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Desire of Design Knowledge. Notes on CNPq Doctoral Education Program in Brazil.

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In many universities around the world, scholars and professors are facing the challenging situation of creating design graduate programs. When creating these programs, many critical aspects were taken into consideration, from creative education processes, to practical funding issues as well as the diversity of regional demands within the national contexts.

The responses to the mentioned topics may vary from program to program, from country to country, according to different factors, but all of these programs have a strong commitment to create a deep desire of design knowledge and an enthusiastic partnership between the educational program and the students.

Living in a country like Brazil, where grinding poverty and misery coexist with great industrial wealth, (20 percent of the population is extremely poor, while 1 percent is extremely wealthy), and where the level of poverty means millions of people living in unbearable conditions in cities, gave me the opportunity to mature a critical perspective of design doctoral education, as well to collaborate to structure Brazilian doctoral education in design, trying to establish a better understanding of how the social responsibility is linked to design practices, in this country.

In the collaboration with CNPq - The National Council for Scientific and Technological Development, a foundation linked to the Ministry of Science and Technology (MCT), to support Brazilian research, together with other colleagues from the scientific community acting in design research and education, from different areas of the country, we have established a program for the support of high level research in the various fields of design, in the main research universities abroad. It was established a partnership between some institutes and CNPq, which is financing the whole costs of tuition.

This paper seeks to provide an overview of the CNPq program and the challenges for creating the doctoral education in design in our country. It will present the nature of research training aimed by the program in order to fit Brazilian demands, it will explain the main criteria utilized to the selection of design research areas, the main destination of our Ph.D candidates. The paper also will clarify the nature of the outcome CNPq is expecting from this investment, as well as its expected impact to the increase in the production of knowledge and to the generation of new growth opportunities for the country.

The paper aims to contribute to the currently international debate about design doctoral education standards, reflecting about the Brazilian point of view and design education historical condition in our country. The main approach of the paper will be the critical history of design education in Brazil, based on the work of the educator Paulo Freire.

Desire for Knowledge in Design

Notes on the CNPq Doctoral Education Program in Brazil

Abstract

This paper seeks to provide an overview of the CNPq program and the challenges of creating doctoral education in design in our country, especially considering the short history of design education in Brazil, the strong need of design intervention and the desire for academic design knowledge.

Introduction

In many universities around the world, scholars and professors are facing the challenging situation of creating design graduate programs. When creating these programs, many critical aspects were taken into consideration, from creative education processes to practical funding issues, as well as the diversity of regional demands within the national contexts in doctoral educationⁱ.

Responses to these mentioned topics may vary from program to program, from country to country, according to different factors, but all of these programs share a strong commitment to creating a deep desire for knowledge in design and an enthusiastic partnership between the educational program, the students and the local society.

Living in a country like Brazil, where grinding poverty and misery coexist with great industrial wealth (20 percent of the population is extremely poor, while 1 percent is extremely wealthy), and where the level of poverty shows millions of people living in unbearable urban conditions, has given me the opportunity to mature a critical perspective of design educationⁱⁱ. Actually this dualism directs the attention to the strong ethical dimension of design in our country. This experience has also allowed me to collaborate in structuring Brazilian doctoral education in design, where I have tried to select a course of action that emphasizes the social responsibility of design practices, as well as the role of design in the economic development of our countryⁱⁱⁱ.

In collaboration with the CNPq (The National Council for Scientific and Technological Development) , a foundation linked to the Ministry of Science and Technology (MCT) to support Brazilian research, we have established a program for the support of high level research in the various fields of design, in the main research universities abroad. The aim was to promote and finance graduate study both nation and worldwide, together with other colleagues from the scientific community acting in design research and education, from different areas of the country. It is a partnership between these universities and the CNPq which is responsible for financing all tuition costs.

The paper presents the nature and key characteristics of the research training aimed at by the program in order to fit Brazilian demands, by explaining the main criteria utilized in the selection of design research areas, which are in effect, the primal destination of our PhD candidates. The paper also makes it clear the nature of the outcome the CNPq is expecting from this investment, as well as its expected impact on the increase in the production of knowledge and in generating new opportunities for economic growth in the country,

The paper aims to contribute to the current international debate on the standards of design education at doctorate level , by reflecting on the Brazilian point of view and on the historical condition of design education in our country. The main approach used in the paper will be the critical history of design education in Brazil, based on the work of educator Paulo Freire^{iv}.

