

Teaching, research and university extension from a perspective of Design for social innovation

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ABSTRACT

This article presents a report of the postdoctoral research entitled "Teaching, research and university extension from a perspective of Design for social innovation", conducted at the ÉCOLAB/ÉSAD, Le Studium Loire Valley, Institute for Advanced Studies, in Orléans, France, between April and September 2018. The report considers the experiences shared throughout the program, the updated literature review and an account of my experience as a professor and researcher at the Graduate Program in Design of the Federal University of Rio de Janeiro, School of Fine Arts, in Rio de Janeiro, Brazil.

Keywords:

design, ecology, social innovation, teaching, research, university extension.

1. Introduction

This article presents the activities conducted as part of the postdoctoral program at the ÉCOLAB/Le Studium Loire Valley, Institute for Advanced Studies. It introduces further theoretical work and the main results obtained from the research “Teaching, research and university extension from a perspective of Design for social innovation”, currently in progress at the Federal University of Rio de Janeiro, in Brazil.

The account presented in this scientific report is based on the experience as a member of the scientific board of the Graduate Program in Design at the Federal University of Rio de Janeiro (PPGD/EBA/UFRJ); on the updated literature review of the research; and on the activities conducted during the postdoctoral period. These actions constitute the results from reading and from the participation in conferences and seminars at partner institutions.

Considerations about the creation and implementation of the PPGD/EBA/UFRJ, which relates to this research, were aimed at identifying intrinsic and extrinsic characteristics of design intermediate objects, to enable the participation of the Graduate Program in Design at EBA/UFRJ as one of the forms of association mentioned in Ordinance no. 214, of October 27, 2017, by CAPES (Brazilian Coordination for the Improvement of Higher Education Personnel).

The starting point is the subject *Intermediate design objects: modeling and communication*, under the responsibility of Professor Beany Monteiro. The proposal was to include the aspect ‘coordination’ in it and to approach the issue ‘forms of association’ as a case study within the subject. In this case study, the objectives of the forms of association (defined in Article 2 of the Ordinance) are considered intermediate design objects of an association between Graduate Programs.

The objectives proposed within the forms of association are: 1) consolidation and expansion of areas of knowledge; 2) reduction of territorial asymmetries; 3) promotion of programs under development by means of partnerships with consolidated programs

consolidated Graduate Programs to function in forms of association, as proposed by CAPES, they should develop tools, identify structures and work in conditions that enable their actions to reach those objectives, not disregarding the existence of different organizational and territorial realities.

Assuming that the forms of association are characterized by the reciprocity between the groups of intrinsic and extrinsic characteristics of shared intermediate design objects, it is possible to identify the positive and negative impacts of these relations upon the objectives proposed by the forms of association. Therefore, it is possible to identify the positive and negative impacts of the forms of association on the promotion of new Graduate Programs.

Accordingly, the approach to intermediate design objects, as regarded in the subject *Intermediate design objects: modeling and communication* can be expanded. First, in the sense of explaining the principle of individuation of the intermediate design object in terms of intrinsic and extrinsic characteristics (SIMONDON, 2013); second, in the sense that the principle of object individuation helps preserve the autonomy of the knowledge generated from several contexts, reducing territorial inequalities with stronger associations and playing the role of a coordinator of the forms of association.

The associative milieu to be considered in the subject will be defined as the one that can allow interactions between researchers, professors, employees and students from two Graduate Programs engaged in the associative efforts. The role of each one of the partners will be identified from the nature of the intermediate design objects produced by them. So, mediation and coordination are instances to be observed in the associative milieu, as they relate to the intermediate objects used and generated in the interaction between these participants.

2. Experimental details: objectives and methodology

The general objective of this research is to develop pedagogical and didactic tools that

allow the integration of the autonomous knowledge constituted in the extensions actions in the teaching, research and university extension in the field of Design.

The case study about the role of Graduate Program in Design/EBA/UFRJ in the forms of association is subdivided into the following specific objectives:

- 1) to consolidate and expand the field of Design knowledge for Social Innovation;
- 2) to help reduce territorial asymmetries given the knowledge of this specific field;
- 3) to incentive programs under development by sharing experiences related to the creation and implementation of the coordinating program.

