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ECORFAN Journal-Republic of El Salvador

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The works must be unpublished and refer to topics of international migration law, human rights-diplomatic and consular protection, migrant population in a vulnerable situation, public policies and projects from a country perspective and other topics related to Social Sciences.

Presentation of the Content

In issue fourteen, is presented an article *The epistemology of architecture as a discursive project logic*, by BRIBIESCA-ORTEGA, Alejandro, VILLANUEVA-GÓMEZ, Leticia and XOCHITEMO-PÉREZ, Aneli, with adscription at Benemérita Universidad Autónoma de Puebla, in the next article *Interactive center for the development of learning for autistic children and youth in Atlixco, Puebla*, by VÁZQUEZ-TORRES, María del Rayo, CASTILLO-REYES, Alberto Rosendo, MORALES-ORTEGA, José Alejandro and DÍAZ-ARREDONDO, Karla Polette, with adscription at Benemérita Universidad Autónoma de Puebla, in the next article *Didactic strategies for learning the trombone post COVID. An experience in development*, by BARAJAS, Jorge Antonio, MORALES-PÉREZ-TEJADA. Federico and RODRÍGUEZ-JUAN, Arién, with adscription in the Universidad Autónoma de Zacatecas, in the next article, *The continuity of the traditional teaching of jipijapa weaving in the town of Becal, Campeche*, by CASTELLANOS-HERRERA, Annie Vigelmi, BACAB-SANCHEZ, José Rubén, CRUZ-DORIANO, Sacramento and LÓPEZ-PONCE, María Eugenia, with adscription in the Tecnológico Nacional de México/ITS Calkiní, Campeche.

Content

Article **ECORFAN Journal-Republic of El Salvador**
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The epistemology of architecture as a discursive project logic

La epistemología de la arquitectura como una lógica proyectual discursiva

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Abstract

Facing the challenging task that the social and urban context of the city demands, as well as the latent competitiveness that exists in the professional life of an architect, the need arises to generate quality architectural objects that promote improvements in the construction of the City. However, this professional task depends in largely of the origin of the architect's training, which is co-dependent on the teaching-learning strategies under which each University is governed, that is why it is important to analyze in a multifactorial way, all those elements that have a wider impact in the formation of the architect. For this, it is proposed to make an analysis of how this discipline is taught and learned in the BUAP Faculty of Architecture, in comparison with a cross-sectional analysis of the educational axes of the main academic programs of International Universities that offer the career of architecture (Massachusetts Tech, USA; Oxford Brooks, UK.; AA, UK; Delft, NED), in order to understand how teaching is approached in these most recognized universities. In this way, it seeks to identify those strategies that improve the learning quality of the architectural design process, so that students are prepared for the challenges of professional life. So that these strategies can be applied both to the educational axes, as well as to the change of the line of reasoning that the faculty of architecture, of the BUAP.

Epistemology, teaching, Strategy

Resumen

Ante la desafiante tarea que exige el contexto social y urbano de la ciudad, así como de la latente competitividad que hay en la vida profesional de un arquitecto, se gesta la necesidad de generar objetos arquitectónicos de calidad, que promuevan mejoras en la construcción de la Ciudad. Sin embargo, este quehacer profesional depende en gran medida del origen de formación de los arquitecto, la cual, es co-dependiente de las estrategias de enseñanza-aprendizaje bajo las cuales se rige cada Universidad. Es por ello, que se hace importante analizar de forma multifactorial, todos aquellos elementos que tienen mayor incidencia en la formación del arquitecto. Para ello se propone hacer un análisis de cómo se enseña y se aprende la esta disciplina en la facultad de arquitectura de la BUAP, en comparativa con análisis transversal de los ejes educativos de los principales los programas académicos de las universidades internacionales que ofertan la carrera de arquitectura (Tecnológico de Massachusetts, EEUU; Oxford Brooks, UK.; AA, UK; Delft, NED), con el fin de entender cómo se aborda la enseñanza en estas universidades de mayor reconocimiento. De esta forma, se busca identificar aquellas estrategias que mejoren la calidad de aprendizaje del proceso de diseño arquitectónico, de forma que los estudiantes, estén preparados para los desafíos de la vida profesional. De manera que estas estrategias, puedan ser aplicados tanto a los ejes educativos, como al cambio de la línea de pensamiento que la facultad de arquitectura, de la BUAP.

Epistemología, Enseñanza, Estrategia

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Introduction

Epistemology is a theory of the foundations and methods of scientific knowledge (Rae, 2022), which means that the aim is to find the origin and nature of knowledge.

That said, understanding the epistemology of architecture will give us a new perspective on how this discipline has to be understood from a complex and cognitive thinking that must analyse the phenomena as part of the process and not the result.

The hypothesis of the article is to be able to analyse the academic axes of the BUAP architecture degree and the academic axes of various universities worldwide, in order to compare and decipher which are the problems of teaching and learning in the faculty and thus take a series of steps to be able to direct the didactics of the students to a globalised approach.

A latent need

What on earth moves me about this building, how can I project something like this, how can things be projected with such presence, beautiful and natural things that move me again and again? (Zumthor, 2011, p.10)

We live immersed in an architecture and therefore in a City, which have been adopted in a univocal way, however, its design has emerged as a response to employ a priori solutions. This aspect forces us to analyse modern architecture in a retrospective way and under a complex thought, so that we can value the intentions that arose in this style, as well as question ourselves about what has been learned and forgotten from the most representative architects of the style. In addition to this, the aim is to identify at what point and under what conditions the manifestos of the modern style are broken, as well as to reflect on how it is that these manifestos are only reflected in the architecture of elite professionals.

This is a current problematic, which consists of a cognitive process that analyses and studies architecture more as a result and not as a process. It starts from a priori elements and not from the phenomenon of these elements. One of these a priori elements is precisely the fulfilment of the architectural programme, which is often neither reflected upon nor questioned.

In addition to this, there is a growing demand for spaces, which results in buildings that are cloned, in which elements are imported with no sense, however, as this is the common denominator of the architecture that surrounds us, the user cannot demand a higher quality in the design, as in principle he does not even know that this is possible, perhaps due to the lack of knowledge about architectural design.

In contemporary Mexico, architecture schools should be obliged to prepare students to face professional life, which is marked by the demand for government projects and works that depend on six-year or short-term plans; and by the demand of private initiative that demands a response to global agents, such as brands or international concessions, which means that the execution time of a project is becoming shorter and shorter, giving answers in record time.

In view of these problems, it is necessary to analyse, from a complex point of view, how architecture is learned and communicated, as well as the design processes involved in the architectural production of this style, which must be compared with those put into practice today.

The line of thinking of the Benemérita Universidad Autónoma de Puebla (BUAP)

The BUAP's Architecture Degree Programme states as part of its objectives that since its creation, 50 generations have graduated and that in the period 2000 to 2009 the average number of students graduating was 70%. It also identifies that 94% of graduates are satisfied with the degree in architecture, while employers are 90% satisfied. On the other hand, it is pointed out that on average, 30% of students enter the labour market and that of the total number of graduates, 80% or more are dedicated to work activities related to their studies, this in their first year after graduating (Benemérita Universidad Autónoma de Puebla, 2009).

This leads us to reflect on whether the university's objective is the number of graduates or their quality. If the important thing is that 80% or more are working in their degree or what percentage of that 80% is working in the place, company or country in which they wish to work and, above all, what quality of architecture they are producing and what quality of city we are shaping and living in.

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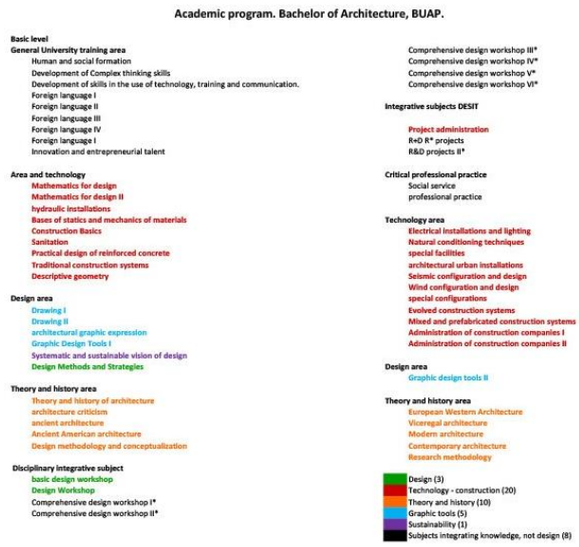

Figure 1 Academic programme 2016 of the FA BUAP
Source: Own elaboration based on the academic programme of the Faculty of Architecture of the Benemérita Universidad Autonoma de Puebla.

The university, the anteroom to professional life, has been and is responsible for preparing students for professional life. The great separation that exists between these two activities has led the architect to leave aside the study of the site, the planning, the reflection, the analysis of the process and the experimentation that any quality project should have, entrusting the solutions to different software, libraries and blocks, turning the new project into a collage of old mistakes. But beyond this and under this anteroom, the architect loses the fundamental objective of space, the 'inhabiting', thus resulting in architectural objects that essentially dispense with their main function, for as Pallasma (2016) points out "the act of inhabiting reveals the ontological origins of architecture, and hence affects the primordial dimensions of life in time and space" (p. 7).

In this context, and considering that execution times are becoming faster and faster, as well as computer programmes and tools are becoming more and more efficient, why is the teaching of architecture at university not so? Perhaps the key is in the teaching of architecture, but where is the problem, in the academic programme, in the facilities, in the equipment or in the teaching process?This leads us to reflect on whether the university's objective is the number of graduates or their quality. If the important thing is that 80% or more are working in their degree or what percentage of that 80% is working in the place, company or country in which they wish to work and, above all, what quality of architecture they are producing and what quality of the university, the anteroom to professional life, has been and is responsible for preparing students for professional life.

