Design—Towards a Creative Industry for the Latin American Reality*

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The duty of educators and politicians is to find new policies and programs that should include creative industries such as designing, together with the teaching of new technologies to make it possible for a greater portion of the population to have access to this knowledge, which will enable it to be included in the job market. This type of training also means that the language of the educators will change. We need to develop a new multilingual, multimedia, and multidisciplinary conception oriented towards the learning activities of the student. Our goals is to transform multimedia design into an important creative industry in our region, we created “Project Untitled” at Universidad Maimonides. This is an artistic collective undertaking that includes teachers, directors, and students of the School of Multimedia Communication and Design. The goal of this project is to cooperate with learning paradigms in order to reach the quality that a true society of knowledge needs. Education is fundamental for the development of any nation, including the “periphery countries”, which can contribute a different point of view, and which, in this sense, can offer wider possibilities, precisely because these countries have the “critical distance” that, probably, core countries are short of.

Keywords: education, interactive installations, interactive design, education, digital art, creativity, human resources

Introduction

Why Search for a New Design Methodology?

As current demands become increasingly complex, it is necessary to redefine design almost completely: The widespread use of digital technologies gave rise to important social changes, and has had a profound impact on this discipline.

Design can no longer exist in isolation; it must now include financial and management tools and new technologies. Other issue to be considered is that of taking design to the production area, using budget planning and knowledge, or more directly, developing new sustainable businesses. All of these new areas and issues should be taken into account to ensure they do not work separate from the creation process.

New design professionals should therefore not only focus on the interpretation of individual reality, but also on the social and institutional aspects, as well as on a new conceptual and tangible space.

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In this sense, the current global scenario requires a shift in education paradigms, a stronger commitment of young students and a closer relationship with the issues of the society where the professional will work in the future.

**What Does the Education Paradigm Shift Involve?**

Education as we know it today should adapt to this new scene by introducing teaching methods that are more societal and democratic, resulting in preparing the student for a leadership role, while at the same time reducing the relevance of the traditional more linear model.

The increasing academic offer and the diverse profiles of the students embarking on design-related careers stands in contrast to the professional skills that are expected from prospective graduates, that is to say, a professional that has strong communication/problem-solving skills and the ability to join both the creative and strategic elements in his or her works. Nevertheless, training a “rational creator” entails changes in the education structure, which means that education should offer new approaches based on real-world design experience, activities, and tools necessary for the student to understand the scope of action that will enable him or her to come up with feasible strategies.

Within this context and due to the challenges that arise when faced with attempting to turn multimedia design into an important creative industry in our region, *Proyecto Untitled* (Project Untitled) was created at Universidad Maimónides. Project Untitled is a pedagogical and artistic joint collaboration that includes directors, teachers, and students of the School of Multimedia Design and Communication who, together with a group of invited artists, curators, biologists, engineers, and other professionals, seek to act as a mediator or link between education, arts, science and society by means of interactive design.

Strictly speaking, the work team is made up of experienced teachers who have worked in a wide variety of professional fields and disciplines. Likewise, professionals involved in production activities related to knowledge and research are called to join the group of artists of this joint project.

Therefore, and thanks to the interaction with other disciplines, the students, as they carry on with their studies, are able to incorporate knowledge useful for getting a critical and comprehensive view of current communication, enabling them to take an active role in the Latin American interactive design industry in the future.

Ever since its creation, Project Untitled has actively participated in many art and design spaces through its avant-garde productions, creating artistic solutions to challenges arising from art and technology combined, and addressing design, public art, bio-art, robotics, interactivity, and video games among other issues.

**Innovative Methods**

**The Latin American Reality**

For starters, we should analyze the design market in Latin America. The results shown by the World Design Survey 2010 carried out by the City Hall of Seoul, which collects interesting data on the main design activities of the seven nations of Latin America (Brazil, Mexico, Argentina, Colombia, Chile, Costa Rica, and Uruguay) as provided by Professor Carlos Hinrichsen, Director of International Affairs of the Professional Institute DuocUC of the Pontificia Universidad Católica de Chile.

The report provides a general overview of the most important initiatives that are being developed in the region within the design industry.
In Latin America, when educational institutions started to teach design in a more systematic fashion (in Brazil in the early 50s, later on in Mexico, and throughout the region by mid-60s), the training approach was quite experimental and detached from the economic, commercial, and business reality.

Currently, as shown in the report mentioned above, this situation remains unaltered and there is agreement that the cause of this phenomenon may lie in the education paradigm, which other than just a slightly different approach, has remained practically unchanged during the past 40 or 50 years.

Hence, we believe that the pedagogical approach to design should be modified.