The methodological approach has as a reference the action-research, and, more specifically, the three movements identified by it: one that goes from the research towards the action and that corresponds to the development of the theoretical scenario of knowledge, consolidating and expanding professional practice in Design; another one that goes from the action towards the research, and that corresponds the interpretation of the results from a practical intervention in the theoretical field of knowledge; and a third one that follows a converging direction, with common objectives, and that generates autonomous knowledge in relation to the knowledge constituted by the two aforementioned movements (EL ANDALOUSSI, 2000; NICOLESCU, 1996; MORIN, 2010).

The research methodology, updated throughout the postdoctoral period, is organized into four steps:

Step 1 - Triggering

- a) Survey of teaching, research and extension actions conducted by the associate Graduate programs.
- b) Mapping of the actions by thematic area for preliminary identification of their intrinsic characteristics.
- c) Mapping of the actions according to their context for the preliminary identification of their extrinsic characteristics.

d) Mapping of knowledges related to the action project and organization of the groups of knowledge formed for the action - intrinsic characteristics.

e) Mapping of knowledges related to the context of the action and organization of the groups of knowledge formed by the action - extrinsic characteristics.

f) Mapping of autonomous knowledges, formed in synergy within the action and organization of the groups of knowledge formed within the action - intrinsic and extrinsic characteristics.

g) Visual and graphic representation of the mappings and of the groups organized into characteristic scenarios.

h) Presentation and discussion with persons interested in the characteristic scenarios of teaching, research and extension actions, and, in the case of extension, with interested ones from inside and outside the university.

i) Adjustment of characteristic scenarios according to the discussion results.

Step 2 - Reflection

a) Analysis of the characteristic scenarios based on the groups mapped and according to thematic areas and contexts of the actions, considering possible developments.

b) Representation of the possible future scenario of the actions given the characteristic scenarios.

c) Monitoring and observation of the actions in the field.

d) Analysis of the observations.

e) Evaluation of possible future scenarios including social actors (in the field).

f) Presentation of characteristics scenarios and of possible future scenarios with highlight to the knowledges formed by the action, the knowledges for the action and the autonomous knowledges.

g) Discussion and debate with participants.

h) Analysis of results and presentation of the requirements and restrictions in the development of didactic and pedagogical tools.

Step 3 - Maturity

a) Definition and development of the technical objects to integrate the didactics of Design teaching: association of a given knowledge with an operation, with materials and with a production process (didactic tools).

b) Definition of intangible objects related to the projecting process: project methodologies and parameters for the inclusion of a result in a context (pedagogical tools).

Step 4 – Evaluation and adjustments

a) Development of instruments for the monitoring and evaluation of results aiming at the preservation of the project memory.

b) Sharing of results in a virtual network (App REDEsign UFRJ).

3. Results and discussion: information as a mediation operation between matter and form

In order to project instruments to produce intermediate objects that are adequate to a shared work environment it is necessary to see these objects beyond their relationship with the material or with the product. One should consider the object as a modeling of the matter and a vector of communication at once. That understanding becomes more essential to a shared view of work the closer it is to organizational changes translated contributions from different professional knowledges.

According to Mer, Jeantet et Tichkiewitch (1995), the concept of intermediate object goes beyond the combination of material and form. It is an element that allows coordinating the process of conception and, therefore, the performance of actors in this process. So, it is possible to group these objects according to their intrinsic characteristics, which refer to the role of the actor as the holder of specific knowledge, and, in another group, according to their extrinsic characteristics, which refer to the interaction conditions of that actor in a process of design.

We extend the approach to the hybrid nature of intermediate design objects according to the principle of individuation, as proposed by Simondon (2013): every instance of individuation presupposes the existence of a

previous reality, called pre-individual reality, which produces a counterpart formed by the individual and its associated milieu. Pre-individual reality is a set of potentials that individuation will update in the form of a structure mediated by singularity. Once individuation takes place, the individual does not exist alone, but always relative to the milieu associated with its existence, a reservoir of non-updated potentials.

Individuation operates as crystallization, and objectivation, departing from the initial tension between two incompatible orders of magnitude. To be inserted in a given structure, the pre-individual being will individuate itself and the singular mediation by an object will potentialize the mediation. However, pre-individual reality is neither a principle nor a primary term of individuation because it is a real, but not current, potential. Pre-individual reality is a relationship of tension between two orders of magnitude that do not communicate before the individuation takes place and that follows it during all the steps of the update, and that remains as tension in individual structure and as potential and action in the associated milieu. Likewise, singularity is not a principle or an individual; it exists as an event, that is, in relation to a situation and to a process. Every individual can individuate itself once more if meta-stability conditions are met.