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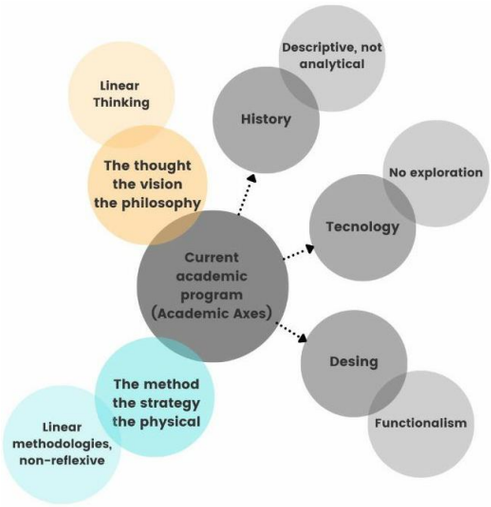

Figure 2 Graph showing the main axes of the 2016 academic programme of the FA BUAP
Source: Own elaboration based on FABUAP's 2016 academic programme

Analysis of the content of academic programs of International and National Universities.

Universities	Academic program	Line of thought	Students	Teachers	Extracurricular activities	Additional features
Universidad Nacional Autónoma de México. Architecture faculty	Architecture Landscape architecture Town planning Specialization in: Industrial components for building, light roof design, lighting design, architecture, project management, real estate valuation, housing. Masters and doctoral degree	Experimental desing (limited)	Enrique del Moral, Juan O'Gorman, Augusto H. Alvarez, Pedro Ramírez Vazquez, Abraham Zabludovsky, Agustín Hernandez, Teodoro Gonzalez de León, Francisco J. Serrano, Ricardo Legorreta Vilchis, Juan Sordo Madaleno, Carlos Mijares.	José Villagrán García, Enrique del Moral, Mario Pani, Augusto H. Alvarez, Pedro Ramírez Vazquez, Humverto Ricalde, Mauricio Rocha.	Publications, notices, contests, online store	Laboratory of structure, macroeconomics, urban planning, information systems, monitoring and modeling of the street and housing, sustainability, Red Alver student internship workshop
Universidad Iberoamericana Ciudad de México	Architecture degree Master in projects for urban development	Experimental desing	Isaac Broid, Alberto Kalach, Enrique Norten, Fernando Romero, Michael Rojkind, Tatiana Bilbao. Francisco Pardo (at. 103),Fernanda Canales, Esteban Suree (Bunker), Elías Cattan (Taller 13).	Augusto H. Alvarez, Enrique Norten, Juan Carlos Baumgartner, Mauricio Rocha Iturbide, Iñaki Echeverría, Fernando Canales		Diplomas and courses: Sustainable design, sustainable communities, LEED, bioentry
Universidad Anáhuac México Norte	Master in Architecture and Sustainability Architecture and interior design design Master in Architecture and Digital Fabrication	Experimental desing	Bernardo Gomez Pimienta, Gerardo Broissin, Arturo y Horga Arditti, Eduardo Gonzpe (A 001)	Carlos Mijares, Mauricio Rocha Iturbide		Architecture Research Center. Manufacturing Laboratory
Universidad Cristóbal Colón	Bachelor's degree in architecture, master's degree in architectural design and bioclimatism	Bioclimatism				
Universidad Autónoma de San Luis Potosí (habitat faculty)	Bachelor's degree in architecture, conservation and restoration of movable cultural property, urban and landscape design, building and works administration.	participatory design			Habitat (courses, contests, exhibitions)	Urban observatory, research lines
Universidad Autónoma de Yucatán, architecture faculty	Bachelor of Architecture, Bachelor of Habitat Design, Bachelor of Visual Arts, Master of Architecture	Experimental desing				Climatic comfort laboratory, structural models laboratory, materials workshop
Benemérita Universidad Autónoma de Puebla, Architecture faculty	Degree in architecture, graphic design, environmental urban design. Master's degree in conservation of built heritage, architectural design, territorial ordering and architectural technologies. PhD in territorial processes.					
Southern California Institute of architecture, SCI-ARC	Architecture desing	Experimental desing	Thom Mayne Frank O Ghery, Mayne, Peter Cook	Online yearbooks, student exchanges, social work, exhibitions, professional practices.	Design immersion days, making, meaning, future initiatives, emerging systems & technologies.	
Architectural Association, AA	Architecture & urbanism (March), Emergent technologies, Housing & Urbanism, Landscape urbanism (MAL), sustainable environmental, Projective cities (Mphil)	Experimental desing, Urbanism	Rem Koolhaas, Steven Holl, Richard Rogers, Frampton.	Rem Koolhaas, Daniel Libeskind	Publications, professional practices, online portfolio of students, exhibitions, workshops, seminars.	Research groups (1 year), visiting school
Massachusetts Institute of Tecnology (MIT)	Art Culture + Tecnology, building tecnology (PhD SMArchs)			Patrick Schumacher, Fuller (MVRDV)	Workshops, conferences, courses, exhibitions, exchanges and research projects	Center for advanced urbanism, prototypes of prefabrication, research laboratory, self - assembly lab, structural design lad, sustainable design lab.
Real Academia Danesa de Artes finas	Urban and Landscape planning	Experimental			Publications, exhibitions, workshops, seminars, guidance for foreign students	READ. Research in architecture and desing, Institute of technology, Institute of planing, Institute of desing an communication.
Tokyo University	Architecture and urban desing	Digital manufacturing, urbanism				Obuchi Lab, digital fabrication lab.
Delf University of technology	Urbanism and building sciences	Experimental desing				Architecture & dwelling, architectural engineering, architecture and public building, complex projects, future cities, methods and analysis, non - standard and interaction, architecture (by hyperbody).
ETH Zurich, DARCH	Architecture & technology, history ando theory of architecture	Experimental desing				
Harvard Graduate School of Desing	Lanscape architecturta, master of architecture in urban design, Master of Urban Planning.	Experimental desing and Urbanism				Manufacturing lab, robotics design group

Figure 3 Table showing the analysis of academic programmes of international universities
Source: Own elaboration based on the review of the academic programmes of international universities

In a globalised world, even with the differences in contexts and economies, it is necessary to broaden the object of study and the perspective from which it is observed, for this it is proposed to look at the best universities in the world, as well as where trends are moving, why and for what purpose. As can be seen in Figure 1, the academic programme of the BUAP's Bachelor's Degree in Architecture is made up of 5 main axes (Academy of Architecture of the Benemérita Universidad Autónoma de Puebla, 2016): technology, construction, theory-history, design, graphic tools, sustainability, the most important aspects being those shown in the figure below 2:

By analysing the best architectural universities in the world, including Massachusetts Tech, USA; Oxford Brooks, UK; AA, UK; Delft, NED, etc., and classifying their line of thinking, we were able to understand how they teach architecture, how they classify their line of thinking and even identify the predominance of experimental design (see figure 3).

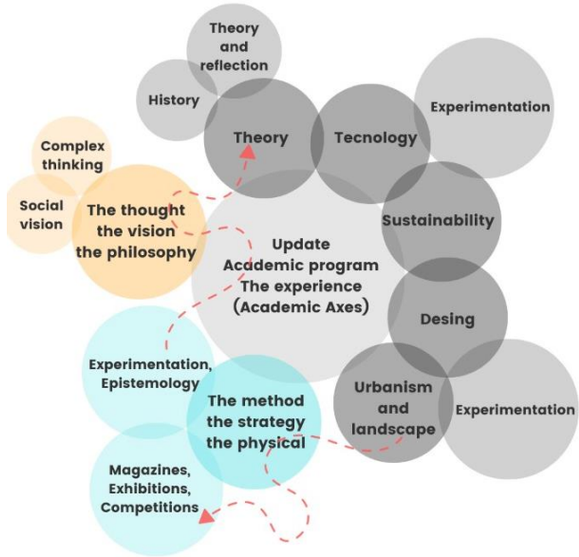

Figure 4 Graph showing the main axes that the Academic Programmes of the international trend have in common

Prestigious universities base the teaching of architecture on 5 fundamental axes: technology, design, bioclimatism or sustainability, theory and urbanism-landscape (see figure 4).

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This is an indicator that what is taught is important, and even more so, how it is taught. It is identified that, starting from experimentation, even in the case of utopian projects to address a social problem, allows for open-mindedness, the breaking of paradigms and analytical reflection, which are key elements for professional development (see figure 5).

For example, when reviewing the subject of Electrical Installations, it is identified that a linear learning of a priori technical solutions is regularly applied, which translates into a reductionist and partialised knowledge.

If the aforementioned strategy were to be applied to this subject, then the first step would be to reflect on the phenomenon of lighting and explore it, which would then be a knowledge that would have a direct impact on design, which would be underpinned and complemented by technical solutions.

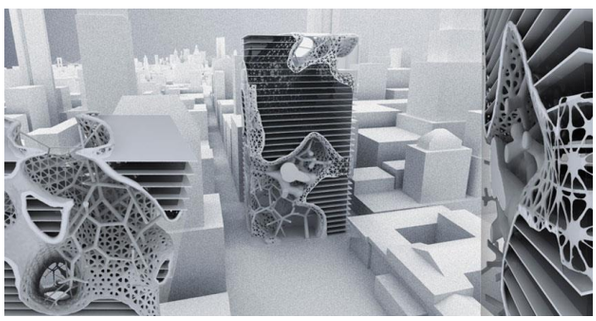

Figure 5 Project resulting from the project workshop at the AA School of Architecture, England
Source: Image retrieved from: http://landscapeurbanism.aaschool.ac.uk/sample-page/

If we maintain a structuralist and linear line of thought, which starts from a priori solutions, without linking the subjects in the same project, discarding exploration, without social concern and participation, we will follow a line that returns to the point of origin. This leads generation after generation to a deceptive progress and not an academic evolution, as demanded by the globalised world.

In addition to this, and beyond any tool or resource, experimentation, the elaboration of exhibitions, trips and publications, is what provokes reflection in the student and prepares him/her for the challenges of professional life (see figure 6).