The level of development attained in the region and its inclusion to a globalized world would require that the quality of education be considered to be an essential factor in its social and economic development and, naturally, in its competitiveness in the global market.

Based on the reports by the Comisión Interamericana de Desarrollo (Inter-American Development Commission), the bank Inter-American Development Bank (BID (Banco Interamericano de Desarrollo)) Latinoamérica has earned a reputation among investors and governments all around the world due to its economic recovery.

If we take a look at the initiatives in connection with plans and policies aimed to encourage design in the region since 1995, we will see that: Since that year, Brazil has hosted its own design program: The Brazilian Design Program (BDP (Programa Brasileño de Diseño)). The BDP operates under the MCT (Ministry of Science and Technology) of the Brazilian Federal Government. This program is based on Brazil’s originality and creativity and is supported by a human resources infrastructure, which is, in turn, promoted by the industry’s associates.

Since 1972, the SEBRAE (Brazilian Support Service for Microenterprises and Small-Sized Enterprises) has provided sustainable support to design-related initiatives.

Since 2004, Colombia has had its National Program for the Design Industry (Programa Nacional de la Industria de Diseño).

This plan was developed and coordinated by the Ministry of Economic Development with the purpose of “exposing small and midsize enterprises to the new forms of innovation and development by introducing integrated design strategies, including their production and network marketing, with the support of the government, the private sector, and international organizations”.

Since 2008, Mexico has taken on a systematic effort for defining or identifying a design plan called Design Policy in Mexico (Diseño de una Política de Diseño en México).

On April 23, 2008, the House of Representatives for the first time addressed the importance of having an ongoing Design Public Policy in Mexico and the benefits that could be derived from its implementation, such as job creation, productive enterprises, and a better quality of life.

Since 2009, Uruguay has also started its own design plan known as the Competitiveness Improvement Plan (Plan de Mejora de la Competitividad). This Plan is intended to identify and improve cluster design with the participation of the public and private sectors.

Costa Rica’s National Development Plan (Plan Nacional de Desarrollo) was also established in 2009 by the Ministry of Culture of Costa Rica seeking to support small and midsize artistic and cultural enterprises within the design field taking into account the importance of this sector for the country’s economy.
Chile created its National Design Plan (*Plan Nacional de Diseño*) in 2007. In the case of Chile, it is worth pointing out that this country has the Chilean Design Companies Association QVID (*Asociación Chilena de Empresas de Diseño QVID*) and holds the Chilean Design Prize, a biennial prize intended to promote design as a major factor in Chile’s cultural and economic development.

In 2003, Argentina created its National Design Plan aiming to highlight design as a key factor in industrial competitiveness and to raise company awareness of the advantages that come with incorporating design management.

Prior to this, in 2000, the City Hall of Buenos Aires created the Metropolitan Design Center (CMD (*Centro Metropolitano de Diseño*)), a government agency dedicated to supporting the development of design-related industries, both technically and financially, using a support system intended to recover and strengthen the production framework comprised of small and midsize enterprises.

During 2006, Buenos Aires was declared the first design city by the UNESCO.

As far as educational institutions are concerned, the city has public universities, which are free, and privately-held universities, which scale up the systematic offer in the field of design.

These programs and changes, along with the appearance of new projects based on design, have resulted in steady growth for the number of designers included in production activities, and in the strengthening of the media and culture.

The number of students who enrolled into design programs has increased in the past few years, resulting in what is the highest enrollment rate since 2003.

**Design of Possibilities**

In the context analyzed above, some of the main challenges that global village dwellers in Latin America are faced with are: How to turn information into useful knowledge and how to encourage social learning processes.

In fact, there is a new technological gap in the globalization process that classifies economies according to their capacity for generating, adapting, and spreading knowledge. This capacity is related to the type of society, its specialization possibilities for international competitiveness and the degree of flexibility of its rules and regulations.

The creative industry could save the economy of Latin American countries through the creation of sustainable projects developed by qualified people. Even though there are several resources involved, human resources are the most valuable asset for completing these projects; this is why it is important to have an educational model that ensures that such gap is filled. In regards to the training of human resources and the role of colleges in technological innovation, it is important to note that if new talents are not adequately managed, society’s intellectual assets will continue to be wasted, which could lead to a loss in the knowledge and skills that were acquired throughout years of great efforts and costs.

