

**CYAD INVESTIGA**  
**Sciences and Arts for Design**

January-December 2018

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## Index Department

### Department of Evaluation of Design in Time

- Area of Architecture and International Urbanism
- Area of Urban Studies
- Area of History of Design
- Area of Design Semiotics
- Evaluation and Design Group
- Innovation I+DI and Development Group
- Sustainable Community Group

### Department of Research and Knowledge of Design

- Design Analysis and Prospective Area
- Design and Habitat Area
- Learning in the Community Habitat Group, Design Space, Conceptual Assessment, Pedagogical Learning
- Archeopoetics and Prospective Visualistic Study Group (EAP and VP)
- Image Theory Group
- Design and Technologic Interaction Group

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- Bioclimatic Architecture Area
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### Department of Development Processes and Techniques

- Management and Design Technology Area
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- Drawign: Creation and Teaching Group
- Form, Expression and Design Technology Group
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## **Presentation**

The publication of the summaries of the 2018 research projects show the everyday labor done by the researchers who work for the Division of Sciences and Arts for Design.

The research projects that we present here discuss different topics from the perspective of design. Among those we can mention are design teaching, sustainability, technological change and innovation, and the development of projects that address specific communities' issues. All of them, we believe, give a clear idea of our academic staff's concerns and their input to establish links between the development of knowledge and possible solutions to our contemporary society's problems.

The follow-up given to the publication of these summaries expresses the interest of my administration for the academic work of this Division. It is only fair to acknowledge the effort of our academic staff and acknowledge future tasks such as:

- Strengthen the social connection of research
- Prioritize the attention given to problems that are present in metropolitan, regional and national areas
- Give more visibility to the research results
- Make the knowledge generated in our Division available to society

Mexican society is living important political changes as well as economic, social and environmental ones. In this year, 2019, we have accepted the responsibility to meditate about our University as a public institution within the context of deep transformations and huge challenges.

This edition includes a selection of the works done by postgraduate students because their contribution to the researches is relevant and we consider a necessity to make them more visible.

I am thankful for the enthusiastic participation of the researchers and teachers, the Chiefs of Area, the Group Responsables, and the Chiefs of Department, in this collective effort and I exhort you all to become a point of departure of national and international design.

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## STRATEGIES AND PROJECTS TOWARDS THE SUSTAINABLE AND INTELLIGENT CITY IN THE INTERNATIONAL URBANISM

Key words: Sustainable Urbanism, Sustainable Strategies and Projects, Smart City

### Summary

In May 2017 it was celebrated the 14th edition of the "Urbanism International Seminar". During all these years the Seminar has produced 316 projects and discussed, by international experts, a similar number of topics. The participants had examined the processes of evolution and transformation of the physical space of the cities; had identified the concepts, tendencies in expression, and architectural and urbanistic designs which have an international relevance.

The project seeks to collect urban-architectural researches for analysis and dissemination. They must be developed internationally, so it may be an opportunity to understand the diversity and complexity of the urban space as well as a chance to propose new methods of research and design. The construction of a global vision of the most significant tendencies, that characterize the urbanism and the architecture of today, must receive special attention.

### General Objective

To select topics and projects of urbanism and architecture in world ambits, so their ideas, concepts and solutions will be analyzed with the aim of recognizing the new tendencies of international urbanism.

### Specific Objectives

To study the development, the evolution, and the transformation processes underwent by cities in different moments of history and places of the world.

To study the processes related to the architectural analysis of public and private buildings in relation to their urban and social context in different moments in history and places of the world.

To document interesting situations and generate new knowledge that may be decisive in the practice of contemporary urbanism.

To disseminate in the academia and in the community of experts the topics and projects that may create a tendency in the contemporary urbanism.

To consolidate a highly specialized and multidisciplinary network of national and international experts and academics.

To consolidate in the undergraduate studies

a thematic line similar to that of this Seminar so students receive an updated education in the fields of architecture and international urbanism.

### Products

1. Organization of the XIII Seminar of International Urbanism at the Museo Franz Mayer facilities in Mexico City, from April 17th to 21st of 2017. Its main topic was "Ciudad de oportunidades e innovación. Acciones sustentables en la nueva agenda urbana" (City of opportunities and innovation. Sustainable Actions in the new Urban Agenda).
2. Organization of the VII Seminar of International Urbanism. This seminar took place in Cartagena de Indias and was possible due to the collaboration of the Universidad San Buenaventura. The events of the seminar were celebrated at Teatro Heredia, Cartagena de Indias, Colombia. August 16th to 18th, 2017.
3. Six specialized works presented in different international events in Mexico, Colombia, Bolivia and Argentina.
4. Digital memoirs of the XIII Seminar of International Urbanism (2017) edition.



Rota, Italo, (2017), "Built Substance. An Approximation to the infinite City", in XVIII SUI, Ua, Mexico.

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### Linking Research with Teaching

An Elective Class, for Architecture students, was open for the 17-I Quarter: A Seminar of International Urbanism. This was done due to the fact that UAM wants them to get a better, competent, and specific education on architecture and international urbanism.

During this 13th Seminar we had the participation of 25 lecturers from Germany (2), USA (2), Colombia (1), Argentina (1), Bolivia (3), Venezuela (2), Chile (1), Costa Rica (1), Italy (2), France (1), and Mexico (9). As was mentioned before, we have 25 lecturers who gave 25 thematic lectures. There were more than 80 students of Architecture and Urbanism who attended them. The lectures were about specific situations and projects, and cases were mentioned of cities from Mexico, Colombia, Bolivia, Venezuela, Chile, Argentine, Costa Rica, Ecuador, The United States, Germany and Italy.



Oxford Street, London. Taken by Ysangkok (Public Domain)



La Paz Digital Arroyo Jimenez, Javier Marcelo, (2017). "Urban planning, innovation and territorial information in La Paz, Bolivia". XIII SUI, UAM, Mexico.



Adaptation strategies and innovative projects developed in different parts of the world. Absorbent environments. Lepratti, Christiano, (2017), "Atlantis Cities. Coastal Cities and Climatic Change Adaptation"



Collaboration scheme in the Geodesign. Steinitz, Carl, (2017), "Geodesign", en XIII SUI, UAM, Mexico.



Bus system in La Paz, Bolivia. Heredia, Juan Pablo, (2017). "LAPAZBUS Model. Mass Public Transport as a vehicle of behavior change and civic culture", in XIII SUI, UAM, Mexico.

### Linking or Social Impact

Topics and specific projects related to urban transformation were discussed during the XIII Seminar of International Urbanism. This as a result of the variety of world cases as well as of the globalization processes, that set trends of good practices of architecture and urbanism representativity, competence, efficiency, and high tech. All these have an impact on the construction of an urban sustainable environment and are orientated to promote new ideas, a high quality of life and social equilibrium. The transformation of our urban mature or emerging metropolis under the above mentioned principles add a lot of well-structured strategies and actions adapted over time. Among the most significant generalizations within the Seminar's themes are: the city of opportunities and innovation; topics, concepts and strategies; the city and water; urban planning and management for the city of changes and innovation in the new urban agenda; sustainable mobility in the new urban agenda; social urbanism; urban renovation spaces; sustainable urbanism in the new urban agenda; and, architecture and the city.



Poster of the innovation city. Hurtado Farfán, Alejandro, (2017), "Torino Urban Agenda", in XIII SUI, UAM, Mexico.



## TOWARDS A PEDAGOGY OF THE PLACE. THE PUBLIC SPACE AS THE SETTING FOR TEACHING AND LEARNING

Keywords: Urban Scenery, Appropriation, Pedagogy

### Summary

The central interest of this project lies in debating about the crisis of “city” or “urbanity” that manifests itself most strongly in the public space. The public dimension is changing toward a system of collective spaces, in such a way that nowadays a certain impoverishment of spaces of action can be noticed. The transformation of the public space in Mexico City led to a reconsideration of the urban public space as an “urban scenery” for teaching and learning, taking into account the new spatial paradigm that integrates the actors and their activities. The outcome of such an educational project is an idea of a pedagogy of the place.



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### Objectives

To define the public place as a scenario for teaching and learning social, aesthetic, and emotional competences. In this meeting place, made for citizens, it is promoted the appropriation as a specific learning process.

To do comparative case studies between cases in Mexico City and other cases found in other megacities all over the world.

### Products

Articles (soon to be published)

“El espacio público como medio de expresión creativa”: Soto Walls, Luis et al. (editors). *La didáctica proyectual en la enseñanza superior del diseño*, UAM-Azcapotzalco.

“La ciudad como sujeto y objeto de aprendizaje social, estético y emocional”. *Belleza y sentido de vida en las ciudades bellas*, ITAM/DAAD.

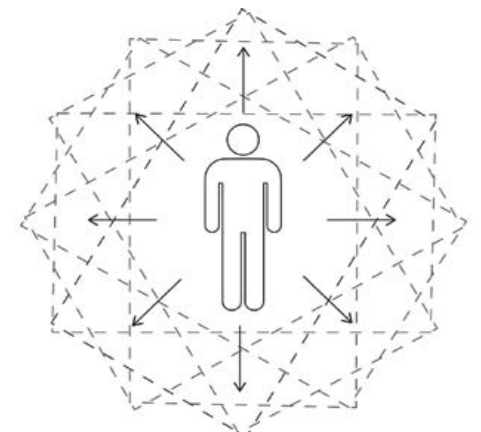
“La Alameda Santa María la Ribera como ‘escenario urbano’ de aprendizaje social”, *Anuario de Espacios Urbanos, Historia, Cultura y Diseño (AEUHCD)* 2018.

In addition to the works cited above, we expect the following actions and results: Catalogue and exposition: “Experimentación en el espacio público” 2018/2019, UAM-Azcapotzalco.

Edition and publication of a scientific book: “Aprendizaje social en espacios públicos, CDMX”, 2018/2019, UAM-Azcapotzalco.



“Places become spaces due to the appropriation and their concrete use” (de Certeau, 1998). Courtesy of Joaquín Aguilar Camacho, 2013



Space in transformation. Own elaboration.



Place-Activities-Actors. Main methodological Concepts. Own elaboration. *Original figure from the Spanish Version of CyAD Investiga 2018.*

## Linking Research with Teaching

The research results as well as the field studies will be presented in national and international events. It is expected to discuss them intensely with experts from other disciplines as well as with undergraduate students of Architecture and postgraduate students enrolled in the Master in Design and Urban Studies at UAM-Azcapotzalco. All this is done with the aim to enrich our work with different points of view.

Within the frame of an elective subject, “Taller de experimentación en el espacio público” (Experimentation Workshop in the Public Space), this is a subject for undergraduate students of Architecture, urban intervention is proved as a method, that considers the public space as a creative medium by which ideas about citizenship and belonging to the city can be built. We also do the same in the subject: “Temas Selectos V - Espacio público” (Select Themes V: Public Space), where postgraduate students and their teachers attempt to built “Heterotopias”.

In addition to this, the following Masters and PhD dissertations are linked, in the broad sense, with this research project:

“La peatonalización de la calle Francisco I. Madero: Espacio Público de Conflicto”, Omar Derramadero Ávila / MBA

“Actos performativos y escenarios urbanos en la cultura de los paseos ciclisteros en Tijuana. Una mirada desde el ciclista”, Carolina Trejo Alaba / PhD (finished June 8th, 2018)

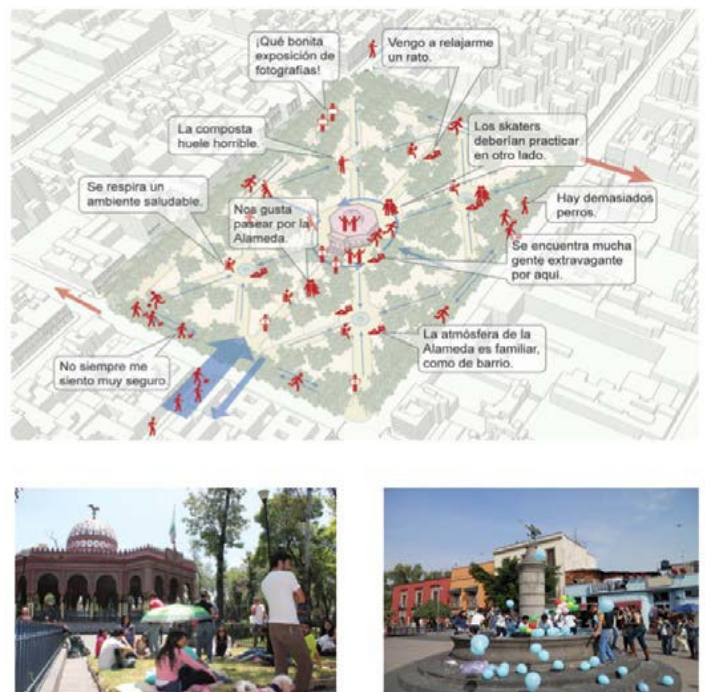
“El rol de la imagen sonora en la aceptación y usabilidad de espacio público”, Silvia Gabriela García Martínez / PhD

“Posibilidades futuras entre lo público y lo privado en un parque de la Ciudad de México”, Martí Gil Bartomeu / PhD



## Linking or Social Impact

The key to built public spaces with a participatory and esthetic visioning lies on the spatial appropriation. However, in Mexico City is extremely remarkable the growing division into districts of different social status. The result of this is that the actual possibilities of appropriation are restricted. Therefore, this project is focused on the contribution to the discussion from a theoretical and practical point of view of recognizing the role of design and the public space management along with the vision of the inhabitants. In addition, this vision implies a call to the public administration in order to establish “spaces of possibility” with the intention of encouraging discoveries and interventions, stimulate and boost the cooperation among people, as well as to build up new infrastructure that allows users to try to do new activities that need the use of new skills. The research exposes an argument in favor of an extension in the sense of general formation. Such an educational project of the urban space results in the idea of a pedagogy of the place, in which construction and problematization are nurtured of at least four basic elements: public space, a distinction between the traditional idea of architecture and pedagogy and citizenship culture and the appropriation of public space. We learn not only in the traditional institutions, such as schools or universities, but we should also take into our account the existence of urban scenery of teaching and learning and the public urban space in particular.