Phenomenology as a way of thinking and seeing becomes an agent for architectural conception. While phenomenology restores us to the importance of lived experience in authentic philosophy, it relies on perception of pre-existing conditions. It has no way of forming a-priori beginnings. Making a non-empirical architecture requires a conception or a formative idea. (Holl, 2014, p.48)

Figure 6 Photograph of a class in the Project Workshop of the School of Architecture, University of Delft, The Netherlands, in which the exploration of the object of study is observed
Source: Image retrieved from: http://landscapeurbanism.aaschool.ac.uk/sample-page/

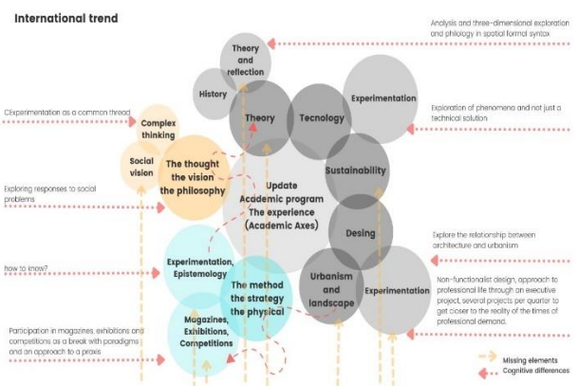

Figure 7 Comparison of FABUAP academic programmes and international trends
Source: Own elaboration based on the FABUAP academic programme

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The fundamental point is to understand architectural, graphic and urban design as a knowledge that can be transmitted, so that during the study of the degree course the cognitive tools can be made more efficient, and experimentation can be carried out, as well as teaching how to read the site and its context more quickly, so that the response is practically immediate and time can be used to improve the quality of design. An example of such an approach of phenomenological exploration is the one proposed in the methodology of the teaching process for the development of creative skills, which details strategies that are consolidated with the learning of formal spatial language and under complex thinking (Bribiesca, 2021).

Rethinking how architecture is learned and communicated from a complex thinking, as well as the analysis of the design process from a structuralist thinking and comparing it with what is currently done in school, leads us to detect the factors in which the fracture of knowledge exists (see figure 7). This reveals that the cognitive system that analyses and studies architecture is treated more as a result that starts from a priori elements and not as a process that derives from the phenomenon of these elements.

In other words, the architectural project, through this system, is reduced to the fulfilment of an architectural programme that is often not reflected upon or reconsidered.

Participating in architectural competitions, as has been promoted in recent years at BUAP, will allow us to compare the level of the university with those of the rest of the world. So far, this has been done in an isolated way and there have been some results, as state, national and international prizes have been won:

First place in the international competition "Wine Museum", first place in a state competition "The New House of the Adolescent", or the mention in the ENEA 2009, (three awards obtained by a team of students coordinated by a single professor of this faculty). It is worth noting that never before had FABUAP (Faculty of Architecture, BUAP) won 1st place in an international competition.

This is not a coincidence, it is the product of experimental thinking that has been introduced in recent years, which helps to quickly solve a problem in an innovative way. Here, it is important to note that this is not an isolated effort, but that it is necessary to restructure the educational axes in order to change the line of thinking of the faculty.

Identified strategies

- To direct the academic programme of the architecture degree to the 5 axes of global education: technology, design, bioclimatism or sustainability, theory, urbanism-landscape, from a complex and epistemological perspective that links the different subjects in an experimental line.

- Disseminate the work by means of publications via the Internet that encourage the participation of students as well as teachers.

- To carry out exhibitions with the resources available, which go beyond the content to be presented and become an exercise in design, planning and execution, breaking the paradigm of theory and praxis.

- To compete in a greater number of national or international, academic or professional competitions, in order to bring students closer to professional practice and competitiveness.

- Promote epistemology courses and workshops for teachers and students.

Acknowledgements

This work was not funded.

Conclusions

Beyond the financial resources we have, beyond the facilities we have, beyond changing the name of the subjects, to provide an experimental academic awareness, in the foreground; followed by a professional practice with design processes more fluid and coherent to our times in order to obtain higher quality architectural products that will weave a more related urban context.

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Interactive center for the development of learning for autistic children and youth in Atlixco, Puebla

Centro interactivo para el desarrollo del aprendizaje para jóvenes y niños autistas en Atlixco, Puebla

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Abstract

This work aims to publicize the project of Interactive Center for the development of learning for autistic youth and children in Atlixco, Puebla. Developed in the degree of architecture by student and directed by teachers of the Benemérita Universidad Autónoma de Puebla. The research methods used are of a qualitative social nature and multidisciplinary research, since concepts and theories of importance are involved in subjects such as architecture, psychology, pedagogy, psychiatry and sociology. The research began with exploration, with field research within the educational centers, with interviews and life stories of autistic children and adolescents, school administrators, teachers and relatives. In addition, the phenomenological method was used to understand the way of seeing the world of autistic children and adolescents is through subjective knowledge. We proceeded to the explanation of the subject through documentary research, bibliographic, identify the analogous cases, the analysis of the regulations and the development of the project. The first part defines autistic disorder; in the second stage the educational spaces that are responsible for supporting the autistic child or adolescent are described and in the third stage the project is described.

Autism spectrum, Educational spaces, Project

Resumen

Este trabajo tiene como objetivo dar a conocer el proyecto de Centro Interactivo para el desarrollo del aprendizaje para jóvenes y niños autistas en Atlixco, Puebla. Desarrollado en la licenciatura de arquitectura por alumna y dirigido por docentes de la Benemérita Universidad Autónoma de Puebla. Los métodos de investigación utilizados son de carácter social cualitativo e investigación multidisciplinaria, pues intervienen conceptos y teorías de importancia en materias como arquitectura, psicología, pedagogía, psiquiatría y sociología. Se inició la investigación con la exploración, con investigación de campo dentro de los centros educativos, con entrevistas e historias de vida de los niños y adolescentes autistas, administradores de los centros, docentes y familiares. Además, se utilizó el método fenomenológico para comprender la forma de ver al mundo de los niños y adolescentes autistas es a través del conocimiento subjetivo. Se procedió a la explicación del tema por medio de la investigación documental, bibliográfica, identificar los casos análogos, el análisis de la normativa y el desarrollo del proyecto. En la primera parte se define el trastorno autista; en la segunda etapa se describen los espacios educativos que se encargan de apoyar al niño o adolescente autista y en la tercera etapa se describe el proyecto.

Espectro autista, Espacios educativos, Proyecto

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Introduction

The origin of this work was the experience of Architect Karla Polette Díaz Arredondo in mental health centres, where her twin sisters with autism have attended. During the years that Karla Polette has lived with her younger sisters, she was able to understand the enormous sensory difficulties they presented in everyday situations and the stumbling blocks in the academic field. Due to this situation, she wondered why the spaces visited did not have the characteristics her sisters needed for their stay and learning.

Therefore, she developed the topic "Interactive Learning Development Centre for Autistic Children and Youth" where she applied knowledge from psychiatry, psychology, pedagogy and architecture. In the development of the work she came to use the current building regulations in Mexico and sensory architecture for children and young people with ASD (Autism Spectrum Disorder).

The project was developed in Atlixco, Puebla, as there are no specialised centres for the development of learning for autistic children and young people. The existing educational institutions are of Multiple Attention, for all children with motor and mental disabilities, which lack the attention to specialised education for people with autism. Besides, the teacher has to attend to saturated groups with different types of disabilities that prevent an education, because he/she has to attend to children with other disabilities.

The objective of the project was: To implement an architectural project based on sensory and functional design parameters for people with autism spectrum disorder, through the projection of an interactive centre for the development of learning for autistic children and young people in Atlixco, Puebla.

The results achieved were a greater understanding of this disability, recognition of the type of spaces necessary for the architectural design and a product that allowed the conclusion of the terminal work of the degree directed by Mtra. María del Rayo Vázquez Torres and Dr. Alberto Rosendo Castillo Reyes and as an external advisor to Dr. Rosario Nava Ramírez. An executive project was carried out that covered the needs established in the regulations and spaces were annexed to allow for better student development.

The project consisted of 3 buildings, 1 auditorium, 1 greenhouse, sports courts, green areas and parking and control areas.

Autism spectrum

Autism disorder affects 1% of the world's population with abnormal neural development, the causes of autism are believed to be genetic and environmental factors; it is more common in males than in females, in a 4:1 ratio. However, females with autism are more affected with strong impairments in cognition and social perception, executive dysfunction and atypical information processing. Treatment aimed at improving social communication and reducing anxiety and aggression has better outcomes with multidisciplinary assessment and early detection. The word autism derives from the Greek autt(o), meaning acting on oneself, and the suffix -ism, indicating the pathological process (Bonilla and Chaskel Roberto, 2013).

Autism spectrum is a disability that affects individuals in different ways, in different senses and in different degrees of intensity. It should be clarified that ASD is not considered a disease; they are characteristic features of the autistic personality with variations from person to person, i.e., the affectations are not the same from one person to another, with different intensities of neurological, physical, cognitive and social levels. It should be noted that it is considered a "new" disability, which is why the study of ASD is in the process of studying the causes of the disability and even how it should be treated.

> "Autism is a set of heterogeneous alterations at the neurodevelopmental level that begins in childhood and remains throughout life. It involves alterations in communication and social interaction and in behaviours, interests and activities" (Bonilla and Chaskel Roberto, 2013, p. 19).

Autism Spectrum Disorder (ASD) is a mental developmental disability that is detected in the first three years of an infant's life and affects the functioning of the brain. The definition given by the Autism Society, a non-governmental society, indicates that autism is a psychological and neurological disorder, which affects the mental development of the child or individual.

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That is, the affected person has problems in social, communication, cognitive and/or motor development skills, this condition does not allow the development of what is considered normal brain development. The change in the definition of ASD as a concept began in 2013 when the DSM-5 was published, in this document the classification and characteristics of pervasive developmental disorders are set out.