Therefore, we should work on an in-depth educational model that can give students the possibility to access a global view of design including not only the existing means, but also the possibilities within the scope of action, i.e., to form cross-disciplinary groups for developing productions that can be rapidly transformed into actual undertakings, enabling the student to see the results of the growth of his or her own work.
Project Untitled, a Teaching and Artistic Joint Collaboration

In order to satisfy the needs of a fast-growing and ever-changing market, the Universidad Maimónides created a course of studies based on pillars which will enable graduates to create their own products or services, as well as to approach the development of multimedia projects in a comprehensive manner, being qualified for acting as a guide and a link between the different multimedia areas involved in the process (programming, design, communication, business, and so on).

Project Untitled is created in response to these needs as a pedagogical and artistic joint collaboration that includes directors, teachers, and students of the School of Multimedia Design and Communication who, together with a group of invited artists, biologists, engineers, and other professionals, seek to act as a mediator or link between education/science and society.

Project Untitled is based on the notion that art or artistic works are, aesthetically speaking, another effective tool for developing the economy and improving the quality of life in the place where the involved actors live.

Hence, this project offers a comprehensive approach to design focused on research, teaching, strategy-making, and among other factors, analysis of design in everyday life.

Thus, students are trained to master various technological resources that are not exclusive protagonists in the creative physical environments where they participate, but rather, allies that aid students in creating and bridging the gap for abstract and tangible aspects. With the use of those tools, students have no limits when they start the creative process.

More specifically, when creating these interactive works, the participants are interconnected and related to an actual aesthetic program and when multimedia is included in these works, break through passive and still perceptions. This is an essential aspect that becomes evident in these artistic collaborations.

These “artists” can freely access a partial participation of the influence of others, which fosters the sense of cross-cooperation knowledge among students, teachers, and artists. “As a result, the single artist ability to grasp the work from beginning to end is beyond reach expectation, calculation and reaction and determines the creative process”1.

In this joint work, artistic differences come together into a synthesis, which is more than merely the different education strategies combined; it is a pleasant open-ended set of movements. It is in this irreconcilable contradiction that the peculiar and attractive nature of teamwork lies. “The work will never be perfectly finished, but it will continue to receive further interventions and changes that will break its hermetic state, placing the audience outside the safety of a non-critical passive state”2.

This teaching notion is not based on a principle never seen in the history of pedagogical models and it is not in conflict with the idea that an education system is a form of social technology intended to provide each individual and societies with symbolic tools only; but it pursues to improve old education techniques that (as it is to be expected due to the evolution of education) did not take into account social impact or, in other words, its final results did not stem from the education field.

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1 Collective process—Collective art from the perspective of the viewer (Colectivos en proceso—Arte colectivo desde la perspectiva del espectador). Retrieved from http://www.artfacts.net/index.php/pageType/newsInfo/newsID/2701/lang/3.

2 Collective process—Collective art from the perspective of the viewer (Colectivos en proceso—Arte colectivo desde la perspectiva del espectador). Retrieved from http://www.artfacts.net/index.php/pageType/newsInfo/newsID/2701/lang/3.
The possibility to have an appropriate system that integrates education, interdisciplinary work, economy and social impact of the productions enables students to access a wide range of skills and techniques aiding them to grow on an ongoing basis.

In fact, after years of joint work, the group of artists and teachers of Project Untitled incorporated biological elements to its productions, for which they invited scientists, artists, and researchers of the area. This group led the way in the development of bio-art works in Argentina.

Bio-art is an artistic genre that involves scientific and technological aspects and features of techniques and procedures of the biological sciences using living organic material, such as cells, bacteria, or plants. The purpose of these productions is merely artistic; however, ethical, ecological, and disclosure matters come into play within this aesthetic framework.

As far as the creative process is concerned, bio-art and technological art presuppose a new way of teaching: Both linking and breaking an essentially oral tradition focused on the teacher to give rise to a new multilingual, multimedia, and multidisciplinary approach oriented to learning activities to be performed by the student.

Such work model, together with the rest of the students’ training, enables them to create their own software for solving non-traditional issues in pursuit of a scientific goal that, regardless of their artistic use, may become a business solution in the future.

Below there is an analysis of some works that the group of artists has developed up to now, including pedagogical challenges taken on, conceptual approaches and the professionals invited to participate in each case:

**Dialahogando (2006).** Format: Interactive installation.

Pedagogical challenge:

(1) Analysis of the relations of power in contemporary society;

(2) Sociological approach to relations of power.

Conceptual approach: The subject-matter shown in the video installation introduces the conflict related to the concept of power, identity, and communication.

The work is intended to respond to a deep conflict of an asynchronous society, interpreted as a unit and its members, as atomized elements.

*Dialahogando* is a system made up of individuals locked up in their institutionalized and systematized reactions (see Figure 1).
Invited professionals: Gabriela Golder, Dir (Digital Artist/Cinematographic Director).
Exhibition places: Festival Cultura y Media, Centro Cultural General San Martin, Buenos Aires.

