author(s)

Vasco Branco vasco.branco@ua.pt
ID+ / University of Aveiro

Design and research in design: some reflections

abstract

The lack of clarity about what it means to be a designer remains one of the biggest problems facing this professional class in Portugal in the definition of their social affirmation. One of the endogenous problems for design activity itself is the need to construct a discourse which will clarify the ontological contours which correlate with the contemporary state of the trajectory of Design.
In this paper I depart from the triangular model proposed by Francisco Providência, to deduce – as I will aim to demonstrate, based on simple geometric reasoning - that any design solution results from the convergence of negotiated responses to the three categories of simultaneous requests that emerge, either from the assumption of the Materialization of an artefact (regardless of materiality), through awareness of Other, or from the imperative of Meaning production.

keywords

design ontology, design research, graphical models, geometric reasoning

Introduction

The Higgs Particle, whose potential discovery at CERN - fifty years after its theoretical formulation - appears to play a central role in the understanding of the universe, as it gives mass to other particles[1]. Although fully comprehending the extent of the importance of this discovery seems difficult for a layman, it is nonetheless an extraordinary demonstration of the cosmological and poetic potential of theoretical models, and of the capacity of these models in the organization and mobilization of fields of knowledge. In relation to Design, knowing what "gives mass", also appears to be essential, to better know its territory in order to become competent, but in particular, skilled[2] - which involves investigating the ontological dimension of design, defining a disciplinary field which then becomes visible and differentiated from other areas, which often interact and intersect. Since 2007, I have been setting an exercise for students participating in the module 'Semiotics of Artefacts' (as part of the second year of the Degree in Design programme at the University of Aveiro), in which I propose that each of my students should visually

illustrate – in a manner which can been understood by a generic audience - their own concept of design. I agree with Bernard Burdek (1994), in his affirmation that a designer should be an expert in the functions of language of the products and hence able to communicate, but also to visually think, as these are indispensable competencies which should be acquired and developed during the frequency of the several design studies cycles. Therefore, I ask students to express their point of view about what the concept of design means, through three instruments: a pictogram they must draw, a chosen image of nature and finally, a chosen artefact. However, this is a two-part exercise. The second part is instrumentally identical to the first, but differentiates whereby the student is then asked what they think that other people (who do not have a background in design) consider design. I usually suggest that the students conduct a small survey of a convenience sample (friends, family and colleagues from other areas of knowledge).

The most extraordinary and disturbing result of this exercise is that, even today, after six years, not one student has shown - either visually, or semantically - similar illustrations for the both parts of the exercise. If, for the first part of the exercise, each student takes the opportunity to create their own manifesto, the second part illustrates, almost shamelessly, the mental image that the public form about the students' future profession – an ontologically blurred image of what they believe will be their mission as designers. There is an obvious disparity between the skills that students expect to accomplish during the degree programme and the skills perceived by the publics about the profession designer:

- the design student community speaks of ideas, of form and function, the synchronisation of concerns of various disciplines, the defence of the "users", the balance negotiated between the social, political, cultural and ecological dimensions;
- the majority of people surveyed tend to see design only as an applied art, like anything that is only connected to aesthetics and luxury. It is rarely considered a solid profession in itself, with its own technical knowledge which is reliable and which attributes skills and responsibilities.

According to Krippendorff (2006: 31) "Terence Love[3] has identified as many as 650 fields in which design is practiced. Schön (1983)[4] and Argyris et al. (1985)[5] see design as underlying all professions." and "For Nelson e Stolterman (2002 "design is a natural human activity and everyone designs all the time." Roger Martin, dean of the Rotman School of Management, Toronto says that "businessmen do not just need to understand designers better; they need to become designers" (Osterwalder, Pigneur, 2011: 124).

The lack of clarity about what it means to be a designer remains one of the biggest problems facing this professional class in Portugal in the definition of their social affirmation, even without the recession, but especially now in the current climate whereby most economic decisions are seeking competitive advantages from strengths anchored in factors of production, such as the price of labour or improved efficiency due to technology.

Thus far, I have spoken about companies, but I must also mention the low value of design and of artistic areas in general, both in academia and institutions that manage research in Portugal.

I would like to reiterate the necessity of recognising the specific nature of design and artistic fields. These areas are compromised when judged in foreign territory. This creates the risk having a system which solely includes artists who only write scientific papers or designers who no longer design, as the nature of traditional research drives them away

[3] Love, Terrence (April 25, 2004). From PhD-Design@jiscmail.ac.uk.
[4] Schön, Donald A. (1983). *The Reflective Practitioner; How Professionals Think in Action*. New York: Basic Books.
[5] Argyris, Chris, Robert Putnam, and Diana McLain Smith (1985). *Action Science*. San Francisco: Jossey-Bass.

from desire and drawing, instead leading them towards the promise of acceptance in a community, subject to a language which not their vernacular.