This is due to the fact that there are conditions similar to autism such as: Asperger's Syndrome, Autistic Disorder, Childhood Disintegrative Disorder, Non-Specific Developmental Disorder and Rett Syndrome, as shown in the following Figure 1.

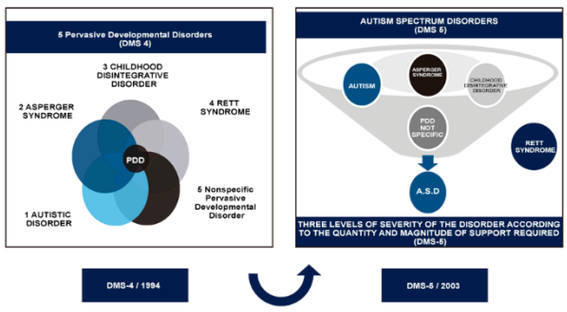

Figure 1 Explanatory graphs of the differences between DMS-4 and DMS-5, In 1994 all these disorders were represented separately, in 2013 it was established that all these disorders should be grouped together, but classified into 3 levels of degree of affectation
Source: (Vázquez Ramírez, 2015)

The term autistic was first used in 1908 by Eugen Bleuler to describe some of his patients with schizophrenia. But it was Leo Kanner who in 1943 adopted the term autism to describe for the first time this syndrome, where he applied it to describe the inability to relate to others, language alterations either from not speaking, meaningless messages and repetitive movements without apparent cause (Bonilla and Chaskel Roberto, 2013).

However, the term autistic has a Greek origin that refers to the root auto - from autos - is associated with "one's own, oneself", which can be taken as focusing on oneself. This term was originally used for the symptoms of schizophrenia, but it was not until 1944 that it was addressed to the symptoms of Asperger's syndrome. Hans Asperger, in 1944 the article published Die Autistischen Psychopathen, elaborated a study of four children with similar characteristics and named the term autistic psychopathy after Asperger's syndrome.

The Diagnostic and Statistical Manual of Mental Disorders (DSM) together with the International Classification of Diseases are the most widely used manuals in psychiatry for the classification and diagnosis of mental illnesses. In the first manuals, both in the DSM-1, published in 1952, and in the DSM-2, published in 1968, autism was part of schizophrenia and was considered as a psychological state. It is until 1980 that the DSM-2 changes the diagnostic approach of mental disorders, becoming disease categories and the term infantile autism appears. The DSM-3-R of 1987 removed the term infantile autism from this group, replacing it by the term autistic disorder, as it was observed that the symptoms continued even in the adult stage. The DSM-4 of 1994 and the DSM-4-TR of 2000 divided autism into three diagnostic categories: impairment in social interaction; impairment in communication; and restricted, repetitive and stereotyped patterns of behaviour, interests and activities. The latest version of the DSM-5 of 2013 places autism in a single category: autism spectrum disorders (Bonilla and Chaskel Roberto, 2013).

These manuals have made it possible to detect the autistic spectrum, as well as the educational strategies and the characteristics of the spaces where the teaching-learning process takes place. The autism spectrum disorder is so varied, as it ranges from severe to mild cases, the latter may not be detected because the affected person is functional with mild manifestations that go unnoticed or the child may have other affectations with physical problems that do not allow detection.

Therefore, timely detection is very important for a treatment of greater impact, which is why it varies in the time that can be observed from the first months of life, but the diagnosis is made up to 24 months. It can be manifested in early stages by the delay in some developmental patterns such as eye contact or emotional reciprocity with caregivers. The alterations that manifest themselves with greater intensity in the child with autism are the difficulty in expressive and comprehensive language, which affects social performance and the presence of interests or activities that affect their behaviour (Bonilla and Chaskel Roberto, 2013).

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In other words, one of the main characteristics of Autism Spectrum Disorder are the sensory-perceptual problems or the process of capturing stimuli from the environment and interpreting them at a cerebral level and they are divided into 3 types: hypersensitivity, hyposensitivity and sensory fascination or self-stimulation that occur all at the same time or at different stages of the person's life. That is why it is necessary to identify the levels of autism to guide the child and adolescent because not understanding what is happening generates a great stress, so it is important to identify the symptoms and characteristics that are shown in the Figure 2.

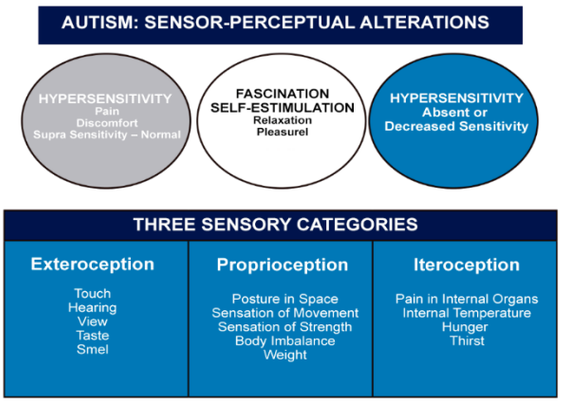

Figure 2 Types of Sensory-Perceptual Alterations in People with Autism Spectrum Disorder
Source: Vázquez Ramírez, M. (2015). The educational care of students with autism spectrum disorder. P. 109.

Autistic disorder has different symptoms, the most important of which are hypersensitivity, hyposensitivity and self-stimulation. Hypersensitivity, this is an exacerbated response to stimuli producing stress in the individual, discomfort such as an increase in temperature that causes the affected person to take off their clothes or discomfort when being touched or hugged, the senses of hearing, sight, smell and taste are also affected. Loud sounds alter them and this can lead to accidents as they try to run away from the source of the sound and run or jump without measuring the dangers involved. As for the sense of sight, they usually do not stare at people or things with intense colours, they see them sideways and are sensitive to intense sources of light. In the case of smell, they are sensitive to intense smells and they react aggressively to them. All this is caused by sensory saturation, which becomes a problem for their development and functionality, leading to anxiety and social maladjustment.

In the case of autistic hyposensitivity, it is manifested by a decrease or complete absence of sensations, with loss of tactile, gustatory or auditory sensitivity, it is a form of temporary disconnection and they do not react to stimuli. There is another situation which is self-stimulation, in this case the individual produces repetitive actions, the most common is when balancing, but there is also the repetition of certain sounds and sniffing an object for long periods of time (Díaz, 2021).

Behavioural, psychological and educational therapy is fundamental for the development and coexistence of people with autism, and there are medical programmes that specialise in providing behavioural, psychological, educational or skill development interventions.

> "These programmes are often highly structured and intensive and may involve fathers, mothers, siblings and other family members. These programmes can help people with ASD to: Learn the skills needed to live independently. Reduce challenging behaviours. Increase or build on strengths. Learn social, communication and language skills" (NIH, S/F).

It is important to note that according to the 2014 INEGI census in Mexico, 6% of the population suffers from some type of disability. Also, research conducted by Carol Ajax, founder of Spectrum Therapy Center Mexico, indicated that in Mexico in the range of 115-120 people, 1 person has some level of autism spectrum disorder, which is approximately 14% of people with disabilities.

Educational spaces

Regarding the educational spaces where the child or adolescent must learn, they are called CAM (Multiple Attention Centre), they are free special education institutions, but according to the research carried out in the centres, they are not enough to give specialised attention to people with ASD, as they attend to different disabilities and there is no specialised attention to students with autism and to groups of no more than 10 people. The Census of Schools, Teachers and Students of Basic and Special Education, CEMABE 2013, carried out by INEGI and SEP, shows that in Mexico there are 1,527 Multiple Attention Centres, of which 55 are located in the State of Puebla.

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CAM centres are well designed under the anthropometric functional aspects, under the regulations of INIFED (National Institute of Educational Infrastructure) for people with motor disabilities. This regulation describes the dimensional guidelines, the mandatory use of access ramps, the number of toilets, among other aspects. There are no regulations applied to the sensory aspects of children and adolescents, which is a very important part of interaction and learning.

It is worth mentioning that there is not a specialised norm for the education centres for people with autism, however, the norm of Basic Education - CAM (CDA-EE-CAM-05) was used. The objective of this regulation is to recommend the necessary elements and conditions of habitability and design in the spaces and services that conform the educational centres based on universal guidelines. As for the electrical installation, the project will be governed by the regulations of obligatory observation, indicated in the Mexican Official Norm. NOM-001-SEDE-2005, current and in force and collaterals referring to the installations for the supply and use of electrical energy.

Also, the INIFED norms for Multiple Attention Centres were used, which indicate the characteristics for the design of the minimum necessary spaces for a centre of this type. INIFED addresses constructive and basic aspects of the CAM's, being this insufficient to be able to design a centre for people with autism, with an empathic approach to their sensory-perceptual problems; therefore, the functions that should be contemplated according to the psycho-pedagogical principles that guide the educational intervention with autistic students were considered. The INIFED criteria seek to promote compliance with the requirements of quality, safety, functionality and sustainability of educational physical infrastructure.

INIFED, is a public body created on 1 February 2018 in the Official Gazette, the main objective of this institution is to strengthen educational infrastructure in Mexico, through the creation of standards and technical specifications.

Regarding the selection of the land INIFED contemplates the following data: Consider the mobilisation times of students attending the special education school should not be more than thirty minutes, avoid dangerous areas, the location of the main access minimum of 8 m. wide to the property; mainly through tertiary roads, although it is allowed to place secondary roads. The dimensions of the site should preferably be rectangular, with a ratio equal to or less than 1:3, with no blind spots to allow supervision of all areas of the campus by teaching and administrative staff.

Open spaces where outdoor activities take place, such as the civic square or sports fields, must have a roof. Indoor green areas will be 30% of the surface of the land, a surface greater than 10 m² without fragmentation with plants from the region. Vehicular and pedestrian walkways will be permeable pavements, at least 50% of the uncovered areas.

For the construction, systems and materials of traditional manufacture of the region will be used, compatible with other systems and the provisions of the Norms and Specifications for Studies, Projects, Construction and Installations of the INIFED will be observed.

