

The Drawing Gesture in Design Project. Portuguese Case Study

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Abstract¹

The purpose of this article is to contribute to the statement that drawing influences the design project practice through technical resolution but especially through heuristic representation. By critically reflecting about the state of art supported by the arguments of recognized authors it is suggested a theoretical approach to the topic based in 3 perspectives of interpreting drawings: (1) formal perspective defined by a conceptual context, (2) productive perspective defined by a constructive context and (3) communicative perspective defined by a expressive context. The study case addresses the practice of 16 Portuguese designers whose work is institutionally recognized in Portugal and abroad. In the Portuguese case, historically, drawing having the role of project instrument may have contaminated design practice. We seek to justify the hypothesis that designer's particular use of drawing influence the project's conferring to it a singular identity. Drawing differentiates the designed object through the act of composing. It is possible to conclude that 'adding' the hand to the brain – the shape to the content / the matter to the idea – stands for the achievement of the project and simultaneously for a revelation of the object through the poetic expression of the action of drawing.

Keywords: drawing gesture, design project, heuristic representation, author, perception.

1. Introduction

The present study aims to contribute towards design theory, based on the analysis and interpretation of drawing in the scope of design project. Targeting its development as a discipline, design uses neighboring and converging disciplinary fields that more or less remotely in fact contribute to establish a well-defined autonomous theoretical frame. It is intended to demonstrate the importance of drawing in its structuring condition behind the act of design project. Considered as originating, drawing constitutes the project's 'archaic' signifier, for drawing reveals ways of seeing the project. Therefore, drawing becomes the project's sustainable basis through technical resolution but especially through heuristic representation. The focus will be on drawing heuristics arguing that this is a very effective *moment* in the 'discovery' of the designed object.

The progress of the project's idea is driven by the level of clarification provided by drawing. The 'efficiency' of drawing reading therefore depends on the selection of meanings and on what the author is able to do with them. To read project drawings allows meanings to stem from signs, through which they are embodied, to be read through the interpretation of culturally disseminated codes (rules). The present case concerns the Portuguese context. The study involved a collection of about 4,000 images corresponding to 16 Portuguese authors, revealing per se the importance of drawing for the chosen nationally reputed professionals. The drawings although not reaching the cognitive classification of the project, seek validation for their perceptive approach. Such drawings, according to Didi-Huberman, "are a challenge to reflect about the heuristic aspects of experience: that is, to question the "evidences of the method" when exceptions multiply, the "symptoms", the cases that should be illegitimate and yet reveal fertile." (Didi-Huberman, 2000: 23)². Considering images a metaphorical representation of reality, the value of drawings lays on their interpretation of reality and not their iconic value.

1. Article written in full co-authorship.
2. Translated from the French original.

The sense of possibility overrides the sense of predictability. The rationale on the object provided by the drawing overrides the limited value of programmatic project definition. The metaphor suggests a structural understanding that does not suit a fixed way of understanding. “The syntax of metaphor is predicated on polyvalence of meaning to which it contributes with multiple determinations.” (Boehm in Pinotti, 2009: 56)³. For that reason it is not possible to standardize project drawing. To ‘see’ and to analyze the project’s images involves visual interceptions, fusions and reverberations that from the point of view of interpretation carry the individual into unexpected and surprising meanings. The purpose of our research is to understand the comprehensive value of project drawing for its ability to interpret the own motion and that of the story it relates to.

2. State of The Art: Drawing in Design

To consider drawing in the scope of Design project we started from the selection of authors through which we will discuss critically the relationship between drawing and project. For Bryan Lawson, the value of the rule as strategy for problem solving in architecture is not the main factor in project thinking⁴.

Lawson compared the problem solving strategies between two groups of postgraduate architecture and science students, respectively, reaching the following conclusion: “The essential difference between these two strategies is that while the scientists focused their attention on discovering the rule, the architects were obsessed with achieving the desired result.” (Cross, 1982, 223).

Therefore, project thinking does not use mainly scientific analysis methodologies. This allows us to conclude that through ‘the desired result’, design thinking incorporates an interrogative dimension favoring the drawing practice. B. Lawson, however, highlights the difference between ‘drawing to do something’ and drawing. He considers the valorization of drawing a possible trap, establishing a false freedom when not in concordance with the project. We consider that through practice, the critical validation of drawing may bring into to the project aspects that are liberating for the project. However, despite all attempts to systematize the use of representation by designers, drawing classification seems to remain an impossibility to be found.