**Máquina de lluvia (2008).** Format: Installation.
Pedagogical challenge:
(1) Causes of the Industrial Revolution;
(2) Man’s motivation for replicating natural phenomena;
(3) Models of mechanisms activated with gears;
(4) Modernism trends in art;
(5) Research on engine and hydraulic pump technology.

Conceptual approach: *Máquina de Lluvia* (Rain Machine) studies natural phenomena based on mechanical means and focusing on creation. Nature is reinterpreted by the machine as some kind of mechanical double for nature. Thus, natural and artificial coexist in the core of this big mechanism. Rain falls continuously through hydraulic and mechanical systems. In spite of the fact that the mechanical part is at the bottom of the source of the rain, the rain is still rain, making nature the center of attention (see Figure 2).

![Figure 2. Rain machine (Máquina de lluvia).](image)

Invited professionals: Mariela Yeregui, Mg. (Digital Artist)
Exhibition places: Muestra Naturaleza Intervenida, Centro Cultural Recoleta, and *El agua en sus diferentes manifestaciones artísticas*, during the 200th anniversary celebration, AYSA (Palacio de las Aguas), Buenos Aires.

**Incubaedro (2008).** Format: Interactive installation.
Pedagogical challenge:
(1) Knowledge of the form of reproduction of jungle orchids;
(2) Research on the flora of the jungle of Misiones, Argentina (*selva misionera*);
(3) Programmable logic controller (PLC (Controlador lógico programmable)) programming technologies;
(4) Technological development for building large-scale sustainable geometric structures;
(5) Interrelation between engines and actuators activated by sensors;
(6) Research on programming for operating sensors.

Conceptual approach: *Incubaedro* is an interactive geometric reality where an artificially constructed nature works, similar to that found in a scientist’s cognitive structure, to recognize nature standards and to get it to survive by artificial means.
When placed between the minimum distances existing between natural sciences, human imagination can discover what is vaguely observed. The distance between technology, science, and art today reaches those dimensions, where the complexity of a natural system is contained in a great geometric structure system.

Thus, Incubaedro represents one of the paradigms of change that human beings can test in nature. Processes worthy of the magical alchemy of other times are applied both in art and in science (see Figure 3).

Invited professionals: Joaquín Fargas, Eng. (Digital Artist); Nora Mouzo, Ph.D. (Biologist).

Exhibition places: Muestra Naturaleza Intervenida, Centro Cultural Recoleta and Centro Municipal de Exposiciones—Fase1, Buenos Aires.

Floris Lupus (2010). Format: Interactive installation.

Pedagogical challenge:
(1) Visual and noise pollution in big cities;
(2) Consequences of the destruction of nature;
(3) PLC programming technologies;
(4) Technological development for mechanism automation;
(5) Research on engine technologies;
(6) Research on light-emitting diode (LED (diodo emisor de luz)) lighting and fiber optic technologies;
(7) Robotic structure development analysis.

Conceptual approach: Floris Lupus seeks to represent the thin line existing between human intervention and destruction of nature, regardless of the intentions.

This flower is the society’s blossom. A bloom of history, of context, of the natural condition of mankind, where the wild shows freedom and beauty at first glance, but if we take a closer look, it poses an existential crisis and rejection.

There is a duality, a conflict of states, a change that invites us to reflect on society and its natural context (see Figure 4).
Invited professionals: Nora Mouzo, Ph.D. (Biologist); Alberto Varela, Eng.

Exhibition places: Centro Cultural Borges, UNIART (Primera feria universitaria de Arte, Diseño, Turismo cultural y Artesanías)—First university exhibition of art, design, cultural tourism, and craftwork, hosted by the Ministry of Education of the Argentine Republic, Buenos Aires; chosen by UNIART Contemporary Space of Alternatives of the University of La Sapienza, Rome, Italy.

Late (2010)—Kosice Biennial Prize to artistic research. Format: Interactive installation.

Pedagogical challenge:
(1) Knowledge of the different assisted reproduction methods,
(2) Research on the technologies used in these reproduction methods,
(3) Technologies for image projection on transparent objects,
(4) Research on the evolution of human pregnancy and other mammals’ gestation,
(5) Programming and development of projection devices.

Conceptual approach: Assisted reproduction is the main subject-matter of a work that seeks, above all, to stimulate observation and to intentionally show its consequences.