In terms of security, it is considered that the entrances to the campus will have a single door to control entry and exit, there should be no secondary doors and the service and manoeuvre entrances should be located close to the street and away from the main entrance for student use. Perimeter walls or fences with a height of 3 m. should allow visibility inside the campus.

Evacuation routes must be signposted at every 20.00 metres or at each change of direction of the roads or walkways, with the written legend: "EVACUATION ROUTE", with arrows in the direction of the evacuation route. Fire extinguishers shall be placed in visible places, easily accessible and free of obstacles, the separation of the extinguishers shall not be greater than 15.00 metres hanging and at a maximum height of 1.50 m from the floor. One of the exterior circulations must be protected from direct or indirect sun radiation, by means of overhangs or eaves; in the case of a one level building, the overhangs or eaves shall be 1.10 metres and with a minimum height of 2.30 metres and in two level buildings, the overhangs shall be a minimum of 2.25 metres.

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It should be noted that technology has been introduced in the teaching-learning process, so the project should consider technological resources to support the student. It has been found that children and people with ASD show a great ability to use technology. So the architect must include spaces to place computers, screens and other devices that allow the student to be interested. There are applications for autistic people such as Aprende Infantil, Talk Autismo Imágenes, Pictogram Agenda, Fun Easy Lear Español, which support different areas of knowledge.

In order to carry out the project, the learning strategies must be known, regardless of the degree of affectation of the autistic child or young person, to allow him/her to adapt to coexistence, to carry out an accompaniment and medical treatment. The functions that should be contemplated according to the psycho-pedagogical principles that guide educational intervention with autistic students. ASD (Vázquez, 2015) are the following:

Apply strategies of initial socio-affective teacher-student bonding: Spaces should be developed where the creation of affective ties between the teacher and the student should be fostered to encourage cooperation at the time of wanting to exercise or class therapies.

Move from an over-structured school environment to a standardised one to allow the student to adapt. Architects should consider furniture, containers, coloured ribbons, pedestals, sounds and images that help to identify the location of the different areas, as well as the place where their work tools are located; as well as what actions are allowed in each place and their behaviour within each space. This will allow the student with ASD to feel familiar and safe in such a controlled environment. However, there should be transitional spaces according to their development to introduce them to less controlled environments.

Apply strategies of anticipation and anticipation of environmental changes: Children learn through repetition and the creation of familiar environments, i.e., scenarios are created where they repeat actions of everyday life through play.

Therefore, it is important that educators enable children to anticipate unusual events in their daily lives, so they require spaces that can be easily modified and that allow for constantly changing activities so as not to lose the child's concentration.

Plan activities based on "error-free learning": in this type of activity, the student should not be corrected at the time of teaching, as this leads to the child's disinterest. In addition, the learning environment should be free of visual or auditory distractions, so that the child can stay focused on the activity. It is common for unwanted attitudes to be generated, so the space should be one that allows movement and control of the entrance to the classroom.

Generate learning experiences in natural contexts: There should be spaces outside the classroom to allow interaction with the natural environment and where the child's daily activities can be practised both in the classroom and in the outside area, to be reinforced later by the parents.

Gradually progress from individualised education to collective education: although the student must begin his or her learning process through individualised contexts and strategies, as well as social interaction to reduce stress when he or she is in groups of people known and unknown to him or her. For this reason, the centre must have areas for coexistence with other people, whether in the play areas or in the corridors, for which the physical and emotional safety of the students must be monitored.

Another educational strategy is to move from behavioural over-direction to autonomy, in this case seeking progress in continuous educational support towards independence. Therefore, different types of classrooms should be established until they are implemented in all educational centres in Mexico.

Another objective is to progress from adaptation of the environment to the learner to adaptation of the learner to the environment. The pupil should not be forced to behave and respond in a "normal" way, this represents tolerance to the characteristics of the autistic pupil, which is why we should contemplate spaces where accidents can be avoided with areas where the child can be taken in crisis in order to calm him/her down.

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Complement the educational intervention with a responsible medical and alternative treatment, although this does not depend on the architect or the educators, it is necessary to contemplate it, as it is common for students to be medicated to moderate undesirable symptoms; therefore, it is necessary to have a medical service or to locate the educational centre near a medical centre.

On the other hand, people with autism require spaces that help to mitigate the sensorial problems and crises they suffer and signalling systems of the spaces that they can understand, as well as a correct signalling of the spaces with images and colours that allow them to have more independence.

The above is considered in sensorial architecture, which considers psychology for its development, through materials, colours, smells, textures, shapes, lights and shadows. This influences people's subconscious, since all the senses are involved in order to be experienced, i.e., to live in that space.

An example of this situation is the use of colour, as the sense of sight is the most developed in the human being, which is why it has the greatest influence on everything that the brain perceives. Therefore, it is very important to analyse the theory of colour and its application in spaces, as it can affect the behaviour of autistic children and adolescents in ways that can provoke crises in them. Care should be taken in the use of colours in spaces, as they are able to transmit sensations of temperature changes, including spatial and/or emotional ones.

Colours influence emotions and sensations, which is why colours should be carefully chosen for the design of any project. In the case of autistic children and adolescents, it is essential to use colours that help them to concentrate in their therapies and workshops. Therefore, according to Heller's (2004) colour theory, a basic colour palette (image 3) was chosen in the main areas of the learning centre, so that the students are not distracted and different shades of colours can be used, as shown in Figure 3.

Figure 3 Basic colors for the use of common areas and of greater concentration
Source: (Pantone, 2020)

This range of colours is designed to transmit emotions and sensations; for example, the colours that transmit peace, calm and security are blue and white; green allows relaxation and harmony, to create sociable atmospheres, but without being too aggressive. As for the neutral colours that are brown and grey, low luminosity colours allow relaxation and comfort. An example of this is Figure 4.

Figure 4 Multiple classroom of the Centro Autismo Teletón where the colours white, blue and beige are used, which transmit the sensation of calm and without visual distraction in the environment, as well as having intense colours but focused on the didactic material so that the child's attention is directed to them
Source: (Centro Autismo Teletón, 2019)

All educational programmes for students with autism are attached to the cognitive style of students with autism where learning problems and conditions in the classroom are identified, so the division of activities within the areas is developed. Considering the information of the Federation of Castilla y León, (s/f) the following was reached:

The student has a literal and fragmented perception, difficulty in distinguishing between foreground and background information, hypersensitivity and/or hyposensitivity. Visual thinking predominates whose processing focuses on details at the expense of global configuration and contextualised meaning. This is why it is recommended to place 2 colours on the walls, the more intense colour is placed at the top and the lighter colour at the top.

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The student's spatial skills in specific subjects should be applied by arranging the furniture with simple shapes and without edges that generate accidents.

In terms of attention, the colours in the layout should make it easier for the student to concentrate, as this favours learning, as the student has "tunnel attention", which consists of not paying attention to stimuli that are outside the selected area. For this reason, sensory oversaturation should not be provoked by an excess of furniture, images or noise.

It is important to focus motivation on the content of their interests, considering that the student has difficulties in attributing sense and meaning to the activity. Therefore, the furniture and the room should have fixed colours so that the student can relate to the activity he/she is doing in each space. Colours that complement the basic palette can also be used to generate spaces where more activity is required, such as yellow, orange and red at points where the child's attention is required, as shown in image 5.

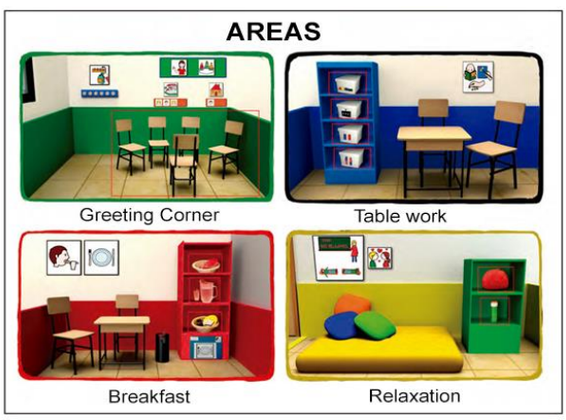

Figure 5 Spatial structuring and well-defined activity areas. The order in the furniture and the different colour in each area allows students with ASD to participate and concentrate on the activities. It is important to avoid excess material
Source: (Vázquez, 2015, p. 125)

The good mechanical memory for data is striking, i.e. information can be retained, even if the content is not understood. There are also difficulties in retrieving information and retaining information while performing a task. For this reason, the activities to be carried out in space are reinforced by means of images. The student may have problems in problem solving, as the strategies learnt in one situation do not transcend to generalisation.

The learning developed in a given situation cannot be applied to the same conditions, but with new approaches, so the spaces should not be modified.

The project

The project is located in Atlixco, Puebla, in the central-western part of the State of Puebla, bordered to the north by the municipality of Tanguismanalco, to the northeast by the municipalities of Santa Isabel Cholula and Ocoyucan, to the southeast by the municipalities of Santa Isabel Cholula and Ocoyucan, to the southwest by the municipality of Puebla, and to the southeast by the municipality of Puebla, to the Southwest with the municipality of Atzitzihuacan, to the South with the municipalities of Huaquechula and Tepeojuma, to the Southeast with the municipalities of San Diego la Meza Tochimiltzingo, to the East with the City of Puebla, and to the West with the municipality of Tochimilco. INAFED (n/d).

The location of the land is the following image 6 where the land is shown in red with the address Av. 20 de noviembre Col. Revolución, C.P. 74270 S/N Atlixco, Puebla. The sketch shows the most relevant places in the area, which would be the ORO ERCO bus terminal and the park of La Revolución.

