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ASSOCIATION OF ARCHITECTURAL  
EDUCATORS CONFERENCE 2023

# PRODUCTIVE DISRUPTIVE

**PRODUCTIVE-DISRUPTIVE:**

Spaces of exploration in-between  
architectural pedagogy and practice

**PROCEEDINGS**

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CARDIFF  
UNIVERSITY

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# PRODUCTIVE DISRUPTIVE

## Spaces of exploration in-between architectural pedagogy and practice

association of architectural educators  
7<sup>th</sup> International conference

The Welsh School of Architecture, Cardiff University, UK  
12-15 July 2023

**Proceedings**



**Productive Disruptive: Spaces of exploration in-between architectural pedagogy and practice.**

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7<sup>th</sup> international conference

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# Pedagogy and professional practice of architecture in the context of a climate crisis in Mexico

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## Abstract

Globalization as well as the exchange and assimilation of traditions and customs through speech such that they involve multicultural approaches in relation to physical and social reality are referential for the academic training of critical-reflexive students.

Desirables are study plans and programs focusing on sustainability, interculturality, and interdisciplinarity, which consider ecological skills, expecting transformations to coexist in the context of climate change on various dimensions: political, economic, social, and cultural.

Thus, "[...] Cooperate or die", the phrase with which the UN Secretary-General, Antonio Guterres, opened COP 27 (2022). The implicit state of emergency is the reason for the exchange of productive/disruptive educational and disciplinary proposals and to find practices, educational and disciplinary wise to act based on theoretical and methodological argumentation hence enriching others worldwide.

So, what structure and contents need to characterize a productive/disruptive study plan in architecture, at the Faculty of Architecture and Design (Autonomous University of the State of Mexico) in terms of sustainability, considering dialogue and argumentation?

In this sense, the document's aim is to share the process and procedure needed to update the Bachelor of Architecture study plan at the Faculty of Architecture and Design of the Autonomous University of the State of Mexico. The Case Study will consider a mixed approach.

For this, a review and analysis of the programs of the learning units that make up the study plan of the degree in question will be carried out and the physical, social and cultural context will be established in which the professional practice of the architect is developed in Mexico in order to establish correlations that can respond to best practices in architectural design and construction that can minimize the impact on the environment and therefore improve the living conditions of the inhabitant of the architectural space.

About the latter it is based on Habermas' communicative action theory, considering the peculiar sociohistorical and material context, to specify the correlations that may respond to desirable practices in architectural design and construction, in terms of sustainability.

Architecture education and practice, uncritical (sustainability), stands for another global risk element thus the validity of this collaboration. For the event's purpose it will consider a global approach that could be replicated internationally.

How one learns is figured out by the respective why (meaning) and what (content), alludes to pedagogies for social coexistence and towards the Planet, based on an ethic of aid and reciprocity (human rights) to expand the possibilities of achieving student engagement about disciplinary learning for sustainability's sake: The 21st century architecture pedagogy requires critical-reflexive students and faculty.

**KEYWORDS** architecture, climate, education, pedagogy, practice

## Background

The maelstrom of human life has brought a diversity of cultural, social, political, and economic uses and customs, in general of development that has changed the way of life on our planet, but if awareness of all the risks that are faced is not, the consequences could be catastrophic.

The green agendas (carrying out activities on a scheduled basis, considering care for the environment and the development of a more sustainable production, the topics discussed may be about: effluent treatment, climate change, environmental quality indicators, among others) have tried to consider and anticipate the risks of the lack of awareness of the indiscriminate use of natural resources, which is why various measures have been taken to mitigate the ravages of the vertiginous wave of immoderate consumption of resources. But that, if each of us does not assume his part and respond, it will be a fruitless path to pave.

In view of this, the UN (United Nations)<sup>1</sup> has promoted as of 2015 the 17 SDGs (Sustainable Development Goals) considering that through concrete actions to meet them, poverty can be reduced, the planet protected, quality education available and guarantee that people can count on a life of peace and prosperity by the year 2030.