Doctoral Education in Design: the Brazilian case from a historical perspective

Brazil's formal education in design started through the pioneering undergraduate course of the Escola Superior de Desenho Industrial, ESDI, which was inaugurated in 1962, in Rio de Janeiro^v. ESDI pedagogical approach was strongly based on the concepts and methods developed by the "Hochschule fur Gestaltung", and some Hgf-Ulm's former students came to be the first ESDI's professors. From that historical period until now, the expressive growth of design schools has dramatically changed the national context of design education, as well as the scientific status and legitimacy of design, as a discipline.

In the last ten years, we have witnessed an increasing demand for design education at graduate level and we have entered into a new phase. There has been a shift from basic undergraduate programs to a much more complex level, which involved the transfer from one mentality and educational paradigm to another, as well as the construction of proper foundations for the birth and development of design education at graduate level.

As a response to the demand in the mid nineties, the first Masters program in design was created in Brazil ; but it was not until 2003 when the very first doctoral program in design initiated in Brazil.

Considering the urgent need for the development of doctoral education, in 2001 the Brazilian scientific community acting in design research and education started to negotiate with the CNPq towards the possibility of creating an Overseas PhD Program.

The main goal of this program was to provide an opportunity for advanced design education, training scholars which have the ability and competence to carry out high level academic and professional design research in scientific, technologic, economic and social fields of great strong relevance to our country. The program sought also to provide an intellectual environment conducive to scientific exchange and innovative thought.

In 2002, this new initiative of the Brazilian government for doctoral education in design received formal approval. The CNPq was committed to the payment of full tuition costs, as well as to a scholarship supporting living expenses of the selected applicants, thus sending fully funded PhD students abroad.

A partnership has been set up between CNPq and some institutes which offer several areas of concentration and a strong education for design research and teaching, both in European and American universities, interested in welcoming our students.

CNPq Doctoral Program in Brazil

The CNPq Doctoral Program offers an opportunity for Brazilian students who want to investigate certain areas of design. The program has set up the following areas of inquiry:

Product Design	Furniture Ceramics Fashion Automotive and Transportation Design
Graphic Design	Packaging Multimedia
Theory, Design Education	

These areas have been selected because they are critically important to the field of design today, with relevant implications for design practice, design education and Brazilian economic development.

Eligible applicants must have a BA degree in design, architecture or related field; the access is selective, and applications are submitted to a blind review process in order to evaluate the research ability of the candidate and the fulfillment of other requirements. Below is a brief summary of the main requisites:

- to give proof of scientific experience according to the applicant's degree;
- to hold a Master's degree in the same or related area;
- to give proof of language proficiency in the course required language;
- to be a non-retired scholar
- to submit a written research proposal, explaining candidate's motivation to conduct research and a justification of the contribution of the proposed research to Brazil;

– to submit a portfolio explaining the professional work the applicant's has done, as well present the curriculum vitae of the faculty member who will sponsor our students ;

– the approval of the scholarship will depend on the official acceptance of the international institute or university which has signed the agreement with CNPq;

– students who successfully fulfill the whole set of requirements are able to get the final approval, depending on the CNPq budget availability and final decision.

Due to their widely recognized excellence in the area of doctoral education in design, the following universities and institutes have been selected?), to participate in the first phase of CNPq program:

United States

1. Carnegie Mellon University, School of Design –
Design Theory, Design Education and Design Research;
Product Design;

Graphic Design;

2. - Illinois Institute of Technology

Design Theory, Design Education and Design Research;

Product Design;

Graphic Design;

Europe

3. University of Art and Design Helsinki, Department of Product and Strategic Design

Design Theory, Design Education and Design Research;

Product Design, with emphasis on furniture design

Graphic Design

4. Royal College of Art

Product Design, with emphasis on automotive design, furniture design and fashion design.

5. Staffordshire University, School of Art & Design

Product Design, with emphasis on ceramics design.

6. University of Reading, Department of Typography & Graphic Communication

Graphic Design;

Design Theory, Design Education and Design Research;

Product Design;

7. Politecnico di Milano, PhD Programme in Industrial Design and Multimedia

Communication

Design Theory, Design Education and Design Research;

Product Design;

Graphic Design.

As an outcome, the CNPq expects the student to complete the sequence of courses, qualifying examination and all phases of the doctoral program , including the writing up and presentation of thesis or dissertation. During this period, the CNPq expects periodical reports , which will be reviewed by the CNPq scientific committee.

Paradigm Shift: Towards a Transformative Doctoral Design Education

It is not an exaggeration to say that the more radical thinker who explored the many dimensions of transformative education and education for critical consciousness was Paulo Freire. Although his work mainly addressed topics related to the primary level of education and adult literacy, it is an essential reference to rethink any kind of transformative educational process.