Taking a step back in order to focus on what I consider be an endogenous problem for design activity itself: the need to construct a discourse which will clarify the ontological contours which correlate with the contemporary state of the trajectory of Design.

Rui Costa (2007) examines the view of this author in his article[6] "triangular structures in research design: convergence in dispersion" when revisits some triangular representations about the design. Costa also studies other models, such as those of Vitruvio[7] (Firmitas, Utilitas, Venustas), Paul Mijksenaar[8] (safety, satisfaction, utility), Elzbieta Kazmierczak[9] (constructed meaning, received and intended) Reinaldo Leiro[10] (technology, usability and signification), Francisco Providência[11] (authorship, technology and programme) defining their mapping and convergence, vertex to vertex and the concepts involved in the various proposals in a single triangle (fig. 1) (Costa, 2007: 170-176). In detailing the conceptual trilogy, of Vitruvian inspiration, proposed by Francisco Providência, we recognise that if the technological vertex (means of production, construction) and programme vertex (needs, utility, functionality) reveal the set of constraints regarding the project, the authorship vertex thus indicates hermeneutical but also ethical responsibility.

Francisco Providência (2008: 8) cites Ortega y Gasset in order to reflect on the extent of authorship in design: "The poet begins where the man ends.

The man's lot is to live his human life,

the poet's to invent what is nonexistent." Therefore, the poetic craft is justified. The poet augments the world (...)Author derives from auctor, he who augments. It was the title Rome bestowed upon her generals when they had conquered new territory for the City" Providência concludes that "(...) to invent what is lacking, the designer, the poet, establishes purposes that go from simple survival to happiness, creating artefacts that respond to requirements from goodness to beauty. When confronted with the

Figure 1.
Convergence of triangular models about the project (Costa, 2007: 176)

[6] Written in Portuguese. Original title: "estruturas triangulares na investigação em design: convergência na dispersão"

[7] Vitruvio, Marco, *De Architectura Libri Decem, Book I* (séc.I A.C.). Available in: http://penelope.uchicago.edu/Thayer/E/Roman/Texts/Vitruvius/home.html [Accessed 11.03.2006].

[8] Mijksenaar, Paul [1997], *Una Introducción al Diseño de la Información*, México, Gustavo Gili SA de CV, 2001). The original edition,*Visual Function, An Introduction to Information Design*, was first published in 1997.

[9] Kazmierczak, Elzbieta (2003), "Design as Meaning-Making: From Making Things to the Design of Thinking", *Design Issues* 12:2 (Spring 2003), pp. 45-59.

[10] Leiro, Reinaldo, "Lo específico del diseño" in *FOROALFA*, Available in: http://www.foroalfa.com [Accessed 11.03.2006].

[11] Providência, Francisco (2003), "Algo más que una hélice", in Anna CALVERA (Ed.), *ARTE ¿? DISEÑO, nuevos capitulos en una polémica que viene de lejos.* Barcelona, GG Diseño.

 impossibility of ensuring happiness, the designer tries to provide beauty." However, according to the triangular model (Fig. 2d) proposed by Francisco Providência, it is still possible to deduce – as I will aim to demonstrate, based on simple geometric reasoning - that any design solution results from the convergence of negotiated responses to the three categories of simultaneous requests that emerge, either from the assumption of the Materialization of an artefact (regardless of materiality), through awareness of Other, or from the imperative of Meaning production. Three points geometrically define a plane. Thus the vertices of the triangular model - authorship, technology and programme - define a plane, which I call "construction of the artificial" in which design is located. If we join every pair of vertices (points) with a straight line, we create several half-planes. Therefore, "authorship/programme" line breaks the artificiality plane in two half-planes: one of which is dematerialized, abdicating of 'technology' or the constructive dimension, houses artefacts of thought. The other corresponds to its materialization (Fig. 2a).

