it. Wayfinding has been treated here from dialogic perspective, trying to foresee the interpretative responses of the audience and to identify with their behaviors and intentions. This dialogic effort between designer and visitor through the museum itinerary will be most successful if the designer is able *first* to study and only *then* to simulate the inferential behavior of the users inside a constructed space.

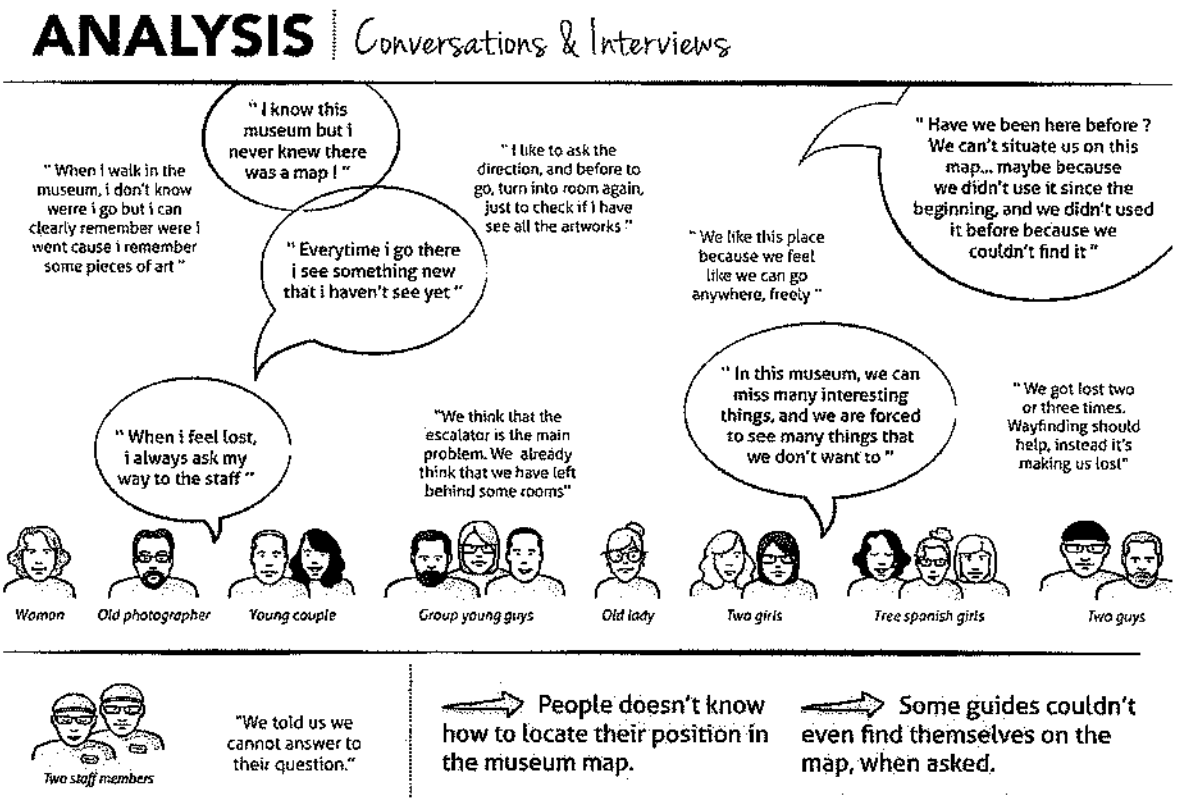

Figure 2. Summarized representation of the survey among visitors and museum personnel. Students: Nicolas Attolico, Giorgio Falvo, Pauline Henon, Manuel Aldeguer, Mauro Vitali.

Dialogicity and inferences, it is easy to imagine, imply certain acts of communication and *semiosic interaction*. Actions that can only happen through adequate *forms of mediation* by which we can think and act, among them also the *aesthetic dimension* of the product. This is a delicate point, but that needs to be tackled. The scope of semiotics is not aesthetics but, like any other concrete dimension, aesthetics turns inevitably into a vehicle for signification. At the same time, we know that we can no longer conceive design with the stereotype of creativity that creates aesthetically captivating objects; but we also know that it is namely the action of *poiesis* that distinguishes design from any other project-based activity (engineering, for example). What Roman Jakobson called *aesthetic function* (of the message) in a semiotic view on design must be viewed as a transition

moment: for example, from intentionality (of the designer) to the effect (on the user), from the product to the cohesiveness of its contents or to its schemes of use. The so-called *beauty*, in design, must be actually interpreted as expressive clarity of the artifact, as pleasantness that favors the reaction and as satisfaction for the received service. In other word, the aesthetic dimension is part of the projecting language of design.

Figure 3. Photomontage for the layout of one of the various solutions suggested by the students. Students: Federica Califano, Emilio La Mura, Alice Paganini, Giovanna Spiezia, Marco Tasca.

During the workshop at the Design School this became most evident when, once concluded the analytical phase and defined the processes leading to projecting, the students felt the urge to *try*, like a verification during an experiment, to turn the elaborated project ideas into images, even though through approximate simulations, as if they felt the need to shift from a cognitive to a concrete representation, which needed to be enacted to verify its design and therefore communicative effectiveness.

Therefore, the aesthetic function has been investigated firstly as a vehicle for the referential function (regarding the accessibility to the conveyed contents), secondly for its phatic function (which allows an optimal contact and thus interaction), and lastly for its conative function (involving the user in the effect of sense).

5. Conclusion

At least in the didactics we experimented, the experience of teaching semiotics in the designer's education programs confirms that the best results are achieved when the semiotic eye (the way of looking at culture as a continuum intertwined with various signification processes) manages to go deep inside the processuality of the project activity. This does not follow a linear path dictated by a rigid procedural methodology. On the contrary, projecting means learning to question unceasingly both a present problematic reality and the reality that the designer wants to construct, which is a

product of a transformation. The passage from a reality to the other requires what might be called a "skillful director's work of mediations": *firstly* the interpretative competence of the designer, *then* the enunciating capacity of the products of design. The problematic and investigating progression of the project activity is a true and proper semiosic work. It means to let semiotics emerge from inside design, or also semiotics *by* design.

In this second case, design can in turn transfer, in a beneficial exchange, a part of its knowledge to semiotics, especially its experimental nature, the research through verification. Because if it is true that a theory is a way to explain facts, design with the number of complex social problems it is compelled to tackle, also continuously presents facts capable of better understanding the theory. The topic of wayfinding explored during the workshop is a clear evidence of this. The interpretation of a social space and of its users' behaviors is indeed far from a pure hermeneutic practice: it requires perfecting the observational skill and rewriting what has been collected (pictures, notes, videos, interviews) into a new text, which in turn has to be translated into a concrete manifestation, the final project. On a closer inspection, the project is not the result of a calculation – though calculations can help – but rather the result of an inventive-abductive effort and/or a textual re-articulation of the expression according to a specific Enunciation strategy. In the end, we can observe that the questions arising from a system of artifacts or services are always the same: *what* does it communicate, *how*, and *whom* the project is addressed to? *For what reasons* we ask design to modify, improve or direct us to different actions from our habitual practices? These are certainly semiotic questions, but they are also necessarily design questions.

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