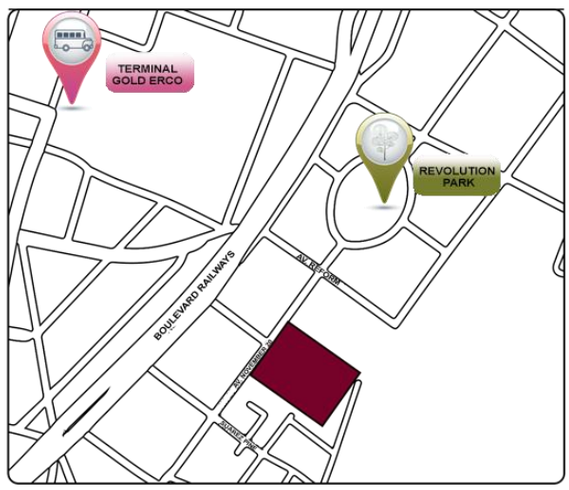

Figure 6 Micro location sketch of the location of the land at the address: Revolución, 74270 Atlixco, Puebla
Source: (Díaz, 2021).

Next, Figure 7 shows the project's operation diagram, establishing the type of public and semi-public connections, students, parents and workers, as well as authorised and service personnel. In terms of operation, a main entrance, a reception area, lobbies that allow the distribution to the different areas are considered. It should be noted that the diagnostic area, workshops and therapies with green rest areas are considered, as well as toilets, dining room, kitchen, storage and greenhouse; the latter with interior access through the lobby. For access to the auditorium, an access from inside the centre and an access from the car park are envisaged. The auditorium foyer also connects the job training area, administration and multi-purpose courts.

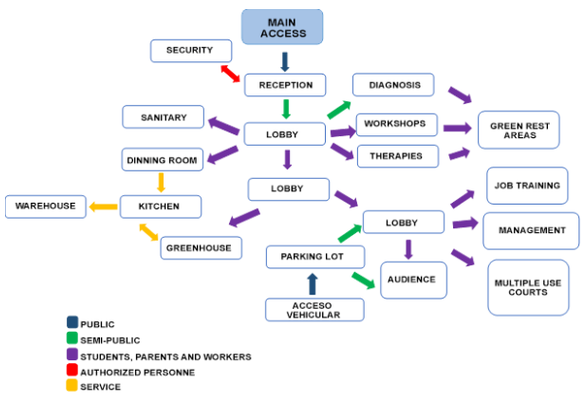

Figure 7 Diagram of operation
Source: (Díaz, 2021)

Figure 8 shows the overall plan with 5 buildings, parking, service access, court and green areas. The overall plan shows the overall plan of the project where the distribution of the buildings, auditorium, greenhouse, parking and green areas can be seen. Building 1 is composed of accesses, diagnostic area, workshops, kitchen, dining rooms, storage rooms and toilets. Building 2 is the computer rooms, storerooms and toilets. Building 3 is the administration area with offices, meeting rooms, reception, dining rooms, storerooms and toilets. Building 4. The auditorium with stage, seating area, controls, storage, waiting room and toilets. Building 5 the greenhouse with preparation and experimentation area, cultivation area and storage area. Zone 6. Parking area and student reception area 7.

Figure 8 Overall floor plan. 1 accesses, diagnosis area, workshops, kitchen, dining rooms, storage rooms and toilets. 2 computer classrooms, storerooms and toilets. 3 administration, dining rooms, storerooms and toilets. Building 4 auditorium. Building 5 greenhouse. 6 car park and 7 student reception

About the constructive part, the following characteristics of the constructive elements are established:

Building 1 for Clinics of 2 levels, where are also located waiting areas, assessment offices for people with ASD, nursing, language communication workshop, sensory stimulation workshop, motor skills workshop, cognition workshop and sociabilisation workshop; all with storage rooms and secure area, it also has a dining room and toilets with: foundation based on masonry foundations, running footings, dados, counter-foundations and reinforced concrete perimeter walls. Reinforced concrete castle structure, reinforced concrete columns and reticular slabs and expanded polystyrene block. Main façade made of anodised aluminium in colour, with 6 mm. clear national glass. Vinyl tile floors and false ceilings of plaster panels.

Building 1

Figure 9 Main façade. The interior of the social therapy room where colour theory was applied to create attractive spaces for students and the opportunity to create different environments in a single space
Source: (Díaz, 2021)

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Building 1

Figure 10 socialisation workshop
Source: (Díaz, 2021)

Building 2. This building contains the digital media classroom, manual media classroom, storage rooms and toilets. Masonry foundations and red brick walls. Structure of columns, reinforced concrete castles and reticular slabs of reinforced concrete and expanded polystyrene block. Main façade of anodised aluminium in colour, with 6-millimetre national glass. Terrazzo floors, apparent glazed partition walls. - Intercommunication system. Figures 11 and 12 show the application of different modules to take advantage of the topography of the site, creating movement, the theory of colour to generate friendly environments, the placement of textures and ramps.

Building 2

Figure 11 Façade of building 2
Source: (Díaz, 2021)

Building 2

Figure 12 Façade of building 2

Building 3. Administrative offices. These include the offices of the accounting, human resources, publicity, educators and general directorates. In addition to a meeting room, dining room, toilets and storerooms. Masonry foundations and reinforced concrete perimeter walls. Reinforced concrete castle structure and reinforced concrete reticular slabs and expanded polystyrene block. Main façade of anodised aluminium in colour, with 6-millimetre national glass. Terrazzo floors, apparent glazed partition walls. Intercommunication system.

Building 3

Figure 13 Facade of building 2
Source: (Díaz, 2021)

Building 3

Figure 14 Side facade of building 2
Source: (Díaz, 2021)

Building 4 the Auditorium. It contains a waiting room, toilets, light and sound control, a stage and a room for 118 spectators. Foundations based on castles, continuous footings, dice, counter beams and perimeter walls of reinforced concrete. Reinforced concrete slab of 15 cm. of thickness. Castle structure, columns with contrabeams. Reticular slabs of reinforced concrete and expanded polystyrene block and for the spectator area tridilosa was used. Integral type main façade in color anodized aluminum, with 6-mm national glass. Terrazzo floors, apparent glazed partition walls. Intercom system.

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Building 4

Figure 15 Main façade of building 2
Source: (Díaz, 2021)

Building 4

Figure 16 Main façade of building 2
Source: (Díaz, 2021)

Building 5 the Greenhouse. It is made up of a warehouse, study area and cultivation area. Foundation based on continuous footings, dice, counter beams and perimeter walls of reinforced concrete. Reinforced concrete slab of 15 cm. of thickness. Structure of columns and roof of tridilosa. Integral type main façade in color anodized aluminum, with 6-mm national glass. Terrazzo floors, apparent glazed partition walls.

- Intercom system

Building 5

Figure 17 Facade of building 2
Source: (Díaz, 2021)

Building 5

Figure 18 Façade of building 2
Source: (Díaz, 2021)

For the "Interactive centre for the development of learning for young and autistic children in Atlixco, Puebla" all the spaces were considered according to the design and construction regulations. An important element is the landscaped areas, according to the INFIED regulations, where it is established that the project must have 30% of green areas inside the property of the surface of the land. In the case of vehicular and pedestrian walkways, they will be made with permeable pavements, with an absorption of rainfall to the subsoil of at least 50% of the uncovered areas.

Conclusion

It is important to point out that inclusion for the social development of autistic children and adolescents is the starting point for the person to have a sensory development that allows him/her to live with his/her own family. Therefore, this is a relevant issue and should be addressed by universities, government and society. It was also observed in the process that being a subject known by the thesis student, it allowed a closer approach to the problem and its solution. A detailed proposal for the executive project was reached, surpassing the initial expectations of the project, and this space only shows a small part of the research and design process.

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Didactic strategies for learning the trombone post COVID. An experience in development

Estrategias didácticas para el aprendizaje del trombón post COVID. Una experiencia en desarrollo

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Abstract

The development of the quality and interpretative level of a music professional is made up of an accumulation of cultural elements that together can guarantee an optimal performance of the instrumentalist. The practice of the trombone within the state of Zacatecas, Mexico, is currently very relevant and it is for this reason that within the Academic Unit of Arts of the Universidad Autónoma de Zacatecas is offered, for many years now, the specialization in the instrument; However, the health situation experienced in previous years has caused situations that have decreased student enrollment within the chair. This document aims to expose the actions that are being carried out from the trombone class to guarantee the continuity of studies of the students who make up the student plant, as well as to continue their academic development. This results in an analysis to observe the relevance of a future modification of the educational model in the trombone career.

Rod trombone, Educational modality b-learning, Instructional design

Resumen

El desarrollo de la calidad y el nivel interpretativo de un profesional de la música se encuentra conformado por un cúmulo de elementos culturales que en conjunto pueden garantizar un óptimo desempeño del instrumentista. La práctica del trombón dentro del estado de Zacatecas, México, actualmente es muy relevante y es por tal motivo que dentro de la Unidad Académica de Artes de la Universidad Autónoma de Zacatecas se ofrece, desde hace muchos año ya, la especialización en el instrumento; no obstante, la situación sanitaria vivida los años anteriores ha causado situaciones que han disminuido la matrícula estudiantil dentro de la cátedra. Este documento tiene como finalidad el exponer las acciones que se están llevando a cabo desde la clase de trombón de vara para garantizar la continuidad de estudios de los alumnos que conforman planta estudiantil, así como, que continúe el desarrollo académico de los mismos. Lo que trae como consecuencia un análisis para observar la pertinencia de una futura modificación del modelo educativo en la carrera de trombón de vara.

Trombón de vara, Modalidad educativa b-learning, Diseño instruccional

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Introduction

During the years 2020, 2021 and part of 2022, humanity suffered the onslaught of the health pandemic known as Covid-19, which among other consequences, in addition to health, brought with it changes in all spheres of human daily and social life; one of the most affected was education, where strategies had to be implemented to meet this new challenge of caring for the health of the student population and not leave to their fate those who were eager for knowledge.