In this sense, SDGs's fourth objective addresses the issue of quality education, which proposes the increase of young people and adults with the necessary technical and professional skills to access employment; with the theoretical and practical knowledge to promote development and a sustainable lifestyle and the increase in the supply of qualified teachers for this purpose.

On the other hand, contributing to the fulfilment of SDG 11, referring to sustainable cities and communities to ensure access for all people to adequate housing and services, reduce the negative environmental impact of cities and provide universal access to green areas and public spaces is also a task from the academy to train professionals committed to the environment and to the correct use of

resources in architecture and to make cities more inclusive, safe, resilient and sustainable.

Regarding Climate Action, there is SDG 13, which mentions that the economic and human life losses have been considerable, derived from climate changes on the planet, therefore as one of its goals establishes to improve education and awareness regarding the mitigation of climate change, its adaptation, and reduction of its effects.

In the year 2023, with the effects of a pandemic, it seems that the risks of sustainable development have deepened; In addition, there have been no actions that are considered to have an impact to believe that the purpose of the UN is really coming true, on the contrary, it is increasingly remote and scarce to achieve that model of life and the most unfortunate thing is that the planet It is more deteriorated in terms of natural aspects and social consequences, to corroborate said information, it is enough to review the statistics on contamination, soil deterioration, among other factors.

Even so, as the ESG (Environmental, Social, and Governance) initiative strengthens, senior managers of trans and multinational organizations are interested in public recognition of its incorporation into their respective cultures (policies, approaches, objectives, and programs). with adherence to the ten principles of the UN Global Compact, such that they proceed with the certifications in question, among those that are notable worldwide: B Corp Certification, Leed Certification, WELL Certification, Rainforest Alliance (UN Global Compact. 2004 and Kaur, S: June 13th, 2022)<sup>2</sup>.

As can be seen, actions have been carried out in terms of health, culture, education, etc. In this sense, one way to achieve a productive-disruptive learning process is carried out is to propose interdisciplinary, transdisciplinary study plans, in such a way that they consider a common vision of life on Earth, where the environment, the social, cultural, economic, and political way of life are intersectoral to

create inclusive, safe, resilient, and sustainable places.

## World problems

Regarding the climate crisis in the world, it represents an issue about climate change and environmental sustainability. Climate change is a humanitarian crisis, for which we are all responsible, therefore, we must work as a team to reduce the profound consequences, the changes have resulted in the scarcity of water and food, essential inputs for human survival, and in changes of living space.

The most recent report of the United Nations Organization (UN)<sup>3</sup>, by the Intergovernmental Group of Experts on Climate Change (IPCC, for its acronym in English) emphasizes five relevant aspects that should be considered to support the mitigation of the changes coming from the phenomenon and the consequences that it will also cause in different geographical spaces and will change our planet in the following decades.

- Climate change is widespread, fast, and intensifying, and it depends on us.
- The temperature may rise more than expected (1.5 ° C).
- Sea level will continue to rise.
- Findings on CO<sub>2</sub>.
- The role of methane (gas behind global warming).

Probably in our eagerness and daily life, we prefer to ignore relevant and important news that can disrupt or change the type of life that has been lived, so the causes and consequences of actions provoked in the career of economic development are consciously ignored, technological, social among others of the planet and that sooner or later the results of such actions will have to be assumed, unfortunately not foreseeing will cause trying to correct and said process represents higher costs (economic, political, cultural, health among others).

Each one of us is responsible for what happens in our environment, so we must be aware of this and initiate actions (even if we think they

are small) to support the solution of this global problem that, anywhere in the world, will be reflected.

Climate change in Mexico is greater than global climate change, so necessary and even preventive measures must be taken to stop what could be a climate crisis and consequently food for the country.

The loss of biodiversity is linked to climate change, although the issues are treated separately, an example is deforestation, which causes an increase in the production of greenhouse gases and the phenomenon is frequently experienced in urban spaces.