Original figure from the Spanish Version of CyAD Investiga 2018.

## Sources of information:

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- Lindón Villoria, Alicia (2010). Invertiendo el punto de vista: las geografías urbanas holográficas del sujeto habitante. Lindón, Alicia and Hiernaux, Nicolás, Daniel (ed). Los giros de la geografía humana. Desafíos y horizontes (pp 175-200). Barcelona: Anthropos.
- Tapia, Alejandro, El discurso del diseño. Retórica y comunicación gráfica en el espacio social, México, tesis de maestría, UIC.
- Kohl, Herbert, I won't learn from you, USA, The New Press, 1994.



## HISTORY AND APPRECIATION AS FUNDAMENTAL ASPECTS FOR LEARNING TYPOGRAPHY

Keywords: Typography, learning and appreciation

### Abstract

The change in the production and typesetting technology, due to the technological advance of computerized design and composition, had a powerful influence on the learning of typography as a main element in the design of graphic communication. This can be seen in the way graphic designers handle typography. They use it mechanically, with little or no knowledge at all of its history, classification, and design. We have also perceived that new graphic designers use typography without the necessary awareness that is a requisite in order to produce the intentional significance of graphics and audiovisual messages.

Due to these problems, we think that the use of typography in communication design will improve through the study of graphic design history, the learning of the classification of typography, the appreciation of types through the use and practice with movable types. This project also desires to broaden the use of movable types and the printing press with the aim of producing typographical expressions in the visual arts and in the book industry, so books can be considered as an artistic expression.

### Products:

A proposal for the new classification of typography  
Classification of the Herrera Neve typography. It is already published under the title: "La unión entre la historia y la anatomía del tipo para generar una nueva clasificación de la tipografía" (The union between the type's history and anatomy for generating a new classification of typography).

Letter historic development, the typography. Lecture and publication.

Identity, image and typography. Lecture and publication in the 9th Inter-institutional History and Identity Design Conference.

Readability assessment of the Universe 65 bold typography for reading it at a distance of 20 meters in gas stations at a height between 3 or 6 meters from the ground. It is a project for a lawyer's firm.



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### Objectives:

#### General Objective:

To improve the learning of typography (understanding typography as a whole that comprehends movable types, the design of typographic fonts for books and the typographic composition with movable types or printing press) so it can be used, after a series of appreciation exercises and the employment of wooden and metal types, with a sense of its history and be employed in art and design.

#### Specific Objectives:

To analyze and study the historic development of typography.

To analyze and develop methods for designing typographic fonts for texts.

To analyze and develop exercises for the appreciation of typography through the employment of movable types during the composition and the process of printing.

### Linking Research with Teaching

Due to the main objective (Design and Graphic Communication teachers and students will achieve the appreciation of typography), this project supplies several benefits for the UEA's (UAM's subjects) tech, laboratory and design workshop, which programs deals with the knowledge, use and typographic development.

Students and teachers have visited the Language and Typographic Laboratory in several occasions. This because, in accordance to their subjects' program, it helps them to practice and learn about typography.

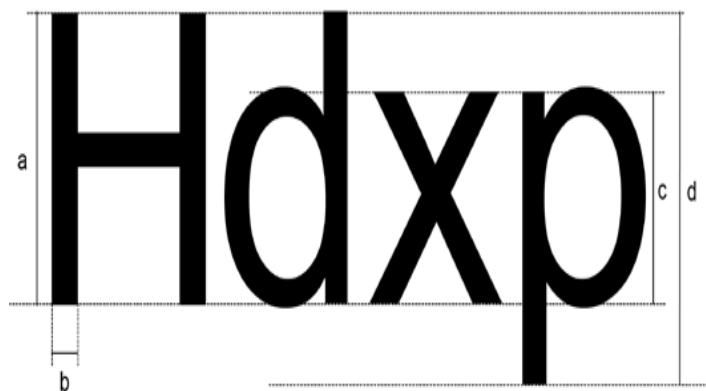
Teaching materials have been developed as part of the activities of this project. We believe that such materials will help students to learn and appreciate typography. Among the teaching materials created by us we can mention the following: Herrera Neve Typographic Classification, the audiovisual representation of the Classic Proportion of typography and letters, among others.

There is a possibility to use the lab for the classes in postgraduate studies in design, for instance, Design and Visualization of Information. A specific case is the employment of movable types and printing press to motivate the learning of reading in pupils who are in the first year of primary school. This idea was given by a postgraduate female student.

### Linking or Social Impact

Readability assessment of the Universe 65 bold typography  
 Readability assessment of the Universe typography family in its 65 Bold variant. These letters should be read at a distance of 20 meters because they are going to be used in a gas station sign, positioned at a floor height of between 3 and 6 meters. This project was requested by a law firm for a new gas station concessionaire. We calculate the height of the letter, of the Universe Family in the Bold 65 variant, in centimeters to be read at a distance of 20 m., from a moving vehicle, based on ergonomic studies.

Universe 65 Bold  
 The relation between width and height is  $R = 0.217$   
 $1 : 4.60$   
 Reading distance  $d = 20000 \text{ mm}$   
 The denominator of visual acuity  $S = 80$   
 $WS = 23.2$   
 Minimum desirable height of the letter to be read at a distance of 20 mts.  $HL = 106.9 \text{ mm}$   
 Minimum desirable height of the letter in centimeters for the Universe 65 Bold:  $10.7 \text{ cm}$



Measurements are required in mm for the signs' letters.

- a) Capital letters height
- b) Width of the vertical line of the capital letter
- c) Height of the vowels or of the "x"
- d) Lowercase height

We requested information from the law firm in order to calculate the minimum font size for gas station signs, that can be read, from a moving vehicle, at a distance of 20 meters.





## THE COMPETENCES OF THE XXI CENTURY DESIGNERS

Keywords: Competences, Professional Profiles, Citizen Training

### Abstract

The work related to this project began in 2015. It has been focused on the identification of various aspects that favors and conditions the acquisition of skills that allow graduates of Design Studies to be fully competent in their working life. This may help students to be always on the look for new information, information that they may get from classes or during their experience as designers, so they may stay up-to-date throughout their working life.

### General Objectives

To identify the professional competences of the graduate students of Architecture, Graphic Design and Industrial Design to ensure that graduate students can work professionally and fully answer the needs of society.



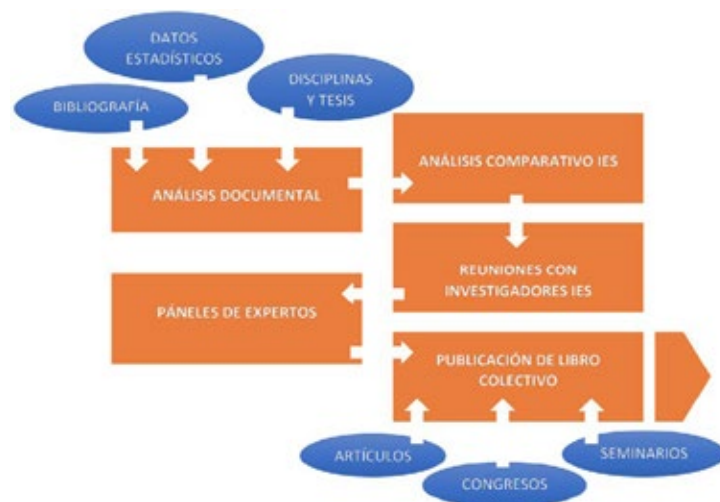
Dr. Luis Soto Walls (ORCID: 0000-0002-3772-7575)

### Images

1. Statistical Data
2. Bibliography
3. Disciplines and Thesis

1. Documentary Analysis
2. IES Comparative Analysis
3. Meetings with IES researchers
4. Expert Panels
5. Publication of a collective book

1. Articles
2. Conferences
3. Seminars



### Research Process

Original figure from the Spanish Version of CyAD Investiga 2018.



### Linking Research with Teaching

The egress profile for Design graduate student must be clear as well as the competences that they should acquire through the PPE. In Mexico and several other Latin American countries, the models for teaching Design are based on the field of architecture. Architecture, on the other hand, derives from the plastic arts and crafts. This explains why some ideas, inherited from the plastic arts and crafts, are still considered in the Architecture studies. Mostly, these ideas are sustained by empirical knowledge, personal experiences and the like.

Starting from the idea that the design process project is taught systematically, we have outlined the objectives and teaching strategies for our students. However, due to the fact that the world is changing constantly, the students' training must provide them with a timely and an updated response to the demands of the world, and this must be reflected on the plans and study programs. These professional profiles must be sensitive to the society's needs, currently expressed in the jobs' requirements, and not only in a theoretical field or the state of the art.

It is of the utmost importance to have a clear idea of the knowledge and basic competences, specific or complementary, that will allow graduate students to work skillfully in the face of complex problems.



Use of lego for planning strategies and systemic thinking

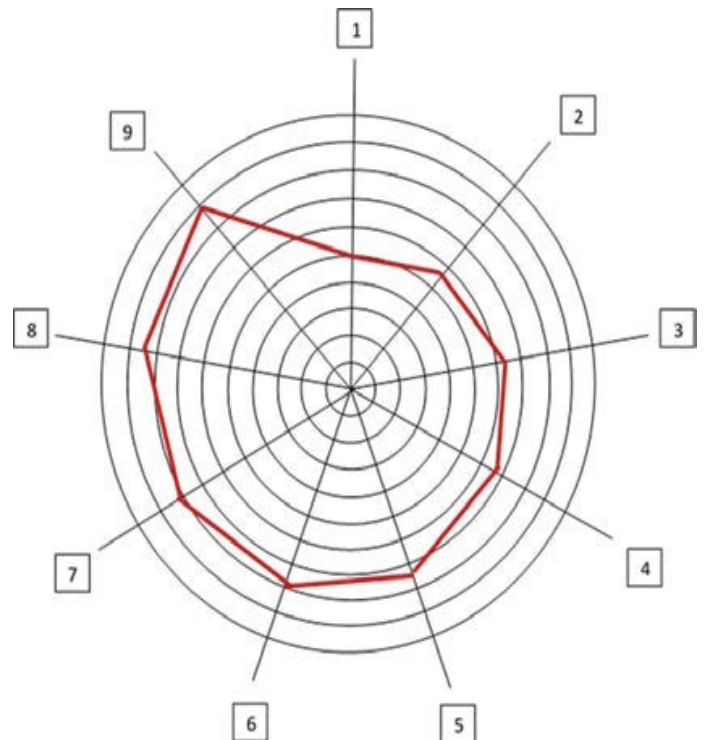
*Original figure from the Spanish Version of CyAD Investiga 2018.*

### Linking or Social Impact

The social linking is focused in academia and in the fields of Architecture and Design. This is so because the way they are is a response to a contrast of different variables which are changing constantly and are extremely sensitive to the ways of working and the contribution of value to the working place.

It is also important to notice that the work of the designer is relevant when working in a collaborative environment and also in his/her participation in inter and trans-disciplinary teams. Since the designer is not only perceived as a complementary resource in problem solving, but as a leading element and a coordinator of the collaborative work, then we are forced to rethink his/her training particularly in the areas of thinking, control of the methodological resources, management, and his/her connection with communication and production technologies.

The contribution, that we want to achieve as a direct result of this project, will affect the education of the designer and will propose options where some guidelines will be offered for the elaboration of flexible study programs and plans. These programs and plans may favor the continuous adjustment to the needs and realities of the world, this will guarantee their pertinence and transcendence. This project, and several others by the Design Education Research Group, will be linked to a joint work with researchers from the Department of Design Theory and Processes of the UAM-Cuajimalpa with whom a collaborative book will be published.



Percentage in the emphasis of the forms of learning throughout the students' major



## THE DESIGN IN SUSTAINABILITY APPLIED TO PROJECTS IN FAVOR OF PRESERVATION OF THE ENVIRONMENT

Keywords: Design, Project, Sustainability

### Abstract

Progress has been made in conducting surveys to determine how much our students know about sustainability and its application in projects.