Vinod Goel (1995), one of the authors that addressed the issue, considers impossible to set all the variants. According to V. Goel, B. Lawson attributes such impossibility to the existence of “many different kinds of drawings for several different proposals.” (Lawson, 2004: 33). These “many different kinds of drawings” may result from the preponderance of the designer’s visual thinking and above all from the fact that his knowledge derives from shape as visual identity. The condition ‘for several different project proposals’ results from the need to communicate as ultimate goal of the project. Subsequently, Lawson classifies drawing through the communicative typology of the roles assigned to it during the project. Drawing classification by communication typology (= function): i. presentation drawings, ii. instruction drawings, iii. consultation drawings, iv. experiential drawings, v. diagrams, vi. fabulous drawings, vii. proposition drawings and viii calculation drawings. (Lawson, 1980: 34-50)⁵. Certainly this is one among many possible ways to classify project drawing. The progression of the variables demonstrates the increasing unpredictability of the action, which results in an interaction that requires the perceptual factor to effectively integrate project thinking.

In fact, design is holistic inasmuch its way of thinking is integrative: it convokes in multiple ways the issues that project thinking evokes. One of which is undoubtedly drawing. Drawing translates conflicts, tensions and questions visually; doubts whose resolution or irresolution is proposed by graphic means. Subsequently, means of representation guide project research, becoming a model through which the known graphic elements give rise to the unknown shape. Making the project, the author knows the visual language and controls the instrumental knowledge, although he does not know the emerging shape.

As suggested by Fabio Quici, “whenever experience takes us to new or unfamiliar regions, we should always expect a new crisis.” (Quici, 2004:104)⁶.

3. Translated from the Italian original.

4. B. Lawson’s testimony, described in the experience he undertook to study the perceptive and cognitive behavior of design project. Lawson, B. *How Designers Think*. Elsevier, Architectural Press, 1980.

5. William L. Porter defines five types of actions for designers to design: 1. making, 2. reading, 3. engaging materials, 4. projecting, and 5. communicating, actions ‘intimately connected’ to observation. The combination possibilities are thus limited to the experience of the whole. (Porter in Goldschmidt and Porter, 2004: 67)

6. Translated from the Italian original.

In fact, in the project driven by drawing, those crises are often relevant reason for new achievements. Also according to Lawson (2004: 52), in the project field, drawing performs as a sort of 'external memory', exploring the complexity of the issues, selecting and ranking resolution hypotheses. Ultimately, it is to consider that drawing performs in two major ways: content (idea) and representation (form). The first is restricted to the project problem, narrowing issues, usually seeking to find an eidetic solution, the second is reflected in the practical resolution that results in the author's form of expression. The way the author draws provides information on what he means to say and bears influence on the projected matter, "(...) sometimes the hand does something that the eye re-interpreted and you get an idea from it." (Lawson, 2004: 55). Hence, Lawson's view on the contingent way of considering drawing as non-predictable matter is very clarifying. For this author, the knowledge achieved by the designer results from the action of drawing (production) and memorable experience (culture); thus, visual memory is strengthened by the symbolic processing we are able to develop upon the existence of the surrounding objects.

Simultaneously, as indicated by J. Fish (Fish in Goldschmidt, 2004: 159) through Finke (1980), Kosslyn and Sussman (1994) *visual instinct*, translated into the ability to generate images through memory of absent objects, constrains many of the properties and formats of perception, allowing the brain to imagine non-existent objects through the neuronal machinery involved in perception. The mental manipulation of images is therefore discontinuous regarding the perceptive memory of the objects in its origin. According to J. Fish, our brain works through incomplete visual stimuli that support our mental imagery (Fish in Goldschmidt, 2004: 160). In the manipulation of representation through visual memory, our brain uses objects recognition in a subjective reality. The visual thinking operating in representation results from the sensitive ability to see plus the understanding of visibility. This way, visual memory stores discrete mental images that will later be processed in the course of the project. For Stephen E. Palmer (1978), quoted by Fish, there are basically two systems of representation for three levels of mental representation: 1. represented world; 2. representation of the world and 3. interpretative process that maps the world through representation.

The representation systems are: 1. 'propositional' system (descriptive) – in which an arbitrary number of symbols, with combination rules (syntax), may be mapped into categories, propositions and concepts on the represented world and 2. 'analogic' system (depictive) – in which the represented world is structurally or isomorphically similar to the representation. (Fish in Goldschmidt, 2004: 165). Drawing the project implies a discontinuous oscillation between these two modes of representation. The analogue images more connected to the retinal vision system will be interspersed with descriptive models resulting from an 'archive' of individual memory. In between these two modes of perception, the brain executes syntheses that correspond to the procedural development of the project. The perceptive fusion that results in the act of drawing occurs in the confrontation between the two systems, while the unrest generated by confrontation enhances the project.