According to the UN (2021)<sup>4</sup>, the world's cities occupy only 3% of the land but represent between 60% and 80% of energy consumption and 75% of carbon emissions. The accelerated and uncontrolled urbanization process, together with the increased risk of climate change, has resulted in an increase in the number of inhabitants in poor neighbourhoods, coupled with the deficiency, lack, or overload of infrastructure and services, which is also reflected in the increase in the contamination of natural resources, air, and water.

In this sense, it is necessary to implement actions to contribute to adequate planning of the territory if truly sustainable and resilient cities are to be achieved, an issue that those involved in architectural urban design should analyse from their training, such is the case of architecture students.

In a complex context in social, economic, and environmental terms (World Economic Forum: January 11, 2023), education in architecture is essential, based on the principles of cooperation, collaboration, and solidarity; technological support is strategic because it broadens the possibilities of learning and interacting with diverse cultures and disciplines (UNESCO: 2023, *passim*).<sup>5</sup>

How is learned is determined by why (sense) and what (content). In terms of production-disruption, it refers to pedagogies with a focus on sustainability, interculturality, and interdisciplinarity, which consider ecological



skills, by anticipating the transformation of economies to gradually reduce carbon emissions.

In relation to the above, it implies:

- Social knowledge, the ‘promotion of exchange, connectivity, and relationships,’ based on an ethic of assistance and reciprocity, as well as human rights such that they expand the possibilities of achieving student commitment to learning, implies the knowledge and emotion.
- Innovation happens in horizontal structures because it involves dialogue and argumentation; thus, the approach to unrestricted access, in its various routes: green, gold, bronze, hybrid, and diamond; open source and the implementation of a centre for the exchange of experiences (UNESCO: 2023, pp. 37, 45, 52 and 121).

Therefore, this topic is of great value to deal with in the curriculum of any discipline, and consequently in what refers to the study of urban-architectural space within the degree in Architecture considering global and national problems, the policy of sustainability, security, social and inclusive for the construction of a study plan, as well as emphasizing the formation of the student with a broad vision of the global, national and local context, within a framework already referred to.

### **Historical - institutional foundations**

Main in terms of educational policy and strategy has been the curricular innovation in the institutional program of the Autonomous University of the State of Mexico (UAEMEX) for the strengthening of study plans and the expansion of geographic coverage, considering the academic quality.

UAEMEX’s plans: General Development 2021-2033 (Barrera: 2021)<sup>6</sup>, Institutional Development 2021-2025 (Barrera, 2021a)<sup>7</sup>, and Institutional Development 2021-2025 (Gaytán: 2021)<sup>8</sup>, are the references according to which the development plan will be restructured. Architecture studies, during the year 2023, in terms of perspective.

The COVID-19 imprint forced the widespread use of TICCAD (Digital Information, Communication, Knowledge, and Learning Technologies) for the purposes of continuity regarding the 2020A school period (February - July), in coincidence with government resolutions (AGREEMENT number 03/02/2020) and unions such as ANUIES (National Association of Universities and Institutions of Higher Education).

As a result of the health contingency, regulations were necessary for the implementation of the study programs, that is, from a face-to-face modality to a mixed one.

### **Academic innovation, transversal axis**

The Seduca platform (Educational Services Portal) is the LMS (Learning Management System) institutionally implemented since 2005, reformed in 2009 and 2015 (versions No. 2 and No. 3, respectively), linked to:

a) Platform tools with technology Microsoft Office 365® cloud: Access via the institutional email account (@uaemex.mx) and videoconferences through the Microsoft Teams® collaboration application; and

b) Moodle LMS.