In the search of bibliography related to the social, participatory, conscious, and sustainable design.

And in the research of the characteristics of a sustainable project.

### General Objectives

To determine the different types of design that are involved in the making of sustainable projects which have as their main goal to preserve the environment and to improve the users' life quality.

### Products

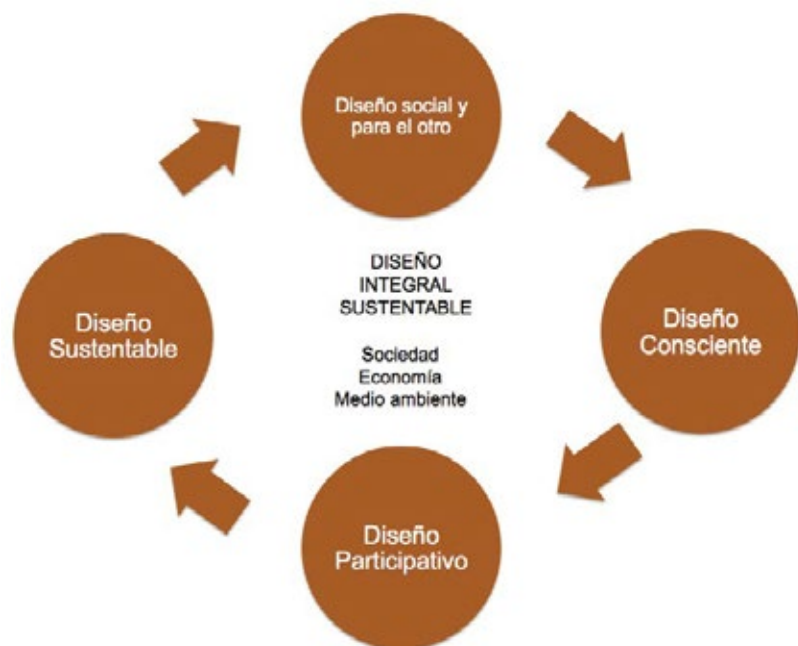
Research advancement reports will be generated. An article will be written to be submitted for its publication in the 6th Debate-Forum of the Department of the Evaluation of the Design. CyAD Investiga Exhibition will present a series of detail infographics showing the research progress.



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Mtro. Ricardo R. Aguilar Quesadas



*Original figure from the Spanish Version of CyAD Investiga 2018.*

### Linking Research with Teaching

Teachers have the strong obligation to propose structured and organized projects so that our students can see a tangible reality in them. Students must be conscious that such projects must be done with collaborative participation and, above all, they must have the chance to participate eagerly. Students will know and recognize the problems that arise and search for effective and efficient solutions that may accomplish two things: to solve a problem and to meet the users, public and clients requirements. At the same time, these projects are thought in such a way that students always need to think about the consequences of their design. Our students need to carry out projects that really meet the expectations of a solution for a previously observed need.

### Linking or Social Impact

This research project seeks that Design students acquire the theoretical-methodological basis to carry out a sustainable project. Students will achieve this by considering the four above mentioned designs.

The sustainable projects developed by our students must consider the social benefit and, in some cases, the economic gain, but what they always must seek is the improvement of the environment. As teachers, we must acquire the commitment and be conscious that our students should think about the consequences of their projects because to design is an act that should result in a benefit. We must design considering the user.



Social and conscious design: ejido de caobas, Quintana Roo. 2017.



Participatory and sustainable design: Capula, Michoacán. 2017.

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## EXPERIENCES OF COLLEGE PARTICIPANTS AT THE UAM-AZC IN A BLENDED LEARNING MODEL

### Abstract:

Nowadays, the learning-teaching processes in architectural design faces a dilemma: teachers and students belong to different generations with contrasting ways of understanding the world. Dr. Ángel Díaz Barriga, an expert in teaching, argues that the vast quantity of information that students face is fragmentary so, he continues, the teachers' responsibility is to show them how to integrate such fragmentary information.

On the other hand, Dr. Enriquez Ruiz Velazco states that we, the generation "that was not born in the digital era", must make an effort to understand this digital era. Such context makes us, the members of the Research Group, ask ourselves about the way we must carry out the teaching-learning cycle in the Taller de Diseño Arquitectónico (Architectural Design Workshop) and in the subjects of Teoría (Theory) and Historia de la Arquitectura (History of Architecture). This is the main objective of the Seminar, that attempts a collective reflection in 2018.

### Outline of the Methodology or of The Research Process

1. Identification of a problem to find order and design proposals.

The project exercise, as a problem, can be studied from three areas:

Objectives and Generated Products of the Research

The Research Learning in the Community Habitat Group has decided to dedicate its Seminario Interno (Internal Seminar) to reflect about how we do the teaching-learning process about Design and the teaching of Theory and Architecture History in the 21st Century. The questions to develop are:

Signification, Function, Form

"The spaces' significance scarcely receives attention"

"Explain the built spaces in accordance to systems of norms, which depend on the social formation in which they develop.

Explain the non-dominant space, explain the social and cultural space, "is to approach the environment of social needs"; it is "other" reality.

1. What teaching school do we identify with?
2. What teaching methodology do we identify with?
3. Can we identify a teaching profile?
4. The UAM's students egress profile is professional?
5. What is our position in regard to the theory/history of architecture?

6. What is our position in regard to the architectonic project?

The answers were given according to the personal experience of the teacher when she/he is teaching.

### Products:

1. Seminario Interno (Internal Seminar)
2. Il Seminário Internacional A Dimensão Social da Formação Profissional
3. Lecture: "Socio-spatial phenomena and the needs of a design based on students' commitment"



Mtro. Miguel Ángel Pérez Sandoval



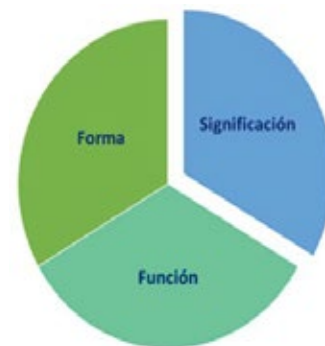
Dra. Georgina Ramírez Sandoval



Dr. Fernando Minaya Hernández



Mtro. Noé de Jesús Trujillo Hernández



Gonzales Ochoa, Cesar: La Significación del Espacio Construido; Significado del Diseño; Editorial Designio 2007, own conceptual map.

Original figure from the Spanish Version of CyAD Investiga 2018.

### Linking Research with Teaching

The generated transformations within the society, produced by the growing development of the world economy, glimpse a high complexity scenario that deserves to be thought from an integral perspective. The changes, that should occur in order to reach social progress and development, are based on the most important organizational resource: knowledge. It is in this context that Universities must assume the production and dissemination of knowledge as a commitment, and in this way they carry out the social task entrusted to them.

Universities have always been a space where ideas and projects are generated helping societies to face and solve big issues. However, it is necessary to have a critical thinking to carry out these actions. Nowadays, universities should go beyond their traditional role of institutions where people teach and research. At present society demands from the University a stronger commitment in relation to social issues. Therefore teachers and students must be able to have an impact on the processes and on the economy, as well as on the social and cultural welfare, of the communities in which they are established.

It is important to point out that the two main tasks of any University are: the human and professional education (academic intention) as well as the generation of new knowledge (research intention). Universities must be understood as a committed organism with the creation and dissemination of knowledge as its main task. The University community must play a fundamental role in the research and the dissemination of data and studies that can be transformed in multiple solutions. Institutions must not only interpret the demands or necessities of a society, but they must be an important element to provoke different efforts and styles of citizen cooperation.

It is necessary to precise the academic functions (teaching, research and dissemination) of a university from a systematic perspective which must be supported on a new model of timely communication, that consents, through the search for knowledge, transmission, and application, that the set objectives are related to those demanded by society. (Raga, 1998)

### General Conclusion

Application of the ideas based on the speciality offered in the subjects of Taller de Diseño Arquitectónico (Architecture Design Workshop)

Systematize experiences; systematize methodologies; Systematizes the application of new digital tools and instruments  
 Identification of ideas in architecture based on the subjects of Teoría (Theory) and Historia (History)  
*Original figure from the Spanish Version of CyAD Investiga 2018.*



### Linking or Social Impact

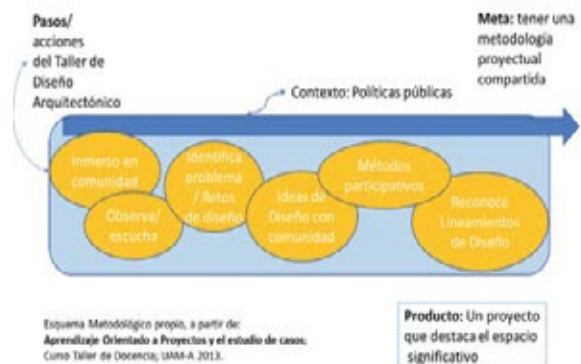
Extension should be one of the motors that functions as a unit of analysis for the development of the research. Strategies that articulate University's functions should be proposed, with a view to strengthening the university-society link. In universities social projection is a task that is performed with the environment and is supported by teaching and research in order to promote projects that articulate discourse with action.

Brovetid maintains that "[...] the University is an institution that belongs to society, to whose demands and needs it must respond ... not only does the University act when it responds effectively to external demands, but when this environment, understood in the widest possible sense, is considered as an object of investigation, and even reverts on itself and is taken as a reason for study and reflection"

Teaching and research are constantly presented as functions unrelated to extension. However, a research without the contributions of a questioned reality may lead to an erroneous and inconsistent contribution. In turn, an extension that does not imply a research practice can be transformed into merely abstract and decontextualized knowledge. The work of University extension and social projection integrated into teaching-research generates circumstances and actions that frame modern training experiences, where both students and teachers leave the traditional classroom to participate in a process of access and generation of knowledge, with a current, creative and pedagogical conception of teaching-learning.

For this reason, learning experiences based on projects turn out to be more valuable and significant for students than the knowledge that is not linked to reality. It is an experiential training where you learn to do and reflect on acting in real contexts, relating thought to the implementation of practical solutions. Likewise, it fosters communication and teamwork skills and competencies in the students, by developing processes of dialogue, collaboration and collective discussion, necessary to integrate knowledge, negotiate and join efforts. All these complex skills help the student to build their own knowledge.

**Objetivo:** Desarrollar un ejercicio proyectual en un contexto socio territorial determinado y para el Siglo XXI.





## PERSONAL AND SOCIAL PRACTICES AROUND E-BOOKS

Keywords: Graphic Design; E-Book, Cultural Process

### Abstract:

Electronic media have modified personal and social practices around reading, questioning the graphic designers' role. This research aims to understand this phenomenon from a cultural point of view, using qualitative methods and circumscribing it to the aesthetic reading. Its findings reveal that graphic designers ought to add to their previous skills new ones that allow them to face complex challenges of a big scale. Categorizations and useful tools are offered to these professionals.

### General Objective

To prove that the graphic communication designers are crucial to integrate the various potentialities that the virtual space brings to the cultural circuit community of aesthetic reading.

### Research Products Generated Between 2015 and 2018:

- Eight papers
- Two indexed articles
- Four book chapters
- Three infographics for specialized events
- Five research reports
- A doctoral dissertation

### Images:

Characteristics of the interrelationships found in the cultural process of the cases studied. Source: own elaboration.

[Left]

Cultural Interests  
 Simultaneity  
 Obsolescence and Permanence  
 Polymorphism  
 Communicative modalities

[Centre]

Continuity

[Right]

Fluctuating Roles  
 Integration  
 Community Potential  
 Scale  
 Community CC

Synthesis of contributions from the three design perspectives analyzed. Source: own elaboration.

[Left]

Design Thinking  
 -The users' Relevance  
 -The projects' feasibility  
 -Iterative Process

[Abajo]

Transition Design  
 -Long-term vision  
 -DCG's personal posture  
 -Change agent  
 -Social Responsibility

[Derecha]

Human-centered design

-Critical vision

-Question:

The necessity

The solution mechanism

The implications

Summary of important aspects contributed to the analysis by different facets of ICT. Source: own elaboration.

Design and ICT facets

Human-Computer Interaction

-Qualitative aspects

- Feasibility of use

User's Experience

-Sensorial Convergence

-Intentional Structure

Experience Design

-Personal and unrepeatable

-Why

-What

-How

-For whom

Interaction Design

-Object's experience

-Satisfactory transit

-Formal and management resources

-Who

Social Computing

-Knowing contacts between the participants

-Community scales

-Ethics

Contextual Design

-Collection and interpretation of data

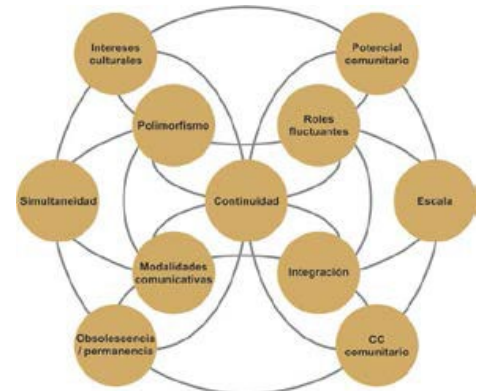
-Intentions, wishes, motivations

-Support and extend users' practices

Affective Computing

-Emotion, one of many parameters

-The affective aspect can involve experiences or interactions



Characteristics of the interrelationships found in the cultural process of the cases studied. Source: own elaboration.