Figure 2.
Leochares, circa
Analysis of the
triangular model of
design as proposed
by Francisco
Providência
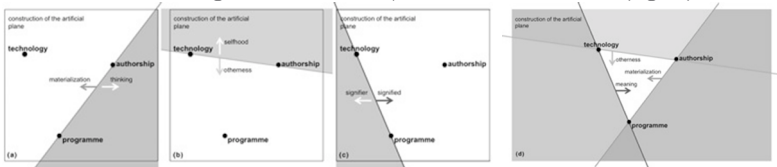
The "authorship/technology" axis causes the partition in two half planes: "selfhood" and "otherness", the first of which is freed of functional responses to the needs and desires, either implicit or explicit in communities discourses (fig.2b). Finally the "technology/ programme" line defines a limit between the appreciation of signification process and the optimization of technical solutions. In this last case abdicating any subjective experience of the operator and essentially focusing on the significant dimension, with a view to standardization and universalism (fig. 2c).The intersection of these half-planes configures the plane "construction of the artificial" in several fields – the identity of which is deduced directly from the result of the geometric operation performed - and clearly establishes the position and relationship of Design with other disciplinary areas (Fig. 3). Design is a triangular enclave at the intersection of the territories that other disciplines do not - by their nature – occupy, because: authorship (poetics) is epistemologically irrelevant to engineering, art dispenses with utility, and management does not need to directly confront with the constructive dimension. If, in agreement with Enzo Mari (2003) we concluded that the genetic code of the design comprises the idea of qualifying life, the two conclusions emerge from the delimitation triangle:

- design participates in the plane of construction of the artificial, through the conception of artefacts of cultural mediation (Providência, 2012);
- the designer is "a semantic agent, an interpreter of a desire, a translator of a will, and a producer of meanings through form realisation", as Joana Quental (2009: 6) stated in her PhD dissertation, or, as João Branco would say: "the designer is an engineer of signs". Returning once again to Krippendorff (2006: 48), it may be considered that "Designers' extraordinary sensitivity to what artifacts mean to others, users, bystanders, critics, if not for whole cultures, has always been an important but rarely explicitly acknowledged competence. Putting meanings into the center of design considerations will give designers a unique focus and an expertise that other disciplines do not address.
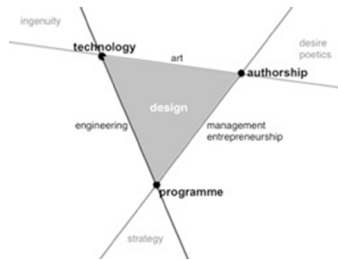
Figure 3.
Design as the interface between other disciplinary areas

Conclusion

This set of reflections on the ontology of design and research in this field emphasize the importance of the translation of a model that allows exploration and debate, in order to gain consistency as an analytical instrument.

The triangular model used in this study seems to reveal an effective behaviour in response to questions of delimitation of this disciplinary field, clarifying the role of cultural mediation that is attributed to design. However, it should be reaffirmed that this model does not consider either the stable or impermeable boundaries. The model must be understood as an organic and porous structure, polarized around the three essential kinetically animated particles: author, technology and programme.

It was also possible to establish a relational framework between the field of the design and some of the main models proposed for research in this field.

Hence, we return to various texts and proposed models, those which are most studied in this context (Frayling, 1993), Nigel Cross (2000), (Jonas, 2007), (Fallman, 2008) trying to map their concepts with the presented graphical representations.

The line "author / programme" remained present, although potentially replaceable by the binomial "investigator / problem", to clarify the distinction between points of view (within the field of design or other disciplines) and types of results (an artefact, whereby the design project has materialized, or thought which can be communicated and re-used) in design research. Through inspection of graphical representations several situations depending on the location of the viewpoint and the results can be identified:

- with the starting point of research outside the disciplinary field of design, it does not appear possible or interesting for results to materialize in artefacts. The territory can be observed; actions can be taken to appropriate some disciplinary dimensions of design, but the objectives are located within the paradigms of the discipline of departure. The relevance of the results to design correlates with their proximity to the point of departure regarding the culture of the discipline.

- if design is to be the perspective which guides the research (with the starting point within the field) the results may assume diverse natures from theory to artefacts. In the latter case - the materialization in artefacts - the research effort comprises a projective action which necessarily implies the condition of authorship - the poetic dimension – of his agent. On the other hand, assuming that research translates into new knowledge that fuels the culture of the discipline, this encompasses contributions and methodological pathways that, in addition to which it is natural - caused by the project action – which are appropriate to the field in order to produce results in other areas.

Leaving open the possibility of a research outcome which does not explicit verbal communication, Frayling considers that a primarily visual or iconic communication can derive from thought which is incorporated in an artefact (Frayling, 1993: 5).

Nigel Cross is explicit in noting that "to qualify as research, there must be reflection by the practitioner on the work, and the communication of some re-usable results from that reflection." (Cross, 2000: 47). Ironically, it seems that what turns a designer into a researcher is a soul-searching process, which allows the designer to pass on writing what was decided and revealed before through drawing, which should be peer evaluated in their own language.

Jonas and Fallman refer to reciprocal contamination between design and research and, despite the difference between subsequent objectives and approaches, trace clues that seem to clarify the fact that the academic dimension of research design is necessary, but not sufficient.

It is possible that any design studio is also a research laboratory. If not, it could or should be.

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