This is the case of the establishment of the CNPq program of doctoral education in design. It is important to stress that what follows in this paper is my own contribution, expressing my critical comments on the program, and its impact on the quality of education it will provide.

It is important to clear up right at the beginning the meaning of transformative educational process in design. It has to do with the transition from the past condition of design education to another level, it has to do with a break with the past and an entering into a new phase of design education in Brazil.

Historically, undergraduate design courses were mainly located in the Southeast area of the country; now they are spread all over the country and it is of high relevance to give to all states the possibility to participate in doctoral programs, according to their regional and particular needs. Thus, the central goal of this transformative educational process is related to a democratic and diverse participation of all regions, which means, different regions with equal access to advanced education. As the program becomes more diverse, a doctoral research community will be created in the country, which will be able to enhance our design knowledge, economic development and recognize the value of each regional context, thus empowering scholars and professors to intervene and transform their context.

Diversity is one of the main features of the program, not only from the perspective of the significant Brazilian regional variation, but also from the point of view of the diverse international academic destination, which will certainly share their research agenda and design knowledge with the Brazilian students and the singularity of the design research in a developmental context.

The recognition of diversity acknowledges applicants' contexts and their presence in the research projects, which correspond to what Paulo Freire called "generative themes", referring to the initial biases, experiences and opinions that must be integrated with the knowledge, concerning the acquisition of literacy^{vi}. Although Freire did not write about generative themes related to design curriculum, this aspect of his dialectical method has direct implications on designing new conditions of design research processes.

Below is a brief overview of the diversity reflected in the research interests of the current candidates of CNPq PhD program, ranging from design processes, to methods, product development and the role of design in contemporary culture:

- 1- Design and human factors applied to architecture
- 2- Digital inclusion in Brazil
- 3- Study of socio-cultural aspects in the design of a global market
- 4- Design and Industrial Production of Tableware
- 5- Book design and the editorial process in poetry
- 6- Pedagogic design for digital environment
- 7- Interface Design
- 8- Design of Graphic Interfaces in Virtual Environments
- 9- The Effects of Culture on Fashion Design
- 10- Development of an analysis model of education types for middle school students
- 11- Design and Globalization Visual Paradigms. Food packaging in a global context
- 12- Information technology design and its relation with the user
- 13- Study of the relationship between graphic elements and the contemporary culture
- 14- Methods of product design utilizing 3D and new Technologies of materials and production processes.

These research issues are concerned with understanding design processes, methods and products; they deal with themes that affect Brazil and Brazilians, as well as they investigate the consequences of design in our contemporary and global society.

Another aspect of the transformative education in design is related to the deconstruction of old epistemological paradigms, which classically linked design to architecture epistemological standards. Design is a discipline in its own right, with its own concepts, own paradigms and own methods, as argued Bonsiepe, “ (...) attempts to treat education in this area [industrial design] as an adjunct to architectural or engineering programs can no longer be justified . ” vii

The implication of this shift is another challenge for doctoral education in design, not only in Brazil, but everywhere, which constitutes the main reason for the effort of the whole design scientific community in setting up the prevailing paradigm that shapes the body of design knowledge and directs research and doctoral education in the area.

In the context of doctoral education it is important to stress the strong role of design research. Many times there is a misinterpretation of the meaning of research, and we have faced the enervating experience from the misperception of design research, which is expected to be related to an activity of finding answers to practical problems posed by the business realm. This is not to be the focus of research. In a very comprehensive article, Nigan Bayazit^{viii}, defines design research as follows:

“A – Design research is concerned with the physical embodiment of man-made things, how these things perform their jobs, and how they work.

B – Design research is concerned with construction as a human activity, how designers work, how they think, and how they carry out design activity.

C - Design research is concerned with what is achieved at the end of a purposeful design activity, how an artificial thing appears, and what it means.

D - Design research is concerned with the embodiment of configurations.

E - Design research is a systematic search and acquisition of knowledge related to design and design activity.”

Thus, design research involves ideas and processes, not fanciful answers; design research involves re-thinking questions, it involves questioning design, in other words, design research means critical consciousness and a reflective understanding of the principles that regulate the design product existence.

At this point, again, the contribution of Paulo Freire is of high relevance. Critical consciousness necessarily involves “ (...) entering the historical process critically.

The prerequisite for this task was a form of education enabling the people to reflect

on themselves, their responsibilities, and their role in the new cultural climate – indeed to reflect on their very power of reflection”^{ix}. Critical consciousness is not only a matter of empowering students with ways of knowing, it is as well as a process of professional growth.