Original figure from the Spanish Version of CyAD Investiga 2018.



María Itzel Sainz González (ORCID.org/0000-0002-6380-3682)



### Linking Research with Teaching

The specific nature of this approach required a comprehensive approximation, so that the graphic communication designer could understand its performance in the field of culture through the symbolic value that both the literary works and the forms, through which they reach readers, possess. Thus, this is an issue that directly concerns the professionals of this discipline.

The combinations, variations, and permutations among the numerous resources and tools of the studied phenomenon constitute a fertile field of experimentation where writers are rarely the only creators they rather are interdisciplinary or transdisciplinary teams in which designers also transform their role in the traditional publishing task.

The cyclical model achieved constitutes a useful conceptual framework to turn theories into applied graphic design practices. As part of the results, the DCG is provided with useful tools to enhance the personal and social practices associated with aesthetic reading, taking advantage of the virtual environment in the phases of the cultural process and its intersections.

The degree of complex thinking that involves the participation of DCG in this type of project is very high. It is true that, as recently graduates, students must go through a maturation route; however, it is necessary to prepare them, help them form a strategic vision to start the journey.



Integration of dimensions to consider in the planning, operation, and evaluation of cultural circuits for aesthetic reading in virtual space. Source: own elaboration.



Basic cultural process model. Source: self-made.

*Original figure from the Spanish Version of CyAD Investiga 2018.*

### Linking or Social Impact

Within the practice of aesthetic reading in virtual space, the meeting between creators and readers remains as a constant. This is about an experience through the work created as a symbolic cultural asset. Accordingly, the developed process has that cultural character.

The social implications likely to occur due to the penetration of ICT within people's daily life –or lack thereof–, motivated us to choose community's intentionality as a stance. We appeal to DCG to take an active position in this regard.

As a benefit of the application of the cultural process model to the study of the cases, the conceptual framework was assessed as adequate and pertinent. Its different sections provided enough alternatives in order for us to discern various ways in which the DCG has responded to the challenges involved in working with aesthetic reading options associated with the Internet.

It is relevant to note that there are communicating vessels linking the spheres of the printed book with those digital works. The myth of a dichotomy is broken by showing their possible manifestations either on paper or in cyberspace; in whole or in parts.

#### Images:

Integration of dimensions to consider in the planning, operation, and evaluation of cultural circuits for aesthetic reading in virtual space. Source: own elaboration.

[From Left to Right]

Why

What for

For whom

Who

What

[Centre]

Toward a design to e-reading for pleasure

Basic cultural process model. Source: self-made.

[From Left to Right]

-Formation

-Creation

-Production

-Distribution

-Consumption

-Conservation

[Centre]

-Literary Work

[Down-Left]

Community CC

Artistic CC

Commercial CC

[Down-Right]

-Management

-Diffusion

-Participation

#### Sources of information:

Analysis Diagrams Throughout the Investigation. Source: Own elaboration (2017)

Research Results Diagrams. Source: Own elaboration (2016-2017)



## SERVICE DESIGN IN THE DIGITAL ERA: OPPORTUNITIES AND CHALLENGES FOR MEXICO

Keywords: Service Design, Strategic Design, Creative Industries

### Abstract

The Service Design has gained attention for the great impact in economic activities, especially in developed economies. Somehow there is a variety of studies from a business, engineering, information management, and design points of views. Additionally, there are educational programs about service design oriented to develop co-creation skills for designing better systems-products services.

### Products

Training courses for teachers and students. Results obtained:  
- Global Goals Jam CDMX 2017 Workshop: 36 attendees  
- Strategic Design Workshop: 45 attendees  
- Master Conferences aimed at students and teachers interested in the subject: + 100 beneficiaries

### Goals

Short-term  
- Theoretical approach to service design.  
- Incorporation of students in the project for their training and support.  
Medium term  
- Diagnosis of the design and service industries in Mexico starting from indicators.  
- Interview with experts.  
- Book publication

### Research Objectives and Products Generated

#### General Objective

To go deeper, from a holistic perspective, in the study of service design as an emerging area of research and professional practice in an accelerated technological development context.

#### Specific Objectives

- To approach the practice of service design in the digital age, starting from knowing professional and educational projects.
- To assess the opportunities and challenges of introducing service design in Mexico.
- To develop skills for designing services in the digital age.



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Workshop for students

### Linking Research with Teaching

The specific nature of this approach required a comprehensive The possibility of offering workshops on service design provided by specialists has allowed to supply teachers and students with new methodological tools to support the design process of product-service systems.

In the same way, these types of activities contribute to the updating of the Design knowledge.

### Linking or Social Impact

At Global Goals Jam the guideline was to develop social projects that have related impact within the framework of the UNESCO 17 Goals for Sustainable Development. This initiative has allowed us to be able to collaborate directly with MediaLAB Amsterdam. For more information, see: <http://globalgoalsjam.org/>

In the Strategic Design Workshop, taught by Policy teachers Studio (Vancouver, Canada), projects were developed to improve the UAM Azcapotzalco accessibility with its urban environment, through participation with the University community, neighbors, and local merchants.



Development of prototyping by students CyAD, GGJ, CDMX (2017)



Pitch presentation, using the design tools.



Research project  
financed with  
PRODEP resources





## REVITALIZATION OF THE SOCIO-URBAN SPACE. A CASE STUDY: UAM AZCAPOTZALCO AND ITS ENVIRONMENT IN THE REHABILITATION OF THE NUEVA ROSARIO AREA, THROUGH PARTICIPATORY DESIGN AND IMPLEMENTATION OF ICT.

Key Words: Participatory design, Technological innovation, Learning in community contexts



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Mtra. G. Paloma Ibáñez Villalobos

### Abstract

The regeneration project of area Nueva Rosario is an opportunity for the institution to establish a relationship and communication with our neighborhood. We also take this opportunity to develop research and teaching activities, with the aim of transforming the physical environment, through design, considering the social environment. The request for the realization of this project was made by some residents of the same area, due to violence and insecurity problems in the area and the lack of a neighborhood organization to address other problems.

### Objectives

1. To influence the revitalization and improvement of the conditions of the socio-urban space of the environment near UAM Azcapotzalco through participatory design and utilization of ICT.
2. To integrate a proposal for the process and the apprenticeship programs, serving community contexts, which point to a social responsibility training.

### Research products generated

We are working on a proposal to provide design solutions in the socio-urban, architectural, and communication fields with the participation of the people living in Nueva Rosario. Workshops have been given to the University community and to the neighbors around the Azcapotzalco Unit of UAM and authorities of the municipality of Azcapotzalco. The objective of the workshops was to discover new opportunities and to make new connections that favor the implementation of human values, and denote social innovation, with a multi-perspective vision for the development of a social and urban regeneration. Key indicators were designed, creating a link between internal culture and the mass of people. Focused in the prospective and cognitive system, we transform realities into opportunities through group work sessions.

Images:



Workshop with neighbors and UAM community. Zizumbo.



Axes of action in the environment. Zizumbo.

### Linking Research with Teaching

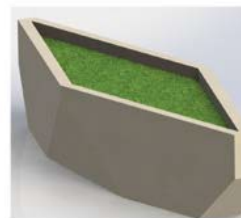
This project has counted on the participation of students who have completed or are completing their social service in the CyAD and CBI Divisions, of students who attended the Taller de Diseño Arquitectónico II-A y II-B (II-A and II-B Architectural Design Workshop) and of researchers-professors of the before mentioned divisions. The participation of the residents of the area has been crucial for the development of this project which will be submitted to a contest in the Programa de Mejoramiento Barrial y Comunitario de 2018 (Neighborhood and Community Improvement Program of 2018) for obtaining resources, promoted by the Government of Mexico City.

### Methodologies

We used the Innovation and Design Thinking methodology for the generation of value. The scope has been the method of ideal future scenarios, strategies for implementing change, concrete factors, attributes and benefits needed. We also intended to create empathy between the people involved as well as, detonate situations of collaboration and co-creation. This exercise was just the start of a series of actions that must be carried out to generate a safe, healthy and inclusive environment. This should be fulfilled in conjunction with the authorities, the productive sector, the UAM community, and the residents of the area.

### Linking or Social Impact

The physical environment is an essential element for the constitution, internal functioning, the relationships with the environment, and the productivity of groups that form different organizations. This influences significantly the aspects that are essential for a proper group dynamics. The urban and architectural design proposal has been the result of the collaboration of residents of the environment to the UAM-A, students and academics. Communication effective strategies are also being designed. These require an interdisciplinary perspective from the technological tools to interact with the surrounding community. This as a strategy for building safe urban environments for the entire population and constructing a culture of prevention among all the habitants.



3. Results of one of the workshops. Zizumbo.

Design products. Social Service Students.



## MATERIALOTECA MEXICO

Keywords: Materials, Mexico, Design

### Abstract

Materialoteca México is a database of materials, that exist in the national market for the society in general and particularly for designers from all over the country and those interested abroad, to know the materials that are produced and marketed in the various regions of the republic.

### Research Products

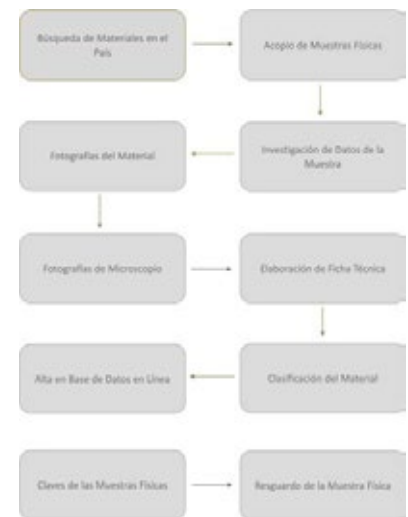
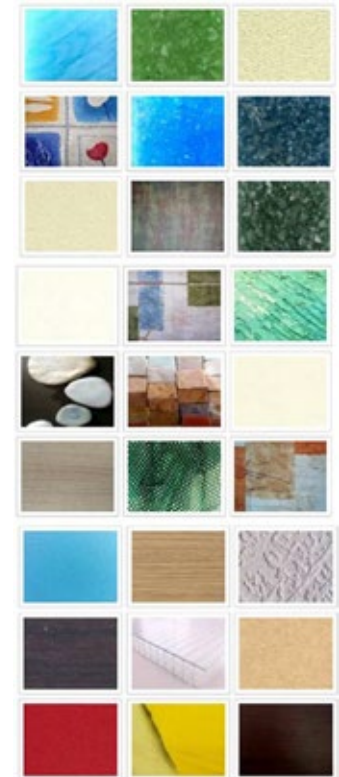
- 2000 materials in the online database. Each one with different photographs and technical data sheet with detailed description of the product including the supplier details too.
- 3000 physical samples available for the entire University community which consists of 23 of most important design schools in the country.
- Support in the research and selection of materials with design majors.
- Environmental impact reduction analysis reports in the selection of materials.



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Image:

1. Investigation Process
  - Search for Materials in the Country □
  - Collection of Physical Samples
  - Photographs of the Material □ Sample Data Investigation
  - Microscope Photographs □
  - Elaboration of the Technical Sheet
  - Online Registration in Data Base □
  - Material Classification
  - Physical Samples' Codes □
  - Physical Sample Guarding



PROCESO DE LA INVESTIGACIÓN

Investigation Process  
 Original figure from the Spanish Version of  
 CyAD Investiga 2018.

### Linking Research with Teaching

The Materialoteca México provides a database to improve the selection of materials for the University community, especially the professors, researchers and students of design schools in the country attached to DI-Integra. This adds more than 10,000 students who have access to the services of the online database, which can be consulted at: [www.materialoteca.azc.uam.mx](http://www.materialoteca.azc.uam.mx). Thousands of students have already been using the page and hundreds of them have gone to check the physical samples inside of the Laboratory, where we also have various tools for the adequate selection of materials such as: Granta educational, Simapro7, Ecolizer 2.0, Ecomaterials Adviser, EI-99, among others. Our aim is that the students make better decisions about the materials that go to use, especially in relation to the care and protection of the environment and the reduction of environmental impact of the products they develop. We have also a link with the Material Library of the Design City in Saint Etienne, France, with whom we share information. Likewise, we count with information from various Material Libraries around the world and institutions that they analyze and study the field of materials.



Samples of materials online Artesana De Mitla, Oaxaca [www.materialoteca.azc.uam.mx](http://www.materialoteca.azc.uam.mx)

### Linking or Social Impact

The influence that the project has on society is on several levels. The most important is the dissemination of the processes and materials of the country's artisan guilds, where thousands of people carry out a daily job that is little disseminated in national and international media.