The observer participates in a natural process just by observing (always knowingly and aware) he or she causes changes in what is observed (see Figure 5).
Edenia (2010). Format: Interactive installation.
Pedagogical challenge:
(1) Visual and noise pollution in big cities;
(2) Consequences of the destruction of nature;
(3) Electronic waste as raw material;
(4) PLC programming technologies;
(5) Technological development for mechanism automation;
(6) Research on engine technologies;
(7) Research on LED lighting and fiber optic technologies;
(8) Robotic structure development analysis.
Conceptual approach: The human beings depend on their memory.
With each gesture, the creator leaves behind what he or she creates; only visionaries are able to see beyond, they can go back over their own steps and pick up those remains, those portions of the recent past.
Memory involves moving forward, keeping it is basic to overcome time. Memory is surviving.
Thus, Edenia aims to show a post-war scenario, a dystopia that becomes increasingly evident day by day. This reality, where natural is corrupted by transgenic, and robotics intends to emulate reality standing against each other, gives rise to new ways, to new points of view. This is also why this work is an imaginary shelter from life after life and from what comes after everything was destroyed (see Figure 6).

Invited professionals: Fabián Nonino, Scenographist; Masao (Artist); Nora Mouzo, Ph.D. (Biologist).
Exhibition places: Festival Cultura y media, Centro Cultural General San Martin, Buenos Aires.

Experiencia CLAEM—Latin American Center for Advanced Musical Studies of the Torcuato Di Tella (CLAEM (Centro Latinoamericano de Altos Estudios Musicales del Torcuato Di Tella)) (2011).
Format: Sound interactive installation.
Pedagogical challenge:
(1) Sound experience;
(2) Recreating an experimental scene for catching the audience’s attention through the Movimiento Di Tella’s experimental music of the 70s.
Conceptual approach: Music as ethereal art joins the chromatic circle in a playful endless fusion.
Experiencia CLAEM invites us to be a part of the creation process as interactive observers. Experimentation
is the conceptual basis for this installation that replicates the spirit of the artistic movement promoted by Di Tella during his time (see Figure 7).

Invited professionals: Ricardo Hegman, Master Musician
Exhibition places: La música en el Di Tella, Centro Cultural Borges, Buenos Aires.

Conclusions

This section is intended to sum up the main issues of this paper, it is not about replicating the abstract as a conclusion. Conclusions should focus on the importance of the work (or expressed ideas), further suggesting its uses and possible extensions.

As explained above, design teaching should be a gradual process, an ongoing challenge for acquiring different skills (creative, cognitive, or experimental).

Therefore, taking design as an activity performed through creative and strategic thinking establishes a direct relationship with the expansion of this discipline, taking into account management and planning aspects as necessary knowledge for the designer’s professional growth due to the corporate need to incorporate creativity, innovation, and research as competitiveness tools.

Our pedagogical approach seeks to form a multidisciplinary work team for teaching design offering new professional profiles in order to meet current and future societal needs, either of the industrial or cultural sector.

In this framework, and as pointed out before, Project Untitled’s initial intention has been to develop various strategies for enabling students to address artistic productions comprehensively, i.e., taking a role that makes them a part of the whole creative process involved in those productions.

Teachers and education authorities should focus on searching new policies that include science, art, and technology programs, while at the same time, provide the rest of the participants with the alternative to think that it is possible to analyze the social and cultural impact of the technology system other than just technically, having a personal opinion on the Latin American reality.

This new multidisciplinary working method was implemented by means of selecting students from first to fourth year, assigning them specific projects and artist-teachers of the field for creating interactive digital works and bio-art works. For implementing these methods, the following characteristics were taken from different areas: (1) controversy and an innovating view (Art); (2) experimenting with new formats (Art); (3) methods offered by
design (Design); (4) depending on the project, the message of this method can be more or less clear and straightforward (Design) or more or less abstract and vague (Art); (5) scientific critical thinking (Science); (6) making science available to everyone, reaching non-expert public (Science + Art); and (7) capitalization of concepts/ideas according to new representation forms (Multimedia).

As educators, we have set our goal in avant-garde teaching alternatives that stimulate creativity and that offer a solid comprehensive training for professionals who are capable of creating their own multimedia products or services.

During the students’ training process, and thanks to the general theoretical framework and constant practice, they acquire knowledge that enable them to understand the underlying rationale for the software and systems they are developing, a skill that any professional must have when pursuing a leadership role in projects.

Thus, interactive design can be seen as a true creative industry in the region with qualified resources for project management and leadership, being highly competitive for developing assessments, research and data collection of systems, basic software and applications, by using the most appropriate techniques, tools and methods in each case.

Currently, the Latin American context encourages the emergence of interactive design as a creative and sustainable industry, supported not only by the opportunity given by a growing market but also by trained professionals who are prepared to deal with this challenge with a multidisciplinary education.

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