### **Study plans at UAEMEX**

The professional study plans are conformed according to the Regulation of Professional Studies of the UAEMEX: The Fourth Title of the Design of Professional Studies (UAEMEX: May 27, 2022, pp. 8 – 21), as well as the Fifth Title of the Methodology and Complementary Chapters of the Curricular Project (UAEMEX: May 27, 2022, pp. 21 – 26), specify the structures and contents required in the study plans such that, after review and approval by the collegiate bodies of the respective Faculties and the University Council, the following are approved:

- The feasibility, social relevance, and budgetary impact with the criteria considered to support the creation of a study plan, its modification, or suppression. The first of the three studies

are carried out jointly by a commission of the Central Administration (Dean's Office) and the respective academic body.

- Prior authorization of the feasibility study by the parties, the curricular diagnosis (academic relevance and social relevance), components of the academic training model: professional curriculum, the concept of the profession, entry, and exit profiles, as well as the objectives of the study program in question.
- The educational model corresponding to the study plan specifies the modality (face-to-face, mixed, or online), the principles of learning, the teaching and disciplinary competencies, and the didactic and documentary support resources, such as the physical infrastructure.
- The pedagogical programming, prepared by academics and administrators, indicates the way to implement the study plan: program and guides (pedagogical, learning assessment, and pedagogical organization).

The evaluation of the study plans to decide on their continuity is carried out at the end of the respective cohort according to the principles of utility, feasibility, honesty, and precision; to resolve its validity in accordance with accountability—relevance, consistency, transcendence, equity, effectiveness, efficiency, and management—during the period of its implementation.

Thus, the study plans require sufficient consideration, in terms of relevance, extension, and depth, of the varied and complex contexts (physical, social, economic, and political), as well as the impact of the educational plan on the transformation of these, where innovation is one of the criteria; it is the reason for periodic auditing, intra and inter-institutional.

### **Training and updating of teachers at UAEMEX**

Training and updating of UAEMEX's faculty, specifically in the discipline of Architecture, is essential to achieve the development of the said profession and to be able to reward society with the knowledge acquired and applied to vulnerable groups and those demanding it, complying with the guidelines

and proposals that the 2030 agenda, the SDGs and the National Strategic Programs (PRONACES) intend to have a better place of life.

The current federal policy of Education for Higher Studies, in Mexico, indicates the professionalization of teachers as a milestone to be developed, it is to train and update teachers to bring about education with accessibility, affordability, and educational inclusion to growing population groups.

### **General information on the faculty of architecture and design**

At FAD (Faculty of Architecture and Design {UAEMEX}), 46 generations of architects have graduated, 59 years after the educational program in architecture was implemented, based on the structure of the corresponding one in the National Autonomous University of Mexico (UNAM), and the advice of the teacher José Villagrán García, nationally recognized architect (FAD: 2023<sup>9</sup> and Serrano: December 15, 2003, p. 1)<sup>10</sup>.

Strategic is the maintenance of the quality and continuous improvement of the study program for the training of architects—academy and administration— at the FAD, according to the criteria and indicators of entities external to the Institution, nationally recognized, in terms of accreditation of the academic quality and certification of administrative management processes:

- CIEES (Inter-institutional Committees for the Evaluation of Higher Education), and
- ANPADEH (National Accreditation of Architecture Programs and Disciplines of Habitable Space).
- ISO 9001:2008 standard (International Organization for Standardization).
- ATR (American Trust Register) - Professional Assessment.
- The accreditation of the quality of the educational program in progress (2018 – 2023) is valid.

### **Faculty at FAD**

Achieving inclusive and diverse learning environments, collaborative work, use of educational materials that favour learning, and carrying out research, are challenges for teachers. Therefore, not only is knowledge transmitted, but also motivated, and coordinated in the search for the new, guided towards the transformation of the type of life that is intended to be achieved.

The teacher facilitates, investigates, advises, and guides the knowledge and attitude of the student before the challenges, they are the conjunction to train and inform responsible human beings, with disciplinary and personal skills, commitment, confidence, motivation, interactive participation, use of the TICCAD, are the characteristics that students and teachers of Architecture are expected to have in order to transcend in society, everything that guides them in the knowledge and attitude towards life that they must assume.