The Building up of a Scholar Community in Design

The purpose of the CNPq Overseas PhD Program, in the context of the transformative education, is a fascinating experience. I have explained the way it was designed and how it is working. Problems related to the scope and mission of the PhD in design are abundant across the world. Particularly in Brazil, we are facing a chronic lack of funding resources to design studies; however, the Brazilian scientific community is making an extraordinary effort together with national funding agencies to reduce these problems and to create a national design research system. As in many other countries, the priority now it is for reshaping the field, in order to accumulate the knowledge as well as to have “ (...) clearer vision of the contours of the field and will, therefore, be in a better position to guide its development effectively in whatever direction we choose”, as argued Lima and Denis^x.

Given the agenda of CNPq Overseas PhD Program, as well as the academic expectations of the PhD Program in Design in every design school across the world, it is crucial that we be engaged in an intense and productive dialogue, which involves crossing boundaries, breaking down any kind of barrier, sharing our narratives and experiences about design teaching and researching. This will enhance our capacity to know and will convey a fascinating path in design, from the making of things to the collectively design of thinking communities.

ⁱ **Doctoral Education in Design: Proceedings of the Ohio Conference, October, 1998 is an important document about the state of the art of doctoral education in design across the world.**

ⁱⁱ **According to Bonsiepe, “ (...) glaring disparities of income, especially in Latin America, place a continuous strain on the social fabric, and bring the ethical implications of design to the surface”. BONSIEPE, Gui. “Developing Countries; Awareness of design and the peripheral condition” in. C. Pravano (ed.). History of Industrial Design: 1919-1990, Milan, Electa.**

ⁱⁱⁱ **One of the very first international seminar about doctoral education in design, in Brazil, was co-organized by Professor Rafael Perrone and the author of this paper at the School of**

Architecture and Urbanism, University of Sao Paulo in 2001, leading to the publication of the proceedings of the conference. SANTOS, Maria Cecilia Loschiavo e PERRONE, Rafael Antonio Cunha. Anais do Seminario Internacional "Perspectivas do Ensino e da Pesquisa em Design na Pos-Graduacao". São Paulo, CNPq, 2002, 353p.

^{iv} FREIRE, Paulo. Pedagogy of the oppressed. New York. The continuum International Publishing Group Inc., 2002.
FREIRE, Paulo. Education for critical consciousness. New York. The continuum International Publishing Group Inc., 2000.
FREIRE, Paulo. Pedagogia do Oprimido. Rio de Janeiro, Paz e Terra, 1987.
FREIRE, Paulo. Ação Cultural para a Liberdade e outros escritos. Rio de Janeiro, Paz e Terra, 2001.
bell hooks. Teaching to Transgress. Education as the practice of Freedom. New York . Routledge, 1994.

^v "Before the first graduate course in industrial design held in the ESDI in Rio de Janeiro, there had been two others projects which pioneered the inclusion of the teaching of industrial design in Brazil. The first step was made by Pietro Maria Bardi and his wife Lina Bo Bardi both Italians established in Brazil after the Second World War. Pietro Maria Bardi was one of the people responsible for the trust founded in 1947 by the Art Museum of Sao Paulo – MASP which introduced a course in experimental design in this museum in 1951. (...) During the fifties the idea was born of the first school of design in Rio de Janeiro together with the new Museum of Contemporary – MAM – which was built in 1954. (...) With the intent to legitimize the proposal for the new course the managers of MAM asked Tomás Maldonado to set out a teaching prospectus for the new school which was to be called "Escola Técnica de Criação – ETC". This prospectus for the ETC of MAM was never put into action but was crucial in the formation of the first school ESDI" NIEMEYER, Lucy , In: SANTOS, Maria Cecilia Loschiavo, MORAES, Dijon, ONO, Maristela. Industrial Design in Brazil: from the modern movement to present globalization,(paper unpublished).

^{vi} FREIRE, Paulo. Education for critical consciousness. New York. The continuum International Publishing Group Inc., 2000, p. 49.

^{vii} BONSIPE, Gui. Op. cit., p. 254.

^{viii} BAYAZIT, Nigan. Investigating Design: a review of forty years of design research. In: Design Issues: Volume 20, Number 1 Winter 2004, p.16.

^{ix} FREIRE, Paulo. Education for critical consciousness. New York. The continuum International Publishing Group Inc., 2000, p. 16.

^x LIMA, Guilherme Cunha and DENIS, Rafael Cardoso. Doctoral Education in Design: The Brazilian Experience. In: Doctoral Education in Design: Proceedings of the Ohio Conference, October, 1998, p. 63.