Also, we spread the work elaborated companies that make industrial materials in the country, an equally relevant aspect for regional development and especially for the reduction of the environmental impact when using materials locally sourced. Finally, the dissemination of materials in Mexico is low and there are few media dedicated to that. The Materialoteca México, is available to society in general and this helps to increase knowledge of national materials inside and outside our borders. We have received e-mails from many parts of the world, such as China, Argentina, Uruguay, Spain, France, etc. where they are seeing what this project has achieved. In the near future, we expect to increase our bonding network and have a greater influence.

### Images:

2. Samples of materials online Artesana De Mitla, Oaxaca [www.materialoteca.azc.uam.mx](http://www.materialoteca.azc.uam.mx)
3. Product redesigned before and after. Prototype within the Ecodesign and Material Library Laboratory



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## ALTERNATIVE FUTURES FOR SUSTAINABLE DEVELOPMENT

Keywords: Sustainable Planning, Bioclimatic Design

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### Abstract

Nowadays, in our cities, everything is consumed and disposed, most of the time, without a special treatment (water, air, energy, materials, food, etc.). We need to change our patterns of consumption: from open cycles where there is an income of goods and a disposing of trash and pollution, to closed cycles of production, storage, consumption, and recycling. There are several key points to achieve these goals: to adapt the cities according to their different climates, to learn about water management, green areas, energy, employment, transportation, construction density, to use local and appropriate materials, ecotechnologies, natural and cultural patrimony, amongst others.

### Objectives

To promote strategies and design elements to obtain the maximum urban use of water, energy, and services, in cities and its twenty-first-century buildings.

### Research Products Generated

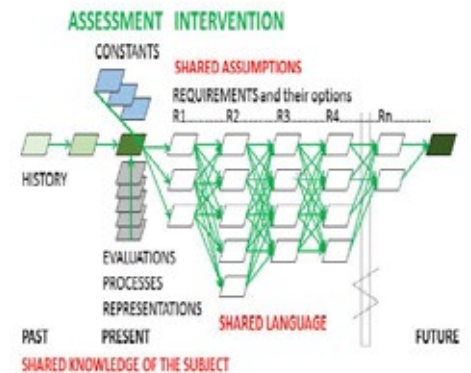
Plan de Desarrollo Municipal, Municipio de Tepetzotlan (Municipal Development Plan, Tepetzotlan Municipio) (2010) Futuros Alternativos para Tepetzotlan. (Alternatives Futures for Tepetzotlan) Ed. UAM Municipio de Tepetzotlan, ISBN

### Architectural Proposals (later developed and built) to:

- An Overpass on the highway
- Municipal market
- Regional Hotel
- Hotel Boutique
- Cultural Center
- Artisan Market
- Central Bus Station

Image:

1. STENITZ, CARL. GEODESIGN WORKFLOW. TOMADO DE (2017) GEODESIGN, ESRI EDITIONS, USA



### Linking Research with Teaching

For more than ten years this project has connected students of the Bachelor's in Architecture and Postgraduate Specialization, as well as Master's and Ph.D. students in Design and Bioclimatic Design. They have come together to deal with the challenges of strategic planning, considerations of urban impact, different proposals for green areas and public spaces that respond to the climate, the design of buildings with bioclimatic principles and the development of devices to improve the habitability conditions in the buildings.

The concepts and design blueprints developed have been presented to the authorities and investors, and many of them have been developed by municipal, state and federal governments or groups of private investors.

Additionally, final works of the Bachelor's degree programs have been developed –as well as in Master's, and Ph.D. dissertations– that are linked to the project in some specific characteristic, such as normativity and regulation for sustainable architecture; construction with recycled materials; design and construction of green walls and coverings; devices for natural ventilation or environmental noise mitigation, among others.



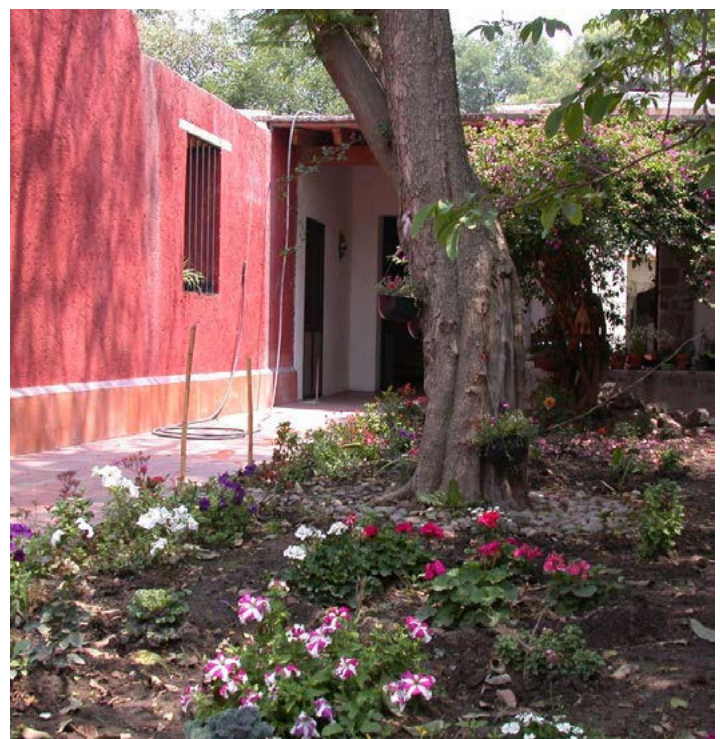
Hotel Boutique in an old house of Tepetzotlan, based on a proposal of alternative futures.  
Photography: Anibal Figueroa

### Linking or Social Impact

The influence that the project has on society is on several levels. This project has had a significant social impact in the Metropolitan area of Mexico City since it has performed different academic exercises for the municipality of Tepetzotlán in the State of Mexico, the municipality of Azcapotzalco in Mexico City, and La Paz City in Baja California Sur.

The project is currently focused on the diagnosis of the Partial Plan of Municipal Development (Plan Parcial de Desarrollo Municipal) for the downtown area of the municipality of Tlalnepantla in the state of Mexico.

It is important to note that the conclusions and proposals made by the design professors and students have been considered as relevant by different social actors because they have impacted favorably the development of the municipalities. However, this process requires long periods of time to surpass the different phases in management; finances; in its development; construction; and operation.



Cultural Center in the old collection houses, based on the proposals of alternative futures  
Photography Anibal Figueroa



## NOTES FOR THE HISTORICAL MEMORY OF MEXICO CITY'S PARKS AND PUBLIC GARDENS DURING ERNESTO P. URUCHURTU'S ADMINISTRATION, 1952-1966

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Ramona I. Pérez Bertruy

### Abstract

During the metropolization phase of Mexico City (1952-1966), the head of Departamento del Distrito Federal (Federal District Department), Ernesto P. Uruchurtu, implemented an urban policy that privileged the creation, conservation and maintenance of public parks and gardens. These actions left an indelible imprint on the urban structure of Mexico City, delineating its current conformation and urban image.

### Objectives

To write a paper that explores the characteristics of the urban policy implemented in parks and public gardens and understand the sociopolitical, urban, and environmental determinants that influenced the confirmation of the current urban structure and physiognomy of the city.

### Research Products Generated

Presentation of the partial results of the research through infographics in the XI, XII and XIII Coloquio del Doctorado en Urbanismo (Facultad de Arquitectura - UNAM (Postgraduate Symposium in Urbanism (Faculty of Architecture - UNAM))). Presentation of three Research Reports before the Consejo Divisional de Ciencias y Artes para el Diseño (CyAD) (Divisional Council of Sciences and Arts for Design (CyAD)).

Three essays presented in research seminars at the Instituto de Investigaciones Sociales (Social Research Institute), Doctorado en Planeación Urbana (Postgraduate Studies in Urban Planning) and the Instituto de Geografía de la UNAM (UNAM Geography Institute).

### Presentation of papers in:

3<sup>a</sup>. Jornada de Paisajes Patrimoniales (Benemérita Univ. Autónoma de Puebla) (3rd Heritage Landscape Conference)  
2<sup>o</sup> Seminário Internacional Paisagem e Jardim como Patrimônio Cultural Brasil-México (Universidade Federal de Pernambuco, Brasil).

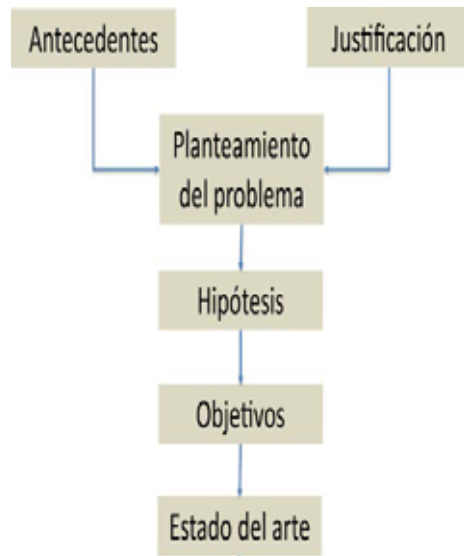
### Articles:

• La ciudad que se construyó en 14 años. Ernesto P. Uruchurtu y su legado urbano paisajístico

• Ernesto P. Uruchurtu y su ideario político para la modernización de la Ciudad de México, 1952-1966.

### Image:

1. Background (right)      Justification (left)  
Problem Statement  
Hypothesis  
Objectives  
State of the art



Original figure from the Spanish Version of CyAD Investiga 2018.

### Linking Research with Teaching

This research project, not only provides elements for the understanding of the urban and environmental history of Mexico City, but it also allows an approach to the study of urban policies, which were carried out during the study period. These policies were framed by a situation of economic bonanza and social stability and politics; they were also guided by modernizing and moralizing claims of the life in the city.

On the one hand, this project provides elements for the discussion and the understanding of the urban phenomenon that occurred in the midst of the last century and of its sharpening and subsequent transit towards the metropolization of Mexico City. On the other hand, it makes available some methodological resources such as historiographic analysis from documentary, cartographic, and photographic sources, just to name a few, to undergraduate and graduate students. It opens an opportunity to the exchanging of different experiences and the confrontation of ideas with other academic peers who study similar phenomena in Mexico and other countries.



Figure 1. San Juan de Aragón Market and Public Park in 521 Avenue.

Source: Colección Villasana Torres., México. Ca.1964.



### Sources of information:

Photographs of the design of benches with shadows and planters for the esplanade of the Azcapotzalco.  
Concrete and asphalt models. Works of students of the u.e.a.  
Product Design IV of Industrial Design, directed by Eduardo Ramos Watanave

### Linking or Social Impact

The development of this research project allows us to understand the implications of urban policy, particularly in terms of parks and public gardens, in the configuration of the urban landscape of Mexico City. Besides, it sheds light to the successes or mistakes of the government's day-to-day involvement in this case.

This research project provides new contributions for the assembly Mexico City's history and it recaptures relevant episodes that have an important part on the collective imaginary. During its realization and upon its completion the project will facilitate the analysis, systematization, documentation, and dissemination of products in a documentary and cartographic report.

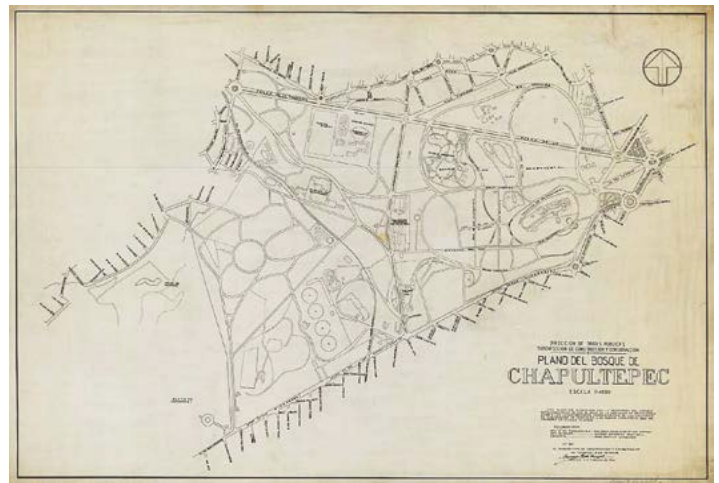


Figure 2. Plan of the Bosque de Chapultepec (Second Section), Scale 1: 4,000.

Made by the Dirección de Obras Públicas, Subdirección de Construcción y Conservación. Federal District Department. Mexico, 1956.



Figure 3. Parque División del Norte, currently known as Parque de los Venados.

Source: D.D.F. La ciudad de México 1952-1964. Ed. Nuevo Mundo, México, 1966.



# PROSTHETIC DESIGN FOR PEOPLE WITH AMPUTATION TRANSFEMORAL OF THE LEFT LEG

Key words: Ergonomics, Design, Transfemoral Prosthesis

## Abstract

The amputation of any of the limbs of the human body requires a technical aid (prosthesis) that facilitates personal development and integration into social, educational, and work lives.

We generated design proposals that have all the biomechanical elements that facilitate walking and that through ergonomic, structural, material, and technological conditions can develop a technical help that meets the needs of users.

## General Objective

To design a transfemoral prosthesis for standing and for its contribution in the dynamics to carry out activities such as walking or running.