According to Table 1, the participation of FAD's teachers in courses that support them to improve teaching practice is not significant, since only approximately half of them collaborate with their attendance and participation in the training (51.72%), so it will be necessary to look for elements that motivate the involvement of teachers in them.

*Table 1. Participation of professors from the Faculty of Architecture and Design in Courses at the Department of Academic Personnel Development (DIDEPA) from the Autonomous University of the State of Mexico*

Year	2022
Total, of FAD's teachers.	116
Total, of teachers participating in DIDEPA courses.	60
Participation Percentage	51.72%
Total, of teachers participating in more than one course.	139
Online courses	38
Face-to-face courses	22

Source: Elaboration with data from DiDePA (Academic Personnel Development Direction), UAEMEX: 2023.

## **Desirable professional profile of the student of Architecture**

Higher education is a challenge for any institution that prides itself on dealing with the risk of educating the young generations since it must train and inform people who can practice their profession globally and at the same time locally, although it is true that the universal demand of any discipline seeks to train people with interdisciplinary, intercultural, sustainable skills, with transversal criteria and at the same time with the factors of the area of knowledge, then we are mentioning human beings capable of developing critical, reflective, with a high social, humanist, cultural conscience that allows them to apply the knowledge of the profession for the benefit of the society to whom it is due.

Therefore, a professional in Architecture must have the skills, apart from those already mentioned, with financial thinking (organization and budgeting of work), creative (Comprehensive Design Project), logical rational (structures, environment-ecological, facilities of all kinds, soil resistance, problem-solving, among others), humanist (empathetic and inclusive), cultural (universal accessibility in design and sisterhood) among others.

### **Current study plan (2015)**

The 2015 Study Plan of UAEMEX's Degree in Architecture contemplates 53 Compulsory Learning Units, 5 Optional Learning Units, and 2 Academic Activities, divided into three teaching areas: Design, Theory, and Technology, contemplated to be studied ideally in ten semesters. Each learning unit has a study program which is an official document that structures and details the learning objectives and the contents established in the study plan, and that are essential for the achievement of the objectives of the educational program and the development of professional skills indicated in the graduation profile, being obligatory for authorities, students, and academic and administrative staff.

The study programs are referents to define the strategies for conducting the teaching-learning

process, the development of the forms of evaluation and accreditation of the studies, the preparation of didactic materials, and the mechanisms of organization of the teaching (Regulation of Professional Studies of the UAEMEX: 2007, Article 84).

The learning units that correspond to the Design teaching area, from the fifth to the eighth semester, approach the themes of urbanism, urban planning, landscape architecture, and sustainable urban design. In the Architectural Design courses, students consider international and national urban-architectural models as references for the development of their own projects.

In the Theory teaching area, there is no learning unit that considers planning and sustainability issues, leaving a unit referring to architectural project theory until the fifth semester.

Finally, around Technology, the seventh and eighth semesters correspond to learning units on sustainable architecture and the recycling of buildings and spaces.

### **Architecture with a sustainability approach**

Of the 58 Learning Units, those that refer to the sustainability approach are called Sustainable Architecture in the seventh semester and Sustainable Urban Design in the eighth semester, which arise as a response to the growing demand for professionals committed to the environment and to the correct use of resources in architecture. Thus, the scientific-technical foundations of the methods and practices of sustainable architecture are also reviewed, taking as a reference the most recent advances produced at an international level, without forgetting the technological, economic, social, and cultural conditions of our environment.

In this context, FAD's students currently receive knowledge and tools to propose, evaluate and develop innovative projects. However, without concern for interior environmental comfort and the climate in which the building is located, there is little

sensitivity to the place and the social and social context. The economy in which they are inserted.

In addition, the equipment available to the facilities where the teaching-learning process in Architecture is carried out has been preserved since ancient times, but this is not the case in private institutions where it has been attempted to have furniture in accordance with the development and at the forefront.