The main measure taken worldwide was to use a distance education model (e-learning or virtual), taking advantage of the benefits currently offered by ICT; artistic education was not left behind and implemented didactic strategies in the best way to continue the teaching-learning process. Today we can consider a gradual return to the usual activities without neglecting them, however, the question arises: Is it possible to take advantage of the strategies and models used during the pandemic in the form of teaching in the musical arts? How to carry out the Instructional Design for teaching instrument classes, for example the trombone, through the use of Educational Technology and under a distance learning model?

The study of the trombone at a professional level, in itself, is already a challenge traditionally faced by students and teachers, because although there is an abundant bibliography, it is currently complex to apply a methodology, as well as to have a manual of activities for its instruction; in the words of Kleinhammer and Yeo (2012), worldwide, some study manuals have been created for the instrument (trombone), which respond to the needs of the students who are part of the institutions, which in turn depend on the geographical region.

The Trombone is an aerophone instrument of the brass family, consisting of a cylindrical brass tube, approximately 3 metres long, bent on itself and connected to a conical section that widens in the shape of a bell, it has a mouthpiece that is attached to the tube at its narrowest part.

The sound is produced by the vibration of the player's lips on the mouthpiece, modulating the column of air through a movable tube, called a rod, which slides inside the main tube, shortening or lengthening the distance that the vibrating air must travel and thus altering the resonant frequency, thus producing bass or treble sounds. The telescopic rod was invented in the 15th century and its handling allows seven positions that complete the chromatic scale. In the brass family, it usually plays the role of tenor or baritone with a lower register than the French horn.

There are also trombones with valves, the first trombones did not have pistons and were introduced during the 19th century. The piston trombone is the one most frequently used in Sinaloa bands and/or tamborazos.

Like most wind instruments, the trombone had its origin in the hollow bar and horns of animals, the evolution of this instrument is related to the primitive trumpet imported from Egypt, the ancient trumpet was straight in shape, in its upper end a mouthpiece was inserted, while its lower end was widened in the shape of a bell, often representing the head of an animal. There have been various transformations, and it is from it, and particularly the "Buccina", called Bausaun, in the 16th century that Rieman derives the German name for the trombone: "posaune".

In the course of the 14th and 15th centuries the aerophone instruments of war gave way to other non-military instruments such as the sackbuts and trumpets, which together with others such as shawms and oboes came to swell the large number of European instruments. In the 1400s, as a further development of the trumpet, the trombone was made in various sizes. With the exception of the thicker metal and the narrower bell, which produces a softer and more delicate sound, the early trombone was almost identical to the one of our days, known by the name of sacabuche because of its resemblance to a weapon of the same name, the most common instruments were the alto, tenor and bass. It was a very appreciated instrument in religious and chamber music, documents from the 15th century indicate the existence of ensembles of oboes and sacabuches, the name given to the ancient trombones in Italy.

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During the baroque and classical periods it was widely used in religious music, it was introduced in the great military bands at the beginning of the 18th century and it was then when it enlarged the pavilion to the size of the current ones. Since the 19th century it has been indispensable in the great symphony orchestra, to which Berlioz and other important composers of the time contributed; it was Wagner who gave it a stable position.

At the Academic Unit of Arts of the Universidad Autónoma de Zacatecas (UAAUAZ), the teaching of the trombone is part of the wide range offered within the Bachelor of Music programme with emphasis on the instrument, within three of its teaching levels, Basic Level, Upper Intermediate Level and Higher Level.

It is well known that traditionally music teaching has been based on a method of imitation by reproducing what the teacher shows, in order to achieve the necessary skills for the execution of a musical instrument, well, the trombone class at the UAAUAZ does not differ from the above.

The state of Zacatecas is characterised by its cultural richness and more specifically in music, where proof of this are the famous callejoneadas, which are accompanied by the traditional Zacatecan tamborazo and obviously mezcal, the tours of this tradition generally have a duration of two hours and sometimes this type of event is accompanied by Sinaloan type bands.

The trombone class at the UAAUAZ is mainly made up of young people who come from these types of musical groups and also from military bands, who are looking to improve their playing of the instrument.

Among the needs that the future graduates of the trombone degree wish to cover are the development of technical aspects of the instrument and the desire to increase the level of interpretation for an early insertion in the labour market.

The aforementioned unit provides service not only to individuals from the municipal capital of the state, but also incorporates students from other municipalities in the state, its surroundings and from all over Mexico, where the labour market requires instrumentalists with a good level and great versatility to interpret the great variety of musical genres that make up the musical culture of the country.

Traditionally, the teaching of the trombone worldwide and at the Academic Unit of Arts of the UAZ has been developed under a formal and presential educational model supported by methods of reproduction and imitation.

Under this approach, the aim is for the future performer to develop the objectives set out in the programme and to acquire an adequate technique in order to look after his or her health and to evolve as a professional.

Technique is the development of specific abilities that allow the musician to master all the possibilities offered by the instrument, these possibilities can be seen in the literature that composers have bequeathed over time through repertoires that continue to increase, as well as the mastery of skills in handling the instrument. (Junta de Andalucía, s.f., p. 6).

For the development of the instrument's technique, its execution and interpretation, it is necessary to master four main parameters, which benefit in obtaining an optimum level as trombonists, these are: flexibility, articulation, intonation and sound.

The first of the parameters mentioned, flexibility, can be translated as the work that the air must do when passing through the different harmonics where the lips present the least possible tension or, failing that, almost without forcing them; carrying out flexibility exercises allows one to fix the adequate amount of air and lip tension for each note and register.

In the words of Schlossberg (1992), a basic principle that needs to be implemented in the practice of a flexibility exercise is that of minimum muscular effort, maximum air; each harmonic needs a different amount of air and a different state of muscular relaxation that will always be the least tense possible.

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Articulation is the action of articulating several syllables with the tongue when playing the trombone, for example: ta, te, ti, to, tu, da, de di, do, du, among others; according to Kleinhammer and Yeo (2012) when articulating, the aim is to make it as smooth as possible, always focusing on the vowel and not the consonant.

For its part, the work of tuning is based on the ability to listen to the subtle differences between two sounds, which as practice becomes easier to demonstrate; listening to the sounds will allow the instrumentalist to realise when the trombone is in tune, Pagan-Perez (2012) explains that the practice of tuning the instrument every day with an external source of sound will help to improve the ear which will result in it being easier to play in tune.

Finally, to produce a quality sound, a deep outward breath is required, Valdés (2013) explains, for which the window must be maintained without cutting off air production; this air should be warm for the low register and cold for the high register.

One element to which special attention must be paid is breathing, which is the foundation not only of trombone playing but of all wind instruments, and must be deep and very relaxed.

The process of achieving controlled breathing is influenced by many factors such as the position of the mouthpiece on the lips, the way of inhaling and exhaling and mainly by body organs such as the diaphragm and the lungs; good breath control can guarantee the note the student intends to play.

Another aspect that should always be under great care when studying the trombone is the body posture of the instrumentalist, it is of vital importance that it is taken into account in the teaching from a very early age.

A bad posture can not only affect the interpretative performance, but can also lead to a greater expenditure of energy due to increased muscular work and even affect the health of the player.

It is a fact that the return to postcovid face-to-face educational activities and the mainly economic needs of Mexican families due to the health situation have reduced the number of students in the music degree with emphasis on trombone, even causing the desertion of students who were in the UAAUAZ programme.

A possible solution is to adapt the instructional design (ID) of the course to include Educational Technology (ET), which will favour the application of a distance learning educational modality where students will be able to face the situations that cause absenteeism and therefore lead them to drop out of the course without having reached the goal of a level as instrumentalists that will allow them a quick insertion in the labour market within groups such as chamber orchestras, symphony orchestras, musical ensembles, tamborazos, bands, etc.

When talking about educational modality, Barroso (2006) considers it as the way in which an educational product is presented, which is made up of administrative processes, planning of didactic and learning strategies.

Naturally, the technological advances that are evident today have been modifying the educational models that have traditionally been developed in educational centres; however, for several years now, a significant group of universities and schools have been adopting the new models that have been created with the influence of ICT, and one of the aspects, among many, that have highlighted the pandemic in the educational sector is the need for all centres to continue the development and use of distance education models such as b-learning and e-learning.

Distance education or training is a current possibility and many institutions are seeking to provide this service in addition to face-to-face training; this undoubtedly allows access to multiple users who demand training. The new communication and information platforms offer advantages for educational institutions to enhance their reach and provide educational coverage to interested populations (Ocampo, Gómez, & Zambrano, 2015, p. 3).

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The educational model proposed for the delivery of classes is a mixed educational model, which presents a part of the programme is developed face-to-face, while the other can be carried out with distance activities, Barroso (2006) states that this model is a mixture between the face-to-face models, where technology can be used for certain activities without modifying its original operating structure, and the distance model (e-learning) where technology is the one that governs the teaching-learning process.

Therefore, the performer's performance is mainly assessed in a face-to-face manner to address parameters that require immediate correction and in some cases even physical contact.

Breathing instruments have the particularity that an important part of their execution and technique is performed inside the body, where it is impossible to have a visual reference, and for these characteristics, the explanations and examples of the teacher are more effective through direct and face-to-face contact. However, it is also possible to work on other aspects of performance that depend on the vision and hearing of both the student and the teacher, where technological and computer tools offer sufficient quality and certainty to be developed virtually.

These virtual activities allow for great dynamism as they can be carried out synchronously and asynchronously, for example, lessons and exercises can be provided to students through video tutorials and podcasts that will also serve as a didactic repository that will always be available for consultation.

In the b-learning model, the selection and discrimination of appropriate media that respond to the educational need is inevitable. This model offers greater flexibility where the learner can learn at his or her own pace and in a more dynamic way, positively influencing the result.

For their part, Núñez-Barriopedro, Monclúz and Ravina-Ripoll (2019) mention among the advantages of blended-learning the availability of content and information that can be shown to the learner, which can be easily updated, the promotion of the autonomy of the learner, who is largely responsible for their learning, the creation and transmission of information and synchronous and asynchronous communication between teacher and student.