## Specific Objectives

To consider the anthropometric characteristics of the limb for a correct hold of it.

To get a correct damping at impact forces, by the very force of bodily weight.

To achieve a stability of the limb.

To obtain a progression of the center of gravity while walking and a correct alignment of the lower limbs

## Products

- Reports.
- Processes
- Technical sheets
- Anthropometric ID
- Descriptive memory of the models



## Images:

3. Outline of the development of the research for the project [Right]

General examination of the patient

### Data register

- Obtain patient data (age, profession, context)
- Obtain a medical history (medical record of health)

### Stump Inspection

- Check the condition of the skin, color and condition of scars.
- Palpate the stump to check muscle tone and Temperature

### Taking of measurements

- With tape measure calculate the length of the stump.
- Draw the middle sagittal axis and mark every 2 "
- Locate the trochanter and take the perimeter of the stump.

### Physical Exam

- Perform muscle and joint balance tests.

### [Left]

Provisional prosthesis

### Mold Rectification

- Based on the measures taken in the previous stump scan, modify the shape of the mold.

### Socket construction

- Apply release agent to the rectified mold
- Cut sections of plaster bandage and moisten them.
- Wrap the mold with the bandages until you have Three to four layers.

- Let set and rest a couple of days.
- Perform multiple perforations of approx. 1½ "in the test socket body.

### Plaster socket tests

- Placement of the test socket to the patient
- Manual inspection of grip and slack points
- Mark the clamping points in socket.
- With the help of the king's foot, measure the points of Slack



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José Luis Rosas Baca José Luis Rosas Baca

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Case study for transfemoral prosthesis  
Jorge Natividad Robles. 56 years old

## Linking Research with Teaching

The UEA's Temas de Opción Terminal I, II, and III purpose is to involve students in researching since this is a resource of professional development for students.

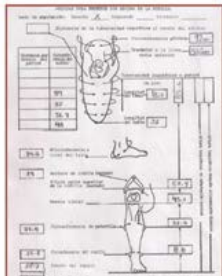
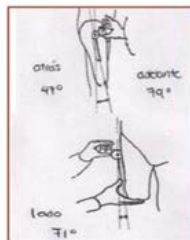
The research's theme is the attention to people with disabilities, through support of design of technical aids that favor one's autonomy, awareness, accessibility, the general knowledge of disability, and necessary ergonomic criteria for proper use and context, among others themes.

At the beginning of the UEA course, Temas de Opción Terminal I, students work in pairs. This dynamic consists of a tour through the corridors of the University with the objective of sensitizing the students on the subject of disability.

We involve our students in the different phases, activities, and processes of study of research projects, which include anthropometric and biomechanical development, patient data for better registration, and even in the analysis of design requirements focused on disability. In this particular case, we focused on the project "Diseño de prótesis para personas con amputación transfemoral" (Prosthesis design for people with transfemoral amputation).

The active participation in the UEA, Temas de Opción Terminal, strengthens the teaching-learning process, in which research is not only one of the fundamental objectives but it also leads to the practice and to an interactive process with the user.

Mediciones antropométricas			
Medidas	Largo	Ancho (de mayor a menor)	Díámetro
Muñón	8"	24 1/4"	92.5 cm
		22 3/4"	
		22 1/4"	
		21 1/4"	
		19 3/4"	
		17 1/2"	
Espalda	48.6 cm		
Cintura	34.5 cm		
	(distancia del muñón a la cintura)		
Cadera	34.85 cm	20.6 cm	95 cm

Dimensioning of prosthesis above the knee

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## Linking or Social Impact

The research we carry out positively impacts society, considering that the main objective of this project is to improve the quality of life of people with transfemoral amputation.

In Mexico there are large sectors that are neglected. One of them is the healthcare sector. It is particularly neglected the group of people who present an amputation in the upper and lower limb. Due to this reason is that the disability scope becomes a field of action for the investigation and application of design strategies.

Although the project is focused on a specific user, this project will have an impact on society because it benefits one of the most vulnerable sectors of the population: people with a physical disability.

People with transfemoral amputation face different difficulties. It becomes challenging for them to perform basic activities independently, such as walking, going to the bathroom, working, among others.

In the case of Mr. Jorge Natividad, his transfemoral amputation of the left leg, specifically on the knee area, was caused by diabetes. Mr. Jorge is a plumber and electrician, but currently, he distributes propaganda in the streets and walks an average of three to four hours a day. Having no resources for a prosthesis, he made his own with "easy to reach" products, such as PVC pipes, a funnel and a strip of fabric. Although this handmade prosthesis didn't hurt him severely, he can't move properly because the structure is not flexible and, thus, complicates his displacement in public transport. This research aims to generate proposals of solutions that will impact the medical sector and especially people with disabilities.



Journey: sensitization dynamics



## THE ENVIRONMENTAL SUSTAINABILITY GAME

Keywords: Game, Environment, Art, Sustainability, Non Formal Environmental Education

### Abstract

This environmental education proposal is a sequel of other artistic works in favor of the environment. It helps to think about the fragility of ecosystems due to the hostility with which Western civilization treats its environment. The Environmental Sustainability Game fosters a communication process that contributes to the environmental education in a non-formal way. It criticizes the decision makers in the world both in economic and environmental politics. With the help of this casino-type table game, we discuss the main issues that Western civilization has in its development model confronting natural resources. In this way, we question if “sustainability” is not just a panacea. We problematize the interests of both nature and economics to convey the uncertainty that looms over humanity and the planet about climate change. We conclude that the “rules of the game” always impose the same result. This work sustains that visual arts, design, and games contribute to an ethical environmental education with a critical sense.



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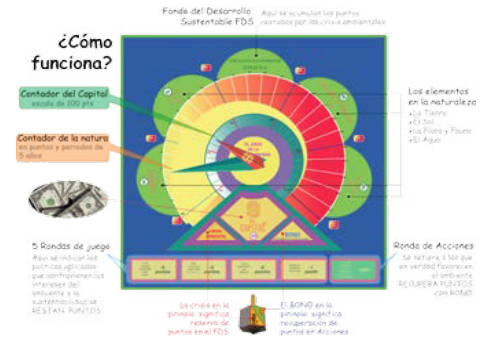
Alfonso Rivas Cruces

### Objectives and Research Products Generated

This work focuses on how we approach the understanding of the environmental phenomenon and the efforts to ensure a better future for the newer generations, through a table game named “Jugar a la sustentabilidad” (“Play sustainability”). The conceptions about the environment and nature are permeated by a dominant ideology that throughout Western history has conditioned our behavior. The game evidences the conflict of interest between the economic growth and the dejection of greenhouse gases or climate change. The objective of the game is to show how the rules we follow always condition an unfavorable result that impact the environment. This research reaffirms the environmental education as a priority and proposes an alternative solution through art and games to understand it as a path of knowledge and learning. In the light of the progress on the agreements of the COP (Conference of the parties, SEE TABLE) and economic policies, that are stressed and highlighted in others forums, the commitments are briefly reviewed and its progress from the agreements in the United Nations Organization.

### Images:

1. Work session in the Laboratory
  - 3.
  - 4.
  5. Game Set: Updated board 2017, gaming chips, item identifiers in the Game of sustainability.
  6. Render Briefcase of Prototype and Teetotum of the Game of the Sustainability
- RENDER BY:  
ALEJANDRO NAJERA



Quick guide to the operation of the Game System. *Original figure from the Spanish Version of CyAD Investiga 2018.*

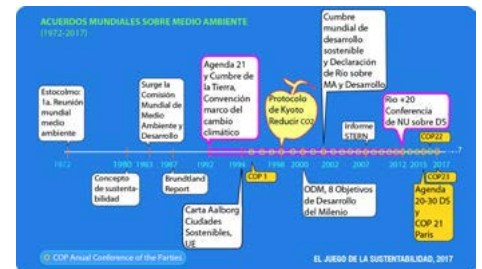


Table of the Summit Meeting Concentrate and Conference of the parties  
*Original figure from the Spanish Version of CyAD Investiga 2018.*



Game dynamics with architecture students, CyAD Azcapotzalco, May 2018



## Linking Research with Teaching

The perception that we generally have about contamination, the greenhouse gasses, and climate change usually oscillates between an apocalyptic vision and another more optimistic and sustainable, but it lacks criticism. After recognizing the indicators of the environmental damage, we put on the table the concept of “sustainability” from the most outstanding positions.

In this infographic, the game simulation system is presented in its different parts: rules, rounds, instruments, indicators, goals, application of dynamics, and testing of the prototype in different forums and areas that have allowed us to compare the hypothesis of

this work by receiving diverse opinions. Similarly, some parameters are proposed to measure the effectiveness of the strategy presented. The meetings convened by the United Nations, where various actors converge, mainly heads of government.

### ç Linking or Social Impact

#### Image:

Participation in the poster and face-to-face modality in the 9th. World environmental Education Congress, Vancouver, CA. Sept 2017

Goals Scopes in	Workplan	Products of the Research Report N-402 THE ENVIRONMENTAL SUSTAINABILITY GAME according to the Goals and WorkPlan of the Registry before Div Council.
M1, M2 M3, M4	PT7	1. PROTOTYPE DEVELOPMENT MANUAL (DOSSIER WITH DOCUMENTATION COMPLETE) Index, Introduction, Background, The didactic resource game, The initial tests and the results, Observation Processing, The parts of the prototype (Plans, Mockups, Identifiers, Board, Instructions, Briefcase).
M2. M6	PT1. PT4. PT11.	1. PAPER OF THE 9TH. WORLD ENVIRONMENTAL EDUCATION CONGRESS, VANCOUVER, (poster with presentation in English) copy of the recognition, Copy of Program.
M2. M6	PT1. PT4.	1. PAPER OF THE 1 CONGRESO NACIONAL DE EDUCACION AMBIENTAL, ANEA, Universidad de Ciencias y Artes de Chiapas, 2016, Recognition and Photos, copy of the Program.
	PT5.	1. Dynamic TEST in the class of the CSH Economía division, 2017 (The questions, the Photos).
M1.	PT6. PT8.	1.WORK SESSIONS. for adjustments to the game dynamics that consisted of: The color analysis of the design. The modification of the accounting. The inclusion of a “Fund for sustainability. The separation of the environmental crisis and a BONUS in the same board. TOKENS for accounting. Documents and meeting photos.
M6.	PT10	1. CYAD Investigates Infographic 2017 (copy of the info) and recognition, photos.
M7	PT12.	1. Participation with an article for LIBRO WEEC Selected Papers in English. Full text IN REVISION
M7	PT12	Participation with an article for the Medio Ambiente y Sustentabilidad Magazine, MAS 2017. Full text. IN REVIEW

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## STUDY OF THE RECREATION SPACES FOR CHILDREN IN THE AZCAPOTZALCO MUNICIPALITY

Keywords: Playgrounds, Right to Play, Quality of Life

### Abstract

In this project the conditions of the public spaces for children's games in a territorial demarcation will be observed (Azcapotzalco), in order to see if the recreational needs of the children are met, in compliance with the terms of quality of life established in the article 31 on the Right to Play, of the Declaration of the Rights of Children, promulgated by the UN in 1989.

### Objectives and Research Products Generated

Our goal is to develop a parent-study that records the conditions of children's play areas in Azcapotzalco, through the analysis of its components (natural, physical-spatial, and polysensory) in relationship with the existing urban regulations in the context of Mexico City. We have to perform the necessary field work, in order of develop a conceptual and graphic diagnosis.

We also have to determine the radii of action or influence of each children's play space, and detect the areas lacking specific services.

There is an progress of 80% of the investigation: the parent registration has been designed, we have geolocated the play areas, and determined the radii of action. Our progress has been presented in International Seminars and Congresses in Germany, United Kingdom and Spain.

### Image:

1.Elements To Consider In Its Impact On The Environment: Insertion To The Urban Tissue. Chart Ma. De Lourdes Sandoval Martiñón

[Right]: Relation with transport, traffic, and circulation (?)

Relation with the living space, and the equipment (schools, commerce)

[Down]: Location and accessibility

[Left]:

Relation to the community's free time, and the use of the space

How it impacts the environmental improvement: quality of the air, provision of green areas, improvement in the urban landscape, and the quality of life of the habitants

[Centre]:

Playground

environmental impact



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.Elements To Consider In Its Impact On The Environment: Insertion To The Urban Tissue. Chart Ma. De Lourdes Sandoval Martiñón  
Original figure from the Spanish Version of CyAD Investiga 2018.

### Linking Research with Teaching

While children have traditionally adapted to the conditions and possibilities of their homes, schools or public spaces of recreation to be able to play, it is necessary to make a study of what had been offered to children from an urban planning, architectural, landscape architecture and industrial design perspectives to be able to evaluate the quality of the “third play space”, more specifically of playgrounds. There are multiple aspects that the designer of these urban landscapes should take into account for conceptualization: functionality, legality, normativity, administrative. Therein lies our interest in addressing the theme of playgrounds as recreational areas within the context of the conformation of an urban landscape and its socio-cultural values.