In turn, Jorge Spencer (2000) highlighted the ambiguity between the different characteristics associated to drawing in the reduction of project uncertainty. In the case of drawing as extended and global perceptive field, the manipulation of the problem is not restricted by an order from analytical, logical and rational reading, culturally dominant, from the left-brain hemisphere. By the opposite, its effectiveness is enhanced by the participation of the right-brain hemisphere, connected to comprehensive, synthetic and artistic properties. The discontinuity in understanding, the incomplete, the intuition and the feeling reflect the "ability to see things simultaneously, to apprehend general patterns and structures, sometimes pointing to diverging solutions." (Spencer, 2000: 288-289)⁷. According to Spencer's paradox, we stand before a principle whose propositions may be articulated in the sense that drawing's ambiguity, in its contingent course of action, resolves the uncertainty of the project, which through the multiple possibilities of response to the program promotes the emergence of the new object. Finally, according to Peter Cook (2008), to compose is an inevitable reference to the project act, both as historical understanding and as formal analysis. In his view, the 'motive force' of architecture is drawing, in its closeness to composition. It is rather unexpected the attribution of such significance to drawing by an author who was a major reference in the 60's and 70's formal rupture, and subsequently a postmodern reference. In fact, in the last decades of the twentieth century, the concepts of composition were discussed and interpreted as belonging to an ethical tradition, political and aesthetically conservative if not decadent. As noted by Peter Cook, such interpretation does not do justice to the real dimension of the composition concept.

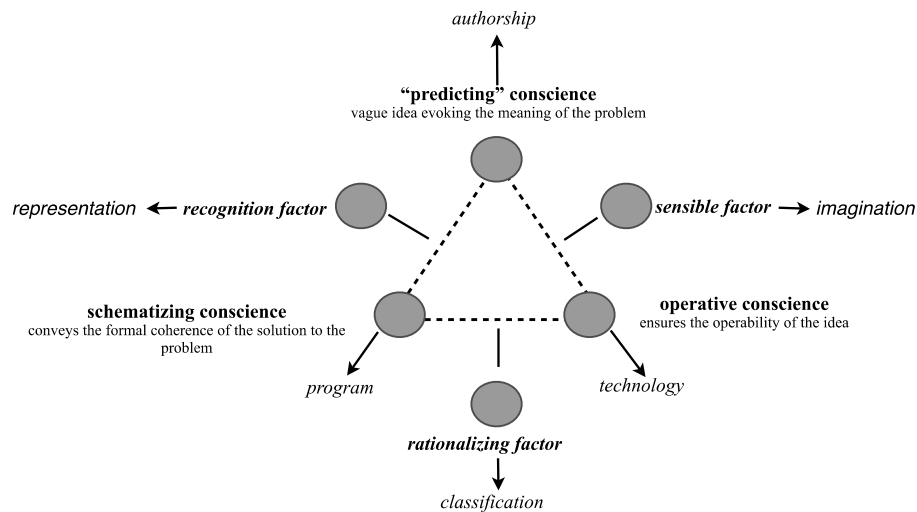
6. Translated from the Portuguese original.

Peter Cook’s view on the project work holds no pretention of abrupt rupture with what is considered architectural composition. Thus, although the compositional process may and should be equated, the legitimacy of its action remains. With the adoption of digital technologies there is an obvious change in the composition process, however, the act of composing persists, for it is through composition that project thinking expresses itself. (Cook, 2008: 93). Although the composition process is impossible to determine through a methodology that defines results, it remains a process that regards form as specificity of drawing.

3. Theoretical Approach: Three Perspectives of Interpretation

By critically reflecting about arguments proposed by the above mentioned authors we propose a theoretical approach involving 3 perspectives of interpretation of the drawing’s experience in the project. The schemes illustrate the concepts upon which each perspective relies. The figures are examples of projects’ drawings retrieved from our study case’s archive collection and indicate the opportunities drawing may represent to design project.

3.1 Formal perspective defined by a conceptual context



Scheme 1 – Articulation of project awareness

From the formal point of view, the object results from thought, acting through technical specificity. It is considered that to execute the project is to draw it as thinking that acts, able to stir up the imagination and the understanding concerning the object, being the idea implicated in the action fertilized by the problem. According to Poeirás (Poeirás in *Cadernos PAR*, nº1: 37) in the project scope there are 3 consciousnesses: 1. consciousness that “senses” – a vague idea that evokes the meaning of the problem, 2. consciousness that operates – ensuring the idea’s operability, and 3. consciousness that outlines – that conveys the formal coherence of the problem’s solution. Therefore, the scope of the object’s issue is defined by 3 consciousnesses: 1. consciousness that “senses” = defined as a vague idea that evokes the meaning of the problem → linked to authorship;