Furthermore, according to Simondon (2013), the experience relative to a same object adds and superimposes semi-contradictory aspects that produce a meta-stable state of the knowledge relative to the object. At that moment, comes a structural germ under the form of a new dimension and we then observe a structuring prolonged over the metastable field, which is experience. Then comes formalization. The state of metastability, understood as that in which experience is formalized, is characterized as being the state in which the speed of object transformation is so low that it approaches stability. The individual represents itself, becoming an event of its own historicity and individuates itself by updating the potentials of the associated milieu. To regard reality in terms of relationship and of information, the author believes that the relationship can only be constitutive for the being and for the knowledge if it is active. The relationship is

the active center. Simondon gives the example of a brick. It is not a result from the combination of material and form, but form and matter are the results of a previous technical operation in which the form is built and the matter is prepared.

Information, as combination of the form and of the matter, is a mediation operation between two technical half-chains that make converge the operation that updates the plasticity potential of the material and the operation that defines the structure of the form (SIMONDON, 2013).

As put by Simondon (2013), the object is individualized by the action of men and there is, in man, a need for the individualization of objects, evidenced as one of the aspects of the necessity to recognize and find oneself in a milieu and to see oneself as a being, with a defined identity, a stable role and activities. Despite the relative nature of the individuation principle, expressed as man's psychosocial existence, this principle is grounded on one of the aspects of the objects it regards as having a single meaning. Nevertheless, the aspect recognized as having one single meaning would not be in accordance with the reality that contextualizes it because of the exclusion of other points of view that could be adopted to find other aspects of the individuation of the objects in reality. For Simondon, it is the only and exclusive attribution of the individuation principle to this or that type of reality that is subjective, and that condition cannot delimitate an epistemological and critical analysis of the principle. It is necessary that the individuation principle be subject to the study of content in the notion of individuation to discover if it expresses something subjective, and if the duality between the conditions of attribution of the principle to the form or to the matter lies in the notion of individuation itself.

To understand the principle of individuation it is necessary to answer the question about what individuation is. Based on that question Simondon distinguishes two groups: what individuation is because the individual is what it is; and what individuation is because the individual is different from all the others and cannot be mistaken by them. In the former group, individuation is a set of intrinsic characteristics; in the latter, a set of extrinsic

characteristics, regarding relationships. But how can these two groups relate to one another? At what point, in what direction do the intrinsic and extrinsic instances form a unit? Should they really be separated or, other, indicate a deeper, more essential form of existence, expressed in the two aspects of individuation? Assuming there is reciprocity between these two groups, that is, between the fact that an individual is what it is and the fact that being what it is makes it different from the others, can we still say that individuation is the baseline? According to Gilbert Simondon, the true principle must be discovered at the level of compatibility between the positive and the negative aspect of the individuation notion. Maybe the representation of the individual should be modified according to the scheme of the matter that holds the information.

Simondon's approach presents a type of break with the inductive and deductive models of science. From the study of forms, modes and degrees of individuation, he repositions the individual in the being, according to three regimes: physical, vital and psychosocial. Instead of superposing substances to understand individuation, he regards the different levels of individuation as foundations of domains, such as matter, life, spirit, society. Moreover, he highlights that reaching that objective requires a new method and notion. The method consists of trying not to see reality by means of a conceptual relationship between two extreme terms, and of considering every true relationship as having a status of being. So, for Simondon, in a certain way, the only principle that can guide us is the principle that preserves the being throughout its transformations. That preservation exists by means of changes between the structure and the operation, taking place in quantum leaps, by means of successive equilibria.

According to the author, form is only form if it is so for the individual. There is not a form of the individual that is not, beforehand, a form for the individual. That notion allows us to understand that, for the individual, the relationship has a value of being and, therefore, the individual is not related, it is the relationship. The principle of the individual is the individual itself in its activity, which is relational, as the center and as singular mediation (SIMONDON, 2013).

The object-image is an intermediary between the concrete and the abstract when it condenses several functions into a single unit and employs the solutions that are associated with these functions in the network of contemporary realities. Its reality of image is paradigmatic: it allows the understanding of other interconnected realities it relates to and resonates with (SIMONDON, 2014).