There have been several design exercises for architectural proposals in the Architecture Design I and Design IV majors, where the issue of regeneration of parks and playgrounds has been addressed; as in the case of the Student Park, and the design of a playroom with urban garden in Colonia San Martín Xochinahuac in Azcapotzalco.

#### Images:

3.



LOCATION PLAN AND RADII OF ACTION OF PUBLIC PLAYGROUNDS IN AZCAPOTZALCO. Preparation: Recreation and Environment Research Group, in the Observatory of the Recreation Laboratory.

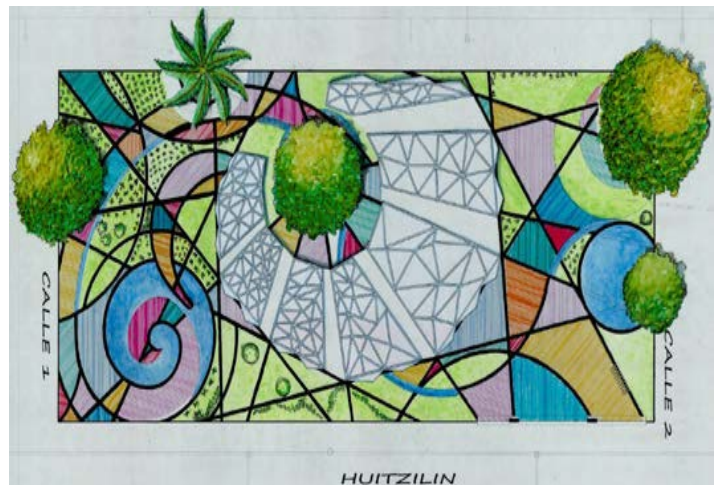
### Linking or Social Impact

On January, 26th 2010, the President Felipe Calderón announced that Mexico is the country with the highest rate of children with overweight and obesity problems worldwide. This is related to a great number of factors of all kinds, and it evidences the insufficient interest in meeting the needs of a segment of the population that should have guaranteed access to a dignified, full and happy life, as it is established in the Charter of the United Nations on the Rights of Children, promulgated in 1989 and ratified by our country in 1990.

Article 31 states that every child has the right to recreation and games, since these activities undoubtedly constitute an extraordinary source of possibilities to explore the world, meet others children, synchronize their motor development, develop other skills and abilities. They also acquire physical skills when running, jumping, swinging, and also social. They practice tolerance and gain self-esteem skills, by knowing how to agree what to play, how to play, how to win, and how to lose.

All this varied mix of actions that forge, from their first years, the personalities and character of children, need a time and a specific space in order to be developed.

Children’s free time must have a corresponding space in the urban fabric for the game/play time: a place near their houses, a park, a children’s play module.



PLAYROOM PROPOSAL in Azcapotzalco. Whole plant. Dilcia student Martínez García. ARCHITECTURAL DESIGN IV- UAM-A ARCHITECTURE.

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## STRATEGY FOR DESIGN AND VISUALIZATION IN A SYSTEM OF IDENTIFICATION OF CAPGRAS DELUSION IN PATIENTS WITH ALZHEIMER

Keywords: E-Health, U-Health, User Experience

### Abstract

Alzheimer's disease is a well know disease in Mexican society. There is a significant sector of the population that suffers from it; however, it is a poorly attended. Therefore, this investigation aims to propose a system to identify the symptoms of Capgras delusion in patients with Alzheimer's. The investigation is based on an adequate information visualization system which allows the delusion's identification. The results will consist of a real time monitoring of a patient by a family member to allow both the patient and the family member to improve their quality of life.

### General Objective

To define a design approach to display the information that, based in eHealth, in IoT, and design, will allow us to establish a strategy to design a monitoring and identification system of patients with Alzheimer's in real time suffering from Capgras delusion.

### Specific Objectives

To know the state of the art of Alzheimer's  
To explain Capgras delusion  
To define what is Internet of Things (IoT)  
To identify what eHealth is  
To get to know the impact that the Information and Communication Technologies (ICT) in neurodegenerative diseases  
To analyze what is the display design of information  
To define the strategy of a system of monitoring and identification  
To validate and evaluate the design strategy

### Image

:  
ication □ State of the Art of Alzheimer □ Proposal of a Strategy □ Validation and Evaluation of the Strategy □ Proposal of an identification system □ Aplication of the Systems □ Evaluation of the System □ Analysis of the Results

### Products to Execute

Strategy of a monitoring and identification Capgras delusion pictures in patients with Alzheimer's.

Monitoring and identification system in patients with Alzheimer's suffering from Capgrass delusion.

### Contribution to Design

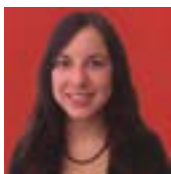
Based on diverse disciplines, this investigation will contribute to the design, health, and neurological fields a monitoring and identification system for Mexican patients suffering from Alzheimer's disease with Capgras delusion pictures. The investigation will also allow the creation and innovation of new initiatives and models aimed at improving the patients, family members, and caregivers' quality of life through the use of Information and Communication Technologies (ICT), allowing to dilute the existing digital and generational gap.

### Images:

2.  
(Translation) Information □ Visualization □ +Processing+Interpreting+Comprehending □ Visual Representation □ Graphics, Scheme, Diagram □ User □ +Interpreting +Apprehending +Comprehending □ Action

3.  
(Translation) Title: Identification system of Cpgras Delusion  
+Information □ The patient's vital signs □ Wearable – wearable device □ uHealth - Ubiquitous Healthcare □ eHealth – Set of ICT that work as a tool for the sanitary environment □ mHealth (no se logra ver) □ Telehealt □ long-distance medical assistance –ICT

The visual representation of data will make possible to inform the patients' family members to carry the identification system out.



DCG Mónica Yazmín López López



Dra. Marcela Buitrón de la Torre



Dr. Edwing Antonio Almeida Calderón



Dra. Yadira Alatríste Martínez

**Social Impact or Linking**

Alzheimer’s disease requires special care in which real-time monitoring must be possible to identify if the patient is going through BPSD (Behavioral and Psychological Symptoms of Dementia). In this way, with the inclusion of a system of identification of Capgras delusion pictures (in which the usability, the user’s experience, and the concepts of IoT and eHealth will be considered) it will be possible to identify the picture in order to derive as an answer containment therapy and be able to return peace to the patient’s mind. This will be reflected in an improvement in their quality of life.



1. Research methodology and work scheme. Project Protocol Problem Identify  
Original figure from the Spanish Version of CyAD Investiga 2018.



Information of the Visualization Process  
Graphic Resources from Freepik.com  
Original figure from the Spanish Version of CyAD Investiga 2018.



Sceheme of the implementation of the identification system  
Graphic Resources from Freepik.com  
Original figure from the Spanish Version of CyAD Investiga 2018.

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## SPACE AND SOUND HERITAGE IN MEXICO CITY. ANALYSIS AND ACOUSTIC EVALUATION OF THREE SIGNIFICANT SPACES IN AZCAPOTZALCO

Keywords: Architectural Acoustic, Sound Heritage

### Abstract

A priority for this project has been highlighting the importance of the acoustic research of spaces that seek to recover their aural heritage and preserve their historic legacy. This research represents a contribution to the study of spaces with a historic and an artistic character in the municipality of Azcapotzalco since it incorporates a form of identification between the space and its function through acoustic architectural science. A methodology of measurement and evaluation was established to develop technical specifications of the acoustic characters and sound records of places of worship. In the future these will serve as the basis to create a catalog of this municipality's acoustic legacy. The research will also analyze, contrast, and validate the results of acoustic measurements with computer simulation models. These efforts will result in an original endeavor that will contribute not only to the recovery of our aural heritage but also to a deeper understanding and knowledge of the cultural tradition of the country.

### Specific objectives

- To perform an architectural and urban inquiry of the spaces with historical and artistic value in the municipality of Azcapotzalco and select the most significant ones.
- To acquire the methodology of the energy model and perform acoustic measurements based on the methodology used in the Escuela Técnica Superior de Arquitectura de Sevilla (ETSA-US)(Escuela Técnica Superior de Arquitectura de Sevilla) and adapt it to the project's requirements
- To make sound recordings of significant architectural spaces and buildings with historical and artistic value.
- To create architectural and acoustic models by using simulation computer programs.
- To contrast and validate acoustic measurements with computer simulation models.
- To develop architectural parameters for the sound space evaluation of buildings with historical and artistic value.
- To generate acoustic data sheets of significant spaces with historical and artistic value.
- To establish the basis for the development of a catalog of the sound heritage of buildings with historical and artistic value in the municipality of Azcapotzalco.

### General Objective

To characterize acoustically and architecturally the spaces with historical and artistic value in order to analyze elements that contribute to the preservation of the sound heritage of the municipality of Azcapotzalco, through the use of measurement technologies and acoustic simulation.



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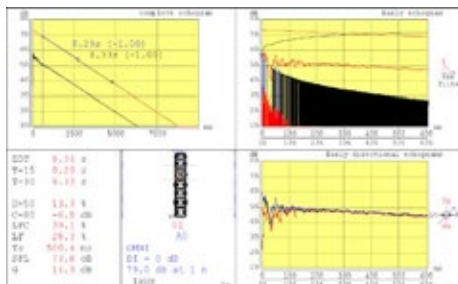
Silvia G. García Martínez



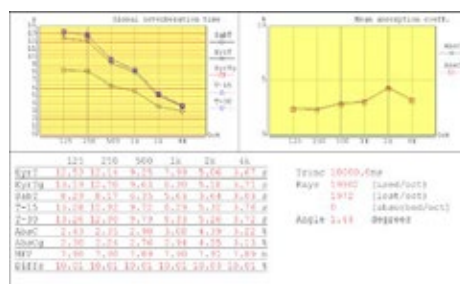
Dulce R. Ponce Patron



Susana B. Nieto Geyne



Average values of different simulated acoustic parameters. (Leq, Tr, EDT.)  
Elaborated: Research of Analysis and Acoustic Design Area.



Different values of reverberation time, according to various authors.  
Elaborated: Research Area of Analysis and Acoustic Design.



## Goals

- To search in the historical archives for information of existing buildings, historical sites, and artistic monuments of the municipality of Azcapotzalco.
- To establish an academic relationship with the ETSA-US to generate an exchange within the field of acoustics of enclosures with historical and artistic value.
- To apply the methodology of the energy model of the ETSA-US in enclosures and validate their adaptability to the objectives of this project.
- To establish the measurement model for each one of the selected spaces.
- To perform on-site measurements based on the ETSA-US energy model methodology
- To make three recordings in the significant spaces selected according to the established sound itinerary.
- To create third-dimensional models to acoustic simulation of each significant space selected by using programs calculation.
- To perform the manual for the registration of building sound heritage information with historical and artistic value.
- To analyze the results of acoustic measurements and compare them with results obtained in computer simulation models to validate and determine the degree of accuracy of the latter and their use as a simulation tool for any similar case.
- To link architectural features with acoustic results obtained to establish the related architectural parameters.
- To organize and classify the information contained in the data sheet.
- To develop a summary of the procedures, the results, the analysis, and the acoustic evaluation of the selected spaces and the definition of the architectural parameters of their sound space.

## Contributions of the Research to the field of design

- Measurements were made within the conventual set of the municipality of Azcapotzalco, specifically in the Parish of Santos Apóstoles Felipe y Santiago and in the Chapel of San Francisco

de Asís.

- The data obtained were analyzed and checked against models of computer simulation
- The acoustic simulation models of the spaces were created, through the use of specialized programs.
- The acoustic evaluation was generated through various parameters of the acoustic quality of enclosures.
- The acoustic response of the enclosures considered as heritage for its architectural and historical value.

## Social Impact or Linking

The generation of a historical research, in combination with scientific approaches, focuses on the creation of sound memory which contributes to expand the knowledge of the cultural heritage of the country. The sound heritage is immersed within the intangible cultural heritage which makes it especially vulnerable because its conditions make it go unnoticed. Since 2006 the UNESCO recognizes its vulnerability, which is why a documental preservation is convenient. Thee sound heritage nurtures the historical and cultural memory of a country since it creates its own identity, it becomes a reference, it gives a sense of belonging, and reaffirms a sense of community.

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## VIDEOS IN SOCIAL NETWORKS AS A TOOL FOR EDUCATIONAL INNOVATION: FROM THE INVERTED CLASSROOM TO THE EXTENDED CLASSROOM

Keywords: Virtual Learning, Extended Classroom, Social Networks

### Abstract

It is clear that the development of Information and Communication Technologies has changed our society in many ways. In the case of education, for example, ICT allow us to enrich the learning experience beyond the traditional classrooms. This project focuses on the use of videos and Google Classroom as an educative platform to extend the learning experience beyond the classroom's confines.

### Research Objectives and Products Generated

To carry out the development and evaluation of teaching strategies supported by the creative use Social Networks and Videos. To offer new access alternatives to teaching materials and educational environments for the students of the division with the purpose to reinforce their learning, specifically, in the subjects that are related to analysis and structural design of the buildings. To positively impact the terminal efficiency in Architecture discipline To develop a research around the impact that videos have as an educational resource and to explore new ways to favor teaching and the learning experience.