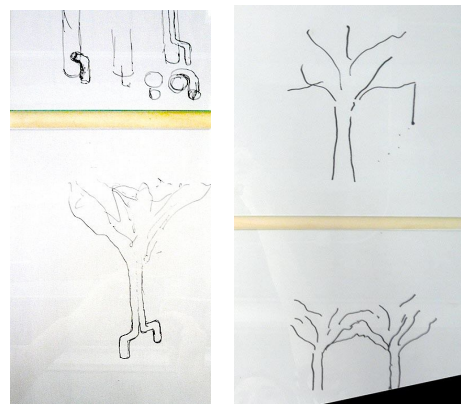


Figure 1.a, 1.b – Brizio, Fernando, Sketches

2. consciousness that operates = ensures the idea’s operability → connected to technology;

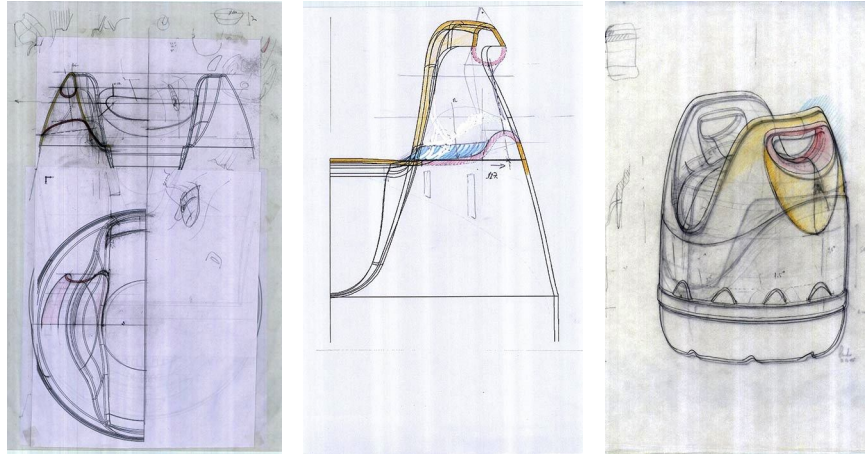


Figure 2.a, 2.b, 2.c – Aguiar, Carlos, *Portable Gas Bottle CoMet*, 2006

3. consciousness that outlines = that conveys the formal coherence of the problem’s solution → linked to the program.

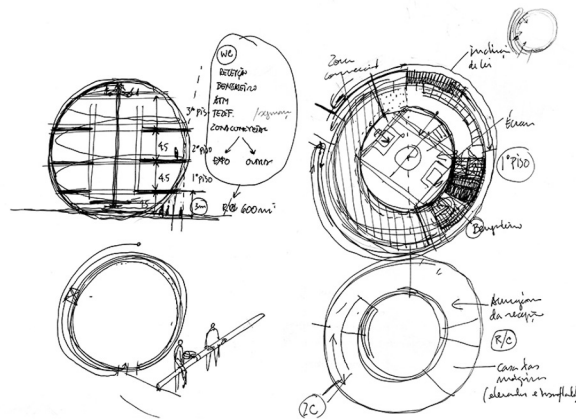


Figure 3 – Cayatte, Henrique, *Multipurpose Centre*

If project drawing articulates the coherence between consciousnesses, we reach complementarity, from which we may define the value of the use of drawing through 3 factors:

1. communicative recognition factor ↔ corresponding to representation;

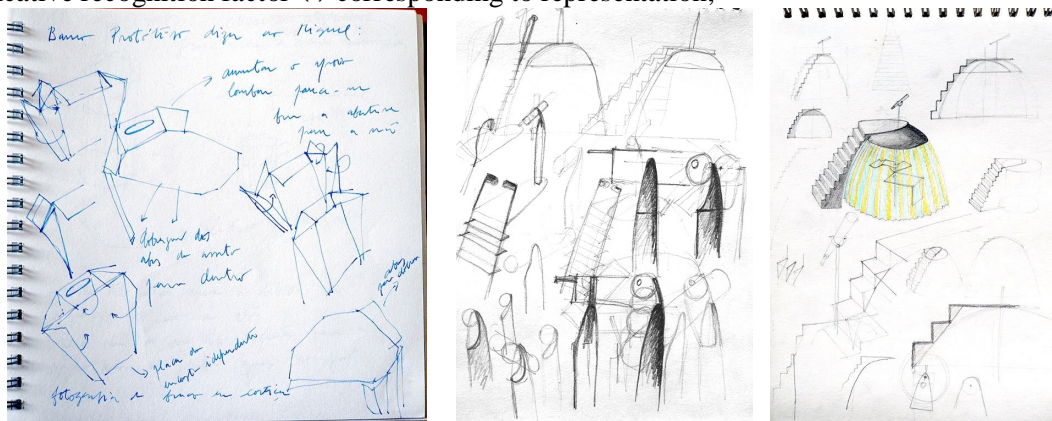


Figure 4 – Cunca, Raul, *System0.7*, 2009

Figure 5.a, 5.b – Cunca, Raul, *Urban Satellite* (with Paolo Deganello), 1992

2. sensitive or emotional factor ↔ corresponding to imagination;



Figure 6.a, 6.b – Luis, Gémeo, *Book Illustration's*

3. comprehension, rational factor ↔ corresponding to classification.