Paraphrasing Ricardo Arechavala (2011)<sup>11</sup>, teaching without research is the repetition of knowledge, from authors outside the country, and with a considerable gap in time, without considering the application and benefit that it could have in geographic space. where it falls and the university is located.

Universities in Latin America, and therefore in Mexico, have not yet visualized the repercussion that not training students and teachers in and through research can have, since the quality of teaching and student training is detrimental, in addition to the social and economic retribution that they can provide in the regions where the universities are located is not valued.

Thus, essential support for the education of architecture with sustainability is to consider disciplinary research to achieve inter, multi, and transdisciplinary study plans.

### **Professional Practice of Architecture**

The graduation profile of the students of the Bachelor of Architecture contemplates a series of functions and professional tasks that the graduate will develop such as: creating and building urban-architectural spaces for the growth and order of cities, proposing conservation, rehabilitation, and restoration of the historical urban-architectural heritage, create systems of structures and hydraulic, sanitary and electrical installations for urban-architectural spaces, assess projects for the creation or design of urban architectural space, assess the type of soil and the risk of urban architectural work construction and estimate the commercial value of a property.

However, in professional practice, there is a disconnect between the contents of the UAEMEX Architecture study plan and the environment to influence local development, in addition to the fact that decision-makers in the urban-architectural context do not have adequate knowledge of it.

Even though there are municipal Urban Development Plans based on national policies in relation to sustainability, their execution is in some cases incomplete and not very affordable, due to a lack of financial resources and the capacity or vision of the personnel working in the decision-making area.

On the other hand, there are construction regulations at the national level, however, not all the states in Mexico have their own. Such is the case of the State of Mexico that, despite being the entity with the largest population at the national level, and therefore with the largest Metropolitan Areas, is based on the Administrative Code of the State of Mexico<sup>12</sup>, Book Eighteen of Constructions which in legal matters establishes the regulation of private constructions that are carried out in the state territory to satisfy conditions of safety, habitability, quality, hygiene, functionality, sustainability and integration into the context and urban image, but that in practice in most of the cases only materialize to compliance with structural issues and not the environmental impact that the constructions may generate during their construction and useful life.

Since 2013, Mexico has had the NMX-AA-164-SCFI-2013 SUSTAINABLE BUILDING standard<sup>13</sup>, which specifies the criteria and minimum environmental requirements for a sustainable building to contribute to the mitigation of environmental impacts and the sustainable use of natural resources, without neglecting the socioeconomic aspects that ensure its viability, habitability, and integration into the urban and natural environment, which is a voluntary application by professionals in the field and is still unknown to many in the professional practice.

## Conclusions

The students of the discipline in Architecture must be people with critical training to transform reality in terms of sustainability.

The proposal in relation to the above is to consider the green agendas on the care of the planet, they must act with viable prospects, having contemplated the actions of climate change.

International policies, as well as those of the different states, must interact to reach agreements to carry out actions that change, stop, and prevent scenarios of life on Earth.

The SDGs must be included in the professional study plans of Architecture and other disciplines, as well as topics at the various levels of education.

As a result of being participants in the academy, the authors of this document consider that in the teaching-learning process of Architecture, the student is informed, rather than trained.

The training of critical students and teachers, considering professionalization, sustainability, and universal accessibility are tools that can change the focus and perspective of the study and development plans for social, political, economic, and technological, for the common good.

It is still pending that Architecture students fully develop the desirable characteristics to transform reality in terms of sustainability. A proposal to be able to support the arrest of this problem should be a balance between mitigation and adaptation in public policies, as mentioned by Dr Francisco Estrada (researcher of Sciences of the Atmosphere and Climate Change of the UNAM).

Even when the educational and governmental, national, local, and institutional policy requires it, the productive-disruptive training in the Faculty of Architecture and Design of the Autonomous University of the State of Mexico is pending, because there is no reflection of the environmental policy and education in the teaching staff and consequently in the physical and technological infrastructure.

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