### Products Generated

For now we have completed and tested one of the courses (Resistencia de Materiales [Strength of Materials]), in addition to one more course in development (Estática y Análisis Estructural [Static and Structural Analysis])

### Research approach:

Mixed. Qualitative-quantitative  
Type: Design through Research  
Centered on the product  
Methods:  
Participatory action- research  
Documentary research  
Grounded Theory

### Image:

1. GENERAL RESEARCH PROCESS  
Diagnosis: Historical Situation  
(Documentary and Field Research)  
Product Development Based on Diagnosis  
(Videos and Teaching Materials)  
Product Start-Up, Preliminary Evaluation  
and Improvement  
Analysis and Evaluation of the Results and  
Setting New Goals



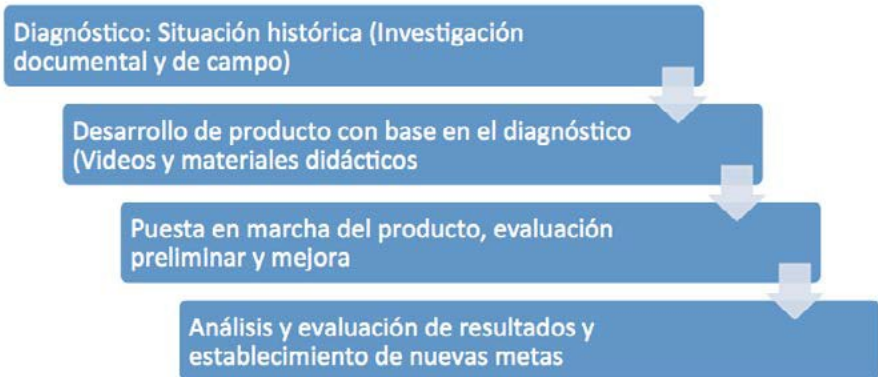
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Luis Antonio Aceves Argueta



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### 1. GENERAL RESEARCH PROCESS

Original figure from the Spanish Version of CyAD Investiga 2018.

### Linking Research with Teaching

The Project explores new strategies to improve teaching through the incorporation of technological resources. It is assumed that the technology offers ubiquity through a wide variety of options. However, it is clear that the proposals must start from clearly established pedagogical and learning approaches.

The extended classroom adopts an educational approach focused on cognitive processes:

- a) Part of a constructivist approach
- b) Promotes autonomous learning and collaborative learning simultaneously
- c) It is focused on cognitive processes

This project uses research as a tool to improve the teaching practice and at the same time brings knowledge and contributes to a better understanding of the phenomenon of learning as a cognitive activity. We are sure that the experience offered by this project of research may be favorably replicated in many other subjects.

### Images:

Average Student Failure Rate of Subjects

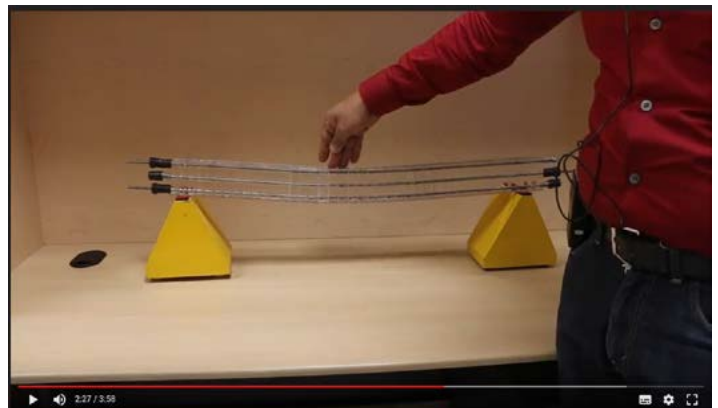
1 Static	37.6
2 Resistance of Materials	37.7
3 Structural Analysis	38.1
4 Structural Design	38.2

HISTORICAL INDEX OF THE AVERAGE STUDENT FAILURE RATE OF SUBJECTS. Source: School Services

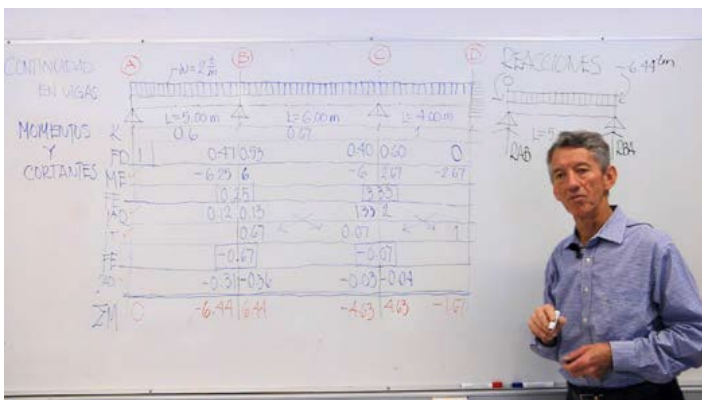
### Linking or Social Impact

This project is intended to impact favorably on the terminal efficiency by offering options for students who, for some reason, do not pass their subjects related to the analysis and the structural design in buildings on time.

The understanding of the phenomena linked to structural systems, as well as the required mathematical tools, are challenging for a large part of architecture students. The cognitive processes involved in learning and the principles of Physics and Mathematics are complex. The space intended for face-to-face lessons is not enough. Students need to review and exercise constantly. In this sense, the supply of didactic materials through digital media increases the chances of success in understanding these issues. In this way, the social impact is directly related to school achievement and the benefits that it entails for both the University and the society as a whole. It's not just about offering educational resources through digital media, but performing a constant action research practice that allows for substantial improvement in the educational practice based on evidence from a rigorous research. For now, by looking at both the student perception and the approved subjects percentage of the first pilot group, we can say that the results are encouraging.



VIDEO IMAGE SHOWING USE OF STRUCTURAL MODEL TO ENRICH THE LEARNING EXPERIENCE. Source: authors



VIDEO IMAGE SHOWING A RESOLVED EXERCISE IN CLASS. Source: authors



## “THE MEANING OF LIFE. MAKING SENSE OF FANTASY AND PLENITUDE” 12th PICTORIC REALITY SHOW: 12 HOURS LIVE OF ILLUSTRATION

Keywords: Illustration, Experience, Learning

### Abstract

The research project is to gather in a closed set of illustrators to generate creative and illustrated in 12 or 24 hours work space. Participants illustrators will be unveiled the theme to the event and each will receive a text theme which will develop the work that the end will be exposed and donated to the institution previously selected. Thus, the effects are social and service-learning benefit. Experience and event analysis products such as books, documentaries, audiovisual, articles and catalogs will be obtained. The planning of this project depends on the magnitude of the event and fluctuates between 3 and 6 months.

### Products obtained

Artistic work obtained: “Fantasy and fullness make sense”, acrylic paint on wooden embroidery hoop. Protected in the “H” building of Universidad Autónoma Metropolitana. Division of Science and Art for Design, Azcapotzalco Unit/ División de Ciencias y Arte para el Diseño, Unidad Azcapotzalco. Shooting where the process of elaboration of the work can be appreciated. Photographic material with the record of the production process. Investigation report.

### Image:

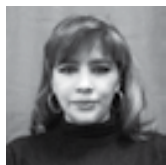
1. Socializing exercise
2. Sensitization on the working theme
3. Theme analysis
4. Design of the concept
5. Composition on the working substrate
6. Color palette planning
7. Application of color
8. Completion



Original figure from the Spanish Version of CyAD Investiga 2018.



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Gabriela García Armenta



Laura Elisa León Valle



Alonso Rangel Rodríguez

### Objectives

To compare and contrast the illustrator’s work before an immediate solution problem and give communication responses, service learning, and social support in conjunction with promoters.

In this particular project we worked with 20 children from different primary schools and 20 academics from four different departments of the Division of Sciences and Arts for the Design of the UAM Azc División de Ciencias y Artes para el Diseño de la UAM Azc. This was held on May 26, 2017 on 12th Pictorial Reality Show “Fantasy and fullness make sense”/ 12° Reality Show pictórico “La fantasía y plenitud tienen sentido” which involved all the logistics of a design-art circuit: experimental research applied, projective and formative research, staging, artistic work-production, distribution and consumption.

The children and academics that participated, initially, didn’t know the topic to be developed, but they understood it and mastered it during the different stages of the project. Starting from this, they built, in a determined span of time, the principle of a work of art through different educational activities that involved using imagination, creativity and emotions, applying the General Model of the Design Process of the UAM Azc / Modelo General del Proceso de Diseño de la UAM Azc.

### Linking Research with Teaching

In this project, several design professors participated and establish an interaction with the children to produce the illustrations. Throughout the process the children and the academics worked as a team and obtained significant teaching experiences.

### Linking or Social Impact

This project satisfies the social communication needs through the creation of a design experimentation laboratory that puts into practice learning theories channeled into programs of service.



### Images

In the images you can see different moments in which children and teachers work on the illustrations.



## DESIGN OF LIGHT COVERINGS. CASE STUDY: MODULAR MULTIPURPOSE TENT FOR UAM

Keywords: Prototype, Structure, System

### Abstract

Light structures are a very good option for the development of new structural projects, because of their structural advantages. They can cover large areas and can be built up quickly. They are also resistant in the case of seismic activity. Laboratorio de Cubiertas Ligeras (The Light Structures Laboratory) has studied this kind of structures since its creation in the 80s, and the results achieved by its members have been exposed in both national and international events. They have also won prizes and honorary mentions in different contests.

Proposals of Constructive Systems  
 Prototype Development scale 1:1  
 Placement and Analysis of the Prototype  
 Economic Evaluation  
 Construction Manual Development  
 Conclusion of the Results  
 Support for the Social Service Program

### Research Objectives and Products Generated

To design and build a modular lightweight covering prototype that is easy to transport and assemble, for the development of various socio-cultural activities inside the Universidad Autónoma Metropolitana

### Specific objectives

1. To develop an integral modular covering prototype that can be resistant, light, recoverable, and easily transportable. 2. To design of the joining systems that help with the form of the cover. 3. To design geometric light covers by computer. 4. To construct experimental physical models for analysis of the form and structural behavior. 5. To use software for analysis and structural design



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Mtro. Ernesto Noriega Estrada



DI. Braulio Rodrigo Cárdenas Cansino

### Image:

1. Workplan. Own elaboration.

[Left]:

Information Gathering  
 Study of Similar Cases  
 Conceptual Proposals  
 Design and Basic Geometric Traces on Computer  
 Structural Modelling  
 Design and Structural Analysis (Connections and Anchorages)  
 Scale Model Development (Prototype 1)  
 Scale Model Development (Prototype 2)

[Right]:

Scale Model Development (Prototype 3)



Workplan. Own elaboration.

Original figure from the Spanish Version of CyAD Investiga 2018.

## Goals

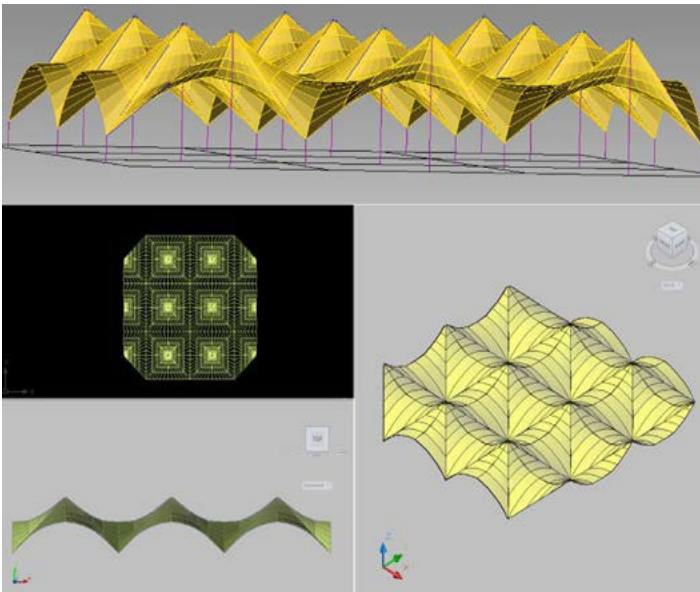
The goal is to build a multipurpose covering to carry out various activities. We want to make it easy to assemble, store, and transport with resistant materials at low cost. 2. At the end of this research, we intend to have a finished “prototype” structure that meets the objectives foreseen in this investigation. 3. Finally, we want to spread the results through publications and web pages with the objective to present the results to the institution.

## Progress

The first system that was developed for the UAM Modular Tent was the hyperbolic paraboloid (membrane that is pulled and the shape that adopts is a double curvature) with a square plan of 10 m \* 10 m that allows it to be modular. A joint system was developed based in the construction system and the appropriate materials.



Development of Projects in the Laboratorio de Cubiertas Ligeras (Light Structure Laboratory).



Preliminary digital models of the modular tent.



Tentative location of the new structure in the UAM-A.



Preliminary physical models of the modular tent