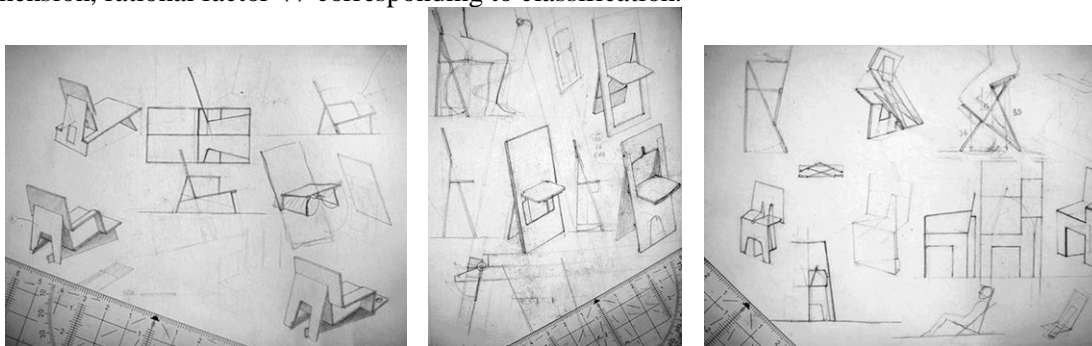
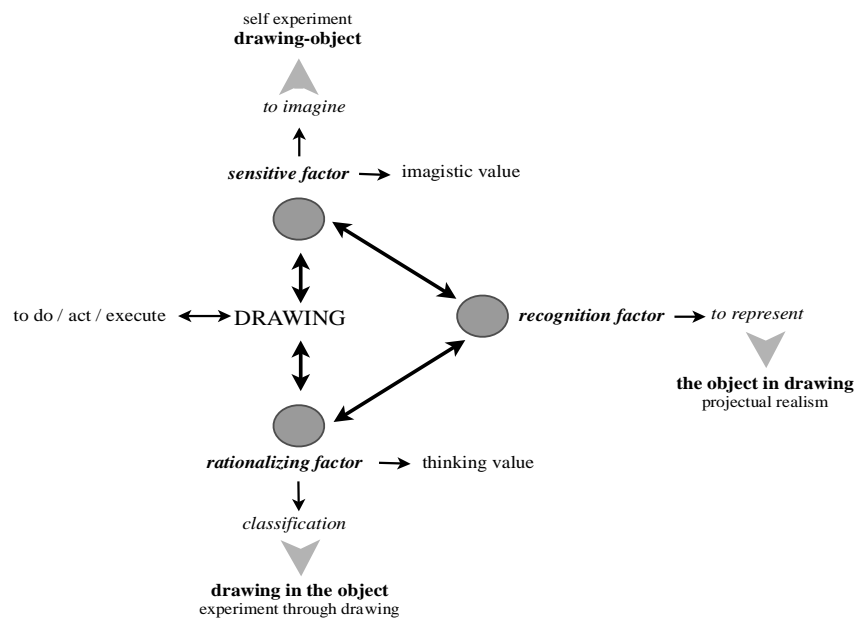


Figure 7.a, 7.b, 7.c – Viana, José, *Sketches of Chairs, 2004*

Hence, drawing assumes a value of thought that consists in comprehending the object, and an image's value consisting in testing the imagination on the object.

3.2 Productive perspective defined by a constructive context



Scheme 2 – Project drawing productive capacity

From a productive point of view, drawing enhances the author's experience causing it to revert to the projected object. The experimental capacity of drawing is thus expressed in the project. These are the traces that reveal the usefulness of drawing corresponding to a particular mode of execution. As a consequence, the productive capacity depends on the different sorts and levels of drawing experimentation. For instance, to represent may involve a certain level of realism which in turn implies experiments on the object's formal possibilities; in turn, to imagine implicates an experimentation on the marks of the drawing itself, whereas in the act of classifying, drawing's experience is expressed in the designed object. Differing from drawing's proposed intent, there is also the experience of its irresolution. Such may be considered at three levels: 1. difficulty of drawing by the hand of the draw maker; 2. internal imbalance between means and resolution; 3. external imbalance between will and power, through the body of the drawing maker.