4. Conclusion

By relating intrinsic characteristics, which refer to the knowledge identified in extension projects, to extrinsic characteristics, which refer to the knowledge identified in the context of teaching, research and extension actions of the Associate Programs, and these characteristics to the autonomous knowledge formed by the converging movement of these actions, we see that both the intrinsic and the extrinsic characteristics are contained in the autonomous knowledge, formed in synergy, and in action. These autonomous knowledges seem to point to an expansion of the knowledges related to teaching, research and university extension in the field of Design. We observe, from that reference, a demand for the development of pedagogical tools for the sharing of autonomous knowledges in the networks of Design for Social Innovation, as well as for the development of didactic instruments for their integration to teaching and research in Design.

Looking at Design and at Social Innovation from the perspective of interactions between the social actors and the projected objects, in their context of interaction, to understand how action is represented by the researcher and how the practical approach reconstructs this representation in synergy with the actors, and from the perspective of the action, is an innovative approach regarding teaching, research and extension in Design that this research is aligned with. A highlight, in terms of the ongoing researches, is the presence of university extension in the domain of Design for Social Innovation and the reflection about the process of emancipation and autonomy that the recognition of one's own abilities, their formalization and dissemination have on the social actors whose roles converge as those of researchers in the action.

This theoretical framework has led to the development of the research hypotheses, which are:

- knowledge about ecology and society produced by means of situated projects should not only be understood as an expansion of design knowledge under the same fixed constraints, but moving frontiers of design knowledge should mean primarily changes in those constraints.

- university extension networks can strengthen the existing networks and guide them towards areas related to Design for Social Innovation.

Based on such advances, made throughout the postdoctoral period, it was possible to reflect on the expansion of the frontiers of teaching, research and extension in Design from the perspective of Social Innovation; on the development of strategies that can reverse the process of mercantilization of university activities and the cultural alienation that result from neoliberalism; and on the establishment and consolidation of bases for cooperation in the field of university extension aiming at internationalization.

5. Prospects of future collaborations with the ÉCOLAB/ÉSAD/Orléans

The main prospects of future cooperation with the ÉCOLAB/ESAD/Orléans are:

- short-duration courses in the months of January and February 2019 and 2020 at the ÉSAD/Orléans, in partnership with the Le Studium Loire Valley (currently under discussion);

- participation of Dr. Ludovic Duhem as an invited lecturer at the 17th ERGODESIGN and 17th USIHC - International Congress of Ergonomics, Usability and Human-Computer Interaction, to be held from May 22 to May 24, 2019 in Rio de Janeiro, Brazil. Tentative titles to Dr. Duhem's presentations are: Lecture 1 for Ergodesign: "Theory of use in design. Some propositions about practical relations into a "milieu" analysis approach". And, Lecture 2 for USIHC: "Transduction as model for human-computer relation. Simondon's thought in the digital era."

- an international cooperation agreement between the Federal University of Rio de

Janeiro, School of Fine Arts, and the School of Higher Education in Art and Design of Orléans (ESAD/ORLEANS);

- development of bases for the implementation of the International Laboratory of University Extension (LIEU), at the ÉCOLAB/ESAD and Le Studium Loire Valley, Institute for Advanced Studies.

6. Articles published in the framework of the fellowship

An article related to the ongoing research, about the Graduate Program of the School of Fines Arts of UFRJ, was written during this period. It is being edited by the Magazine School of Fine Arts File, no. 30 (June 2018, in press): “Intermediate design objects: modeling, coordination and communication in associative milieus”.

Other relevant productions within the same context were:

1. participation in conferences and lectures as an invited researcher of the Le Studium Loire Valley, occurred in Orléans and Tours on May 03, 23 and 30, 2018; June 11 and 15, 2018; July 05, 2018.
2. presentation of the research to the Scientific Council of the Le Studium Loire Valley, organized by the Le Studium Institute for Advanced Studies, on June 08, 2018.
3. an interview for the ÉCOLAB/ESAD/Orléans, available from: <https://ecolab-esad-orleans.wixsite.com/recherche/residence-ecolab-studium> ;
4. participation in the end-of-year seminar organized by ESAD/Orléans, by request of Director Jacqueline Febvre, on June 26, 2018.
5. participation, as a foreign member, of the board responsible for choosing a professor for Design Objet at the ÉSAD/Orléans, together with Jacqueline Febvre (president); Frédéric Mary (member); Laurence Salmon (member), Patrícia Pujol (general secretariat), on July 19, 2018.

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- the recently created Graduate Program in Design of the School of Fine Arts, Federal University of Rio de Janeiro.

- the Undergraduate Program in Design of the School of Fine Arts, Federal University of Rio de Janeiro.

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