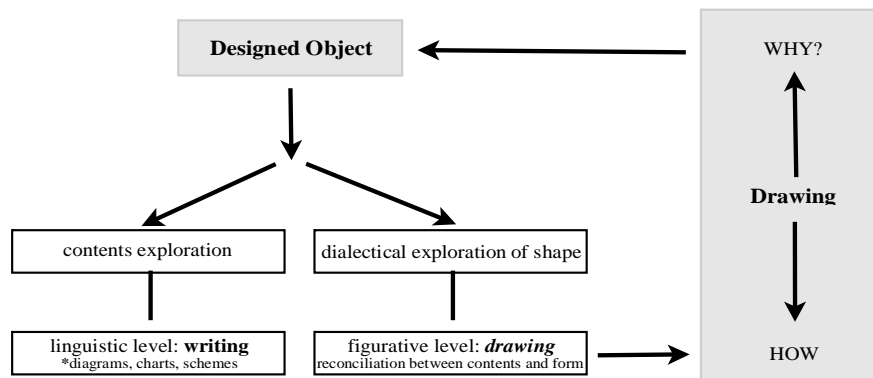
Figure 8 – Machado, João, *AUTOPOR _ 2nd Fair Used Cars*, (poster), 1987

Figure 9 – Machado, João, *Oporto Garden Park* (poster), 1993

Figure 10 – Machado, João, *Macau Week* (poster), 1984

3.3 Communicative perspective defined by a expressive context

Considering the designed object from the perspective of desire to communicate symbolically, the importance of the problem is revealed in the drawing, which assumes through form a rhetoric function underlying the operative system.



Scheme 3 – The nature of the object

In this case, representation goes beyond the functional consideration of the project, since the drawing modes intervene in the idea of representation. Drawings are therefore the author's expression and form of knowledge. As a result, the paradigmatic cases of authorship may be a source of knowledge in the dissemination and qualification of design practice. As presented in Scheme 3, the nature of the designed object is complex. From the standpoint of communication it is an artificial device, in which the nature of the drawing reveals the emotional expression of the artifact. We may then admit it is difficult for a 'good' drawing to originate a 'bad' project. However, a 'bad' drawing (from the point of view of 'bad' graphics) may originate a good project. This happens because a 'good' drawing reaches the intention for which it exists. In a broad sense, effective communication is the prime purpose of drawing, and drawing's ideal existence is not subject to pre-established rules.

While drawing, the subject/object interface is physically close. The *laterality of thought* revealed through drawing calls upon other images (also visual matter); whereas in the project, *laterality* is much more comprehensive, calling upon visibility among other senses. Hence, *transforming laterality* enables project's development. The fact that a 'good' drawing is connected to a 'good' project is probably due to the visual character by which project circumstances exist. We may advocate that the chief factor in the impact of the projected object is visual. The object is mostly apprehended by visual reasoning, by shape and visually mentioned contents. Therefore, drawing is the language that best suits thinking about the object, both in its exhibition and its communicative representation.

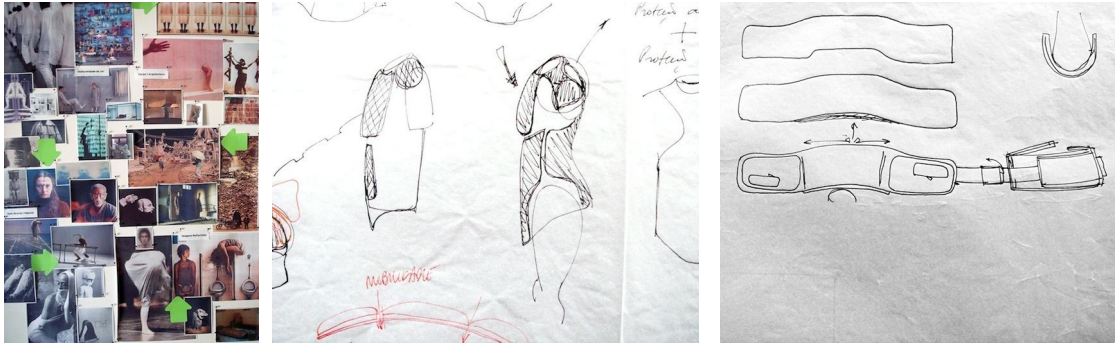


Figure 11 – Rios, Miguel, *Image Composition*, 2009

Figure 12 – Rios, Miguel, *PROTECT URBAN PRO*, 2007-2010

Figure 13 – Rios, Miguel, *System 2k07*, 2007

The purpose was to recognize the object through a body of drawings that legitimize its readability. In disciplinary terms apart from moral individual bias, this involved an ethics and politics of drawing that considers representation as an act of communication. The main issue concerning drawing in the scope of the project results from: 1. its nature as existing entity, 2. its determination as project matter; reasons why the project should not exclude drawing. To draw in the scope of the project is to meet the reason why the discipline takes material shape (construction). To seek project's clarification through drawing results from the project's internal 'need', making it mean through the author and not through a speculative or spectacular proposition.

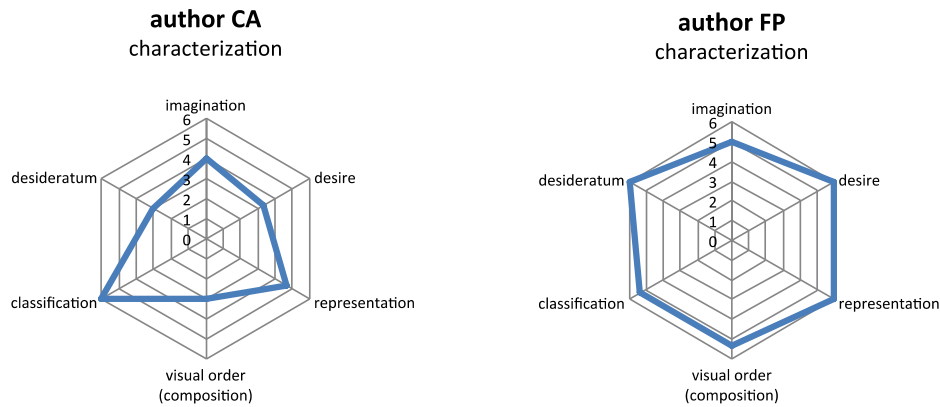
4. Case Study

The gathered material constitutes a collection of about 4,000 specimens corresponding to 16 designers from two contrasting and paradigmatic cities in Portugal: Lisbon (capital and southern city), and Porto (second city and first in the north of Portugal). This collection is by itself evidence of the material importance of drawing for all those who collaborated, chosen among prominent professionals with notorious national reputation. We hypothesized that drawing favors the emergence and development of the idea, conveying onto the project the author's expression signals. Those signals transformed into signs add value to the object, justifying the creative and symbolic understanding of the artifact through the poetics expressed in the object. The proposal interprets the 'connection' – eventually fractured, disintegrated or accidental – between observing and recording. Drawing is the experience of this way of acting and thinking. We analyzed the influence of drawing practice and conceptual use in the conception of the project, and how the designer's perceptive interpretation calls upon a particular use of drawing. By interpreting the drawings it is discussed the drawing practice, considered as distinct from the project from the epistemological point of view, but still contributing to critical debate in design.

5. Discussion of Results

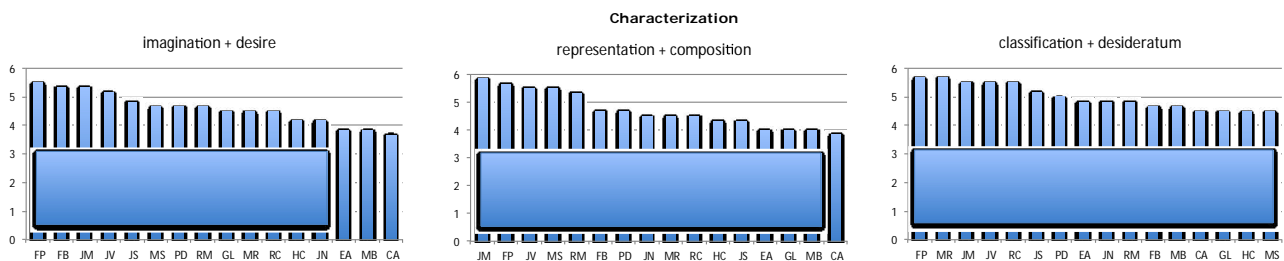
The scientific demand for a quantitative analysis of drawings naturally collides with the inability to find an analytical grid sufficiently assertive for a taxonomic construction of categories, based on a reference identified and defined by author. For the analysis of drawings it was considered the crossing between drawing and design, as following: drawing as result of the interception between imagination, representation and classification and project as result of the interception between desire, visual arrangement (composition) and desideratum. The outcome of this crossing gave information about author's drawings in three categories: characterization, content, form. Each category was organized in a scale of values from 0 to 6, corresponding each interval to a point of the interception between imagination, representation and classification and desire, visual arrangement (composition) and desideratum.

Our global study includes two types of charts (radial and linear) for all categories and for all authors. In this article for reasons of length we display the charts (radial and linear) just for one category, namely characterization. The analysis of all charts applied to the categories of characterization, content and form converge to the conclusions and reflections presented in this article. From the radial charts and the linear charts assessment it was possible to infer the predominance or minority of each category. The radial charts allow a graphical observation of order of intentions, underlying the subjectivity in design practices and thinking. In Scheme 4 it is displayed two contrastive examples of two authors’ drawings analysis.



Scheme 4 - Radial charts – examples of polarization and concentration

Two major perceptual modalities in the project’s making subjective through drawing were devised: *polarization* – translating focused targeting, specialized, forming radial figures, triangular rather than hexagonal; *concentration* – consisting of comprehensive targeting, diversified, forming more hexagonal than triangular figures. In turn, *concentration* may be *peripheral* ⇒ greater intensity, or *central* ⇒ lower intensity. The linear charts assessment allows comparing characterization, content and form, individually and among authors. It will be displayed results only for the category characterization (Scheme 5).



Scheme 5 – Linear charts

It should be noted that project clarification through drawing is not proposed by the linear project description but instead by the *connection* of the program in the space and time of representation.

The *connection* is therefore an operative program, more or less established or intuitive, performing as interpretative formulation of hypotheses. Drawing is considered the result of the inevitability of being and thinking through the hands of those who practice it. From the point of view of usability, to ‘join’ drawing does not require justification. Drawing’s inspiration, in what it holds more genuinely, has multiple appearances – as many as the drawing is able to represent.

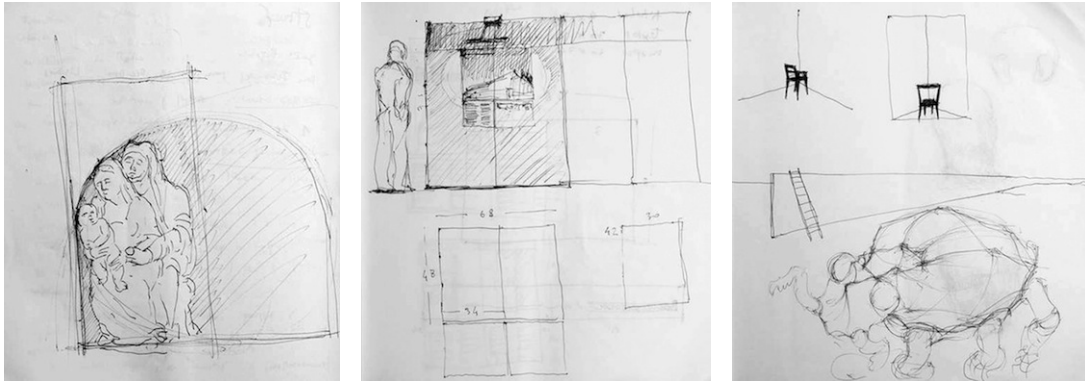


Figure 14.a, 14.b, 14.c – Providência, Francisco, Batalha Abbey, Permanent Exhibition, 2006

From the studied material we concluded the impossibility of a quantitative assessment since the drawings' description varies in formal specificity and in number. Although the sketch predominates, drawing modes vary. Firstly, from the communicative standpoint it should be noted that drawings depend on what the authors intend to transmit of themselves, since their sampling depends solely on the authors' will, causing them to reveal both project and authorship. The results showed multiple drawing techniques, underlying the subjectivity in design practices and thinking. From a qualitative analysis of drawings we are able to state that drawing is: 1. materially substantive in project making; 2. author's freedom domain; 3. a heuristic experience; 4. asserts itself as individual possibility to meet the materialization of desire; 5. evokes imagination through the author's body.

6. Conclusion

Considering that in the Portuguese case, historically, drawing has the role of project instrument, with its technical aspirations and heritage it may have contaminated design practice. Drawing and design share a common etymology in Portuguese (*desenho*, from Latin *designare*, also originating design). Genealogically, then, design merges with the drawing that precedes as evocative instrument, founding and ritualizing the cultural community under a primitive technicality. Therefore, design cannot, except in an abstract way, be severed from its drawing ancestry, as signifier and signified cannot be parted without the subsequent alienation of the sign, which means there is no design without drawing. In this case, drawing derives from action, internal and external, to observe and record as symbolic act, validating the *object* through the act of composing.

The considered drawings result from the action of the *hand-body* of the author adding to the idea the performance of the presence. It is possible to conclude that 'adding' the hand to the brain – the shape to the content / the matter to the idea – stands for the approximation to the truth that images demand. The existence of the drawing is material and so the project progressing through drawing derives from subjective impulses, from contents, when graphs inscribe such contents. Drawing results from this dual perception. In this case, the relationship between the perception of a drawing and the allusion to the represented object is not achieved through representation and context, it does not derive from the phenomenal perception of the drawing and embedded reality, but rather from the perception of the gesture, labeling a memory, added to the 'counter-gesture' marking the disappearance of that memory inscribed in the possibilities suggested by the drawing system. A drawing is therefore a technical instrument through which the project is fulfilled and simultaneously a revelation of the object through the poetic expression of the action of drawing.

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