All of the above must be planned by means of an Instructional Design that will allow the establishment of objectives, methodology, tools and means of instruction under which the teaching-learning process will be ensured.

The ID is the work on the table before the implementation of a course, so it is considered essential to be able to carry out the implementation of the latter.

In the words of Dick, Carey and Carey (2001) cited in De la Torre and Sosa (2018) instructional design is "the systematic method to analyse, design, develop, evaluate and manage the teaching process efficiently, based on knowledge and experiences of learning and teaching theories" (p. 5).

It is no less true that DI helps in the planning of the course and points the way to take during the implementation of the course, always having the learner and the ways of teaching as the main focus.

It is recognised that there are several models of Instructional Design, however, due to their characteristics there are two that are proposed as preferential, the ASSURE model and the ADDIE model.

The ASSURE design (Analyze learners, State Objectives, Select media and materials, Utilize media and materials, Require learner participation & Evaluate and revise) favours locating and discovering the characteristics of the learners who will be the centre of the whole process, once these characteristics have been determined, it allows establishing the objectives of the subject, selecting the materials and resources to be used for the teaching process, making use of these materials and resources, requiring the participation of the learners and finally evaluating.

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This final stage is carried out in two ways, one where the knowledge and skills acquired during the teaching-learning process are evaluated and the other where the evaluation of the process itself is carried out, which allows the adaptation and/or modification of some of the elements that are presented in the design and during the implementation of the course. This evaluation of the process is carried out by the students and in the form of self-evaluation by the teacher, and it is necessary to be as objective as possible in order to seek to improve the process itself in subsequent semesters.

The ADDIE model (Analysis, Design, Development, Implementation & Evaluation) is an interactive model. It is characterised by the fact that the results of the formative evaluation of each of its moments enable its designer to go back to a previous step; consequently, the end of one period is the beginning of the next one.

It was considered under the conception that each phase is applied and in turn evolves through the others until the desired objective is achieved, the resources and materials of the instruction are obtained through the application of its phases.

These models are flexible and have a great capacity for adaptation, which favours their reuse in correspondence with the characteristics of the assumed approach, which in this case proposes a constructivist approach as it takes the student as the central axis, its characteristics and flexibility of learning, the instruction from the construction and the experience that the student develops.

The planning of DI, with the use of either of its two models, will allow for the development of a balance between the classroom sessions, i.e. face-to-face, and the activities that the learner can develop in a self-taught way with the use of technology.

An important part of this whole process is the use of Educational Technology, which González and Flores (2020) define as the complex that encompasses communication media and didactic and teaching methods used in education in order to provide elements of useful practices in the teaching-learning process.

The implementation of the exercises and practice to strengthen the basic parameters within the technical study of the trombone are proposed to be introduced and explained during the face-to-face meeting in the classroom, so that later during the rehearsal process, individually and making use of technology, they can be carried out and/or revised online, which will favour progress in academic performance; It is worth remembering that in this educational modality, the responsibility for learning lies mainly on the shoulders of the student, so that discipline and seriousness during daily practice at home are of great importance in the achievement of interpretative competences.

It should be noted that the technological tools with which it is proposed to work virtually are what we know as free software or free licence software; they do not necessarily have to be paid for, however, if you have the resources to acquire one or more technological tools, you are welcome to do so. The study of the basic exercises such as articulation, sound and tuning is very important to maintain the concentration and focus of each of the parameters, as well as, that the student does not have the slightest doubt about how, why and for what he is going to study, that is to say, that there are no gaps in the study of any of the basic parameters.

Before starting any study, it is essential to explain to the student everything relevant to the position of the instrument and its consequences if it is done in the wrong way, and for this it will be necessary to explain it first during the classroom.

At the beginning, the two ways of playing the instrument, standing or sitting, are explained. When playing standing, it is necessary to ensure that the shoulders are well relaxed and the spine is straight, which can be done by positioning the student close to the wall with his head up and then taking a step forward without leaving the posture, when playing in a seated position, it is recommended that they sit in the middle of the chair, never leaning back against the back of the seat, with their feet at an angle of approximately ninety to ninety-five degrees and keeping their face straight in front of them; in both positions the trombone will be supported on the left shoulder and forearm and it is good to place a grapefruit between the chin and the spine, or alternatively it can be the fist, and without tensing the muscles try not to throw the citrus fruit while playing.

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For the development of the praxis at home, it is proposed to use the following resources that will provide knowledge and advice in the self-taught work.

A first useful tip is that the student tries to study where there is a mirror, this will allow them to correct themselves and compare their posture with respect to the work done in the classroom session and with the materials that the teacher will provide; in the event of not being able to have a mirror, they can also use a mobile phone and record every moment of the practice to later rectify and/or correct bad habits.

The first resource proposed is to make a short presentation on the benefits of having a correct posture and the disadvantages of the bad habits that can be acquired by not paying due attention to this; this helps the learner to become aware of the benefits in terms of health and quality of this aspect.

Another resource that can be used is the creation of a didactic and tutorial video where the correct posture on the instrument is explained and exemplified; during this video, whose duration is suggested to be no more than five minutes, the teacher, while explaining the exercise, demonstrates the correct poses and how to achieve them, this will allow both those students with a visual learning style and those with auditory and kinaesthetic learning styles to activate the most conscious way of acquiring knowledge.

It is worth noting that this work will be constant and daily, as good habits must always stand out, and on this occasion the correction and suggestions that the teacher must make, as well as the progress of the student, can be reflected in activities that will be developed according to the basic parameters.

Another very important section is the warm-up exercises that will help us to perform better on our instrument; one recommendation is to carry out the activities developed by the musicians Sheridan and Pilafian (2008) in their book The brass gym, the introduction of these exercises must first be carried out under the supervision of the teacher, so it is recommended that they be done in the classroom and in person until they are mastered.

These exercises develop the internal spine, expand the lung capacity and the diaphragm through exercises that should always be performed as a warm-up before the instrumental practice, so that the blood at rest begins to circulate and prepare the heart rate to begin the study routine.

Another warm-up exercise that can be performed is that of placing the hand in a vertical position and with the palm facing to one side, if it is the right hand it will face to the left and if it is the left hand it will face to the right, place the hand in front of the mouth at the height of the index finger, precisely in the bone that joins the palm, in the mouth which should have an O shape and inhale deeply and without tensing any muscle, trying to fill the lungs as much as possible, and then let all the air out.

If this exercise is done correctly, an expansion of the entire rib cage can be observed when air is taken in to fill the lungs and while inhaling, a sound of absorption will be emitted, while if it is not done correctly, nothing will be heard and it will be evident that only the shoulders will be lifted, since only the upper part of the lungs will be filled.

Once again, it is suggested to work in front of the mirror, a resource that will be of vital importance during each and every moment of study, or, failing that, self-recordings with the mobile phone.

Similarly, video can be used as the main didactic resource for the tutorial, where the learner can have a guide and/or reference on how to work.

In addition, it is recommended that the practice incorporates the use of the metronome which will allow the duration of each of the parts of the exercise, for example: metronome speed sixty BPM (Beats Per Minute) and that the inhalation lasts four beats and the exhalation another four, giving control over the breathing.

As an activity, a video of the exercise can be requested to provide feedback.

This exercise can have a variation, where air retention is added between the moment of breathing in and the moment of breathing out.

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Once the necessary warm-up exercises have been completed, work can begin on the basic execution parameters.

Within the articulation parameter, the different types of articulation according to the register are explained. It should be noted that this session is face-to-face and begins with the following syllables: for the low register, Tho is pronounced, for the middle register, thu, and for the high register, the syllable thi is used. It is suggested to study the exercise with a metronome, starting with rhythmic figures of quarter notes at 80 bpm in 4/4 time signature and decreasing the speed five by five bpm until it reaches 60 bpm and then returning to the initial value and increasing it five by five until it reaches 120 bpm. The low register begins with the low B flat scale and descends its seven positions from B flat to E low. In the same way the low register (tho) is studied. For the middle register the suggestion is from the B flat to the E (thu). And finally the D to G sharp (thi).

This exercise will be worked on virtually with various resources, one of them is presented as a video tutorial where the teacher explains and explains what should be done, another that can be suggested is to record a podcast where the teacher executes the activity as an example, the audio made by the teacher can also serve as a means of evaluation and self-evaluation of the student by asking him to make a video recording where at first the audio provided by the teacher is heard and then the student is asked to do the activity alone; The video recording made by the learner should be uploaded to a YouTube channel where it will serve as a repository of evidence for possible clarifications and doubts, this is of course a suggestion, however, it is an excellent proposal.

It should be noted that only permissions will be allowed for the teacher to review the progress of the student to avoid possible conflicts on the network, another option is the peer review resource where peers of the learner in question participate in the feedback, for this technological tools such as the LMS-Moodle workshop activity are suggested.

The tuning parameter can be approached in different ways; firstly, it is a task that must be carried out in conjunction with the Solfège subject, so the work criteria must be unified and coherent, and we will not go into this aspect in detail for the moment. For its part, within the instrument class in the classroom, it is recommended that a piano or keyboard can be used and the reproduction of diatonic scales where the guide of the teacher can rectify the tuning by adjusting how much air should be used or the position of the stick, which allows the ear of the future trombonist to be educated.

From the virtual world, the use of the Ear Master software is recommended, in principle this was created for the practice of auditory training, but in an instrument such as the trombone it allows the student to work on tuning through the reproduction of sounds; this software provides the student with a musical note with a duration and then asks him to play it while recording an audio within the same programme, which processes the information and if the performance is correct it moves on to the next, if it is deficient it emits the sound of the note so that the student can identify his error and imitate the sound as accurately as possible.

Another resource that can be used are digital tuners, which will provide the student with a sound reference of the notes to play and thus be able to rectify the interpretation; there are applications and websites that provide this service free of charge.

The interpretation of scales, as mentioned above, can be a very important reference within this parameter, so as an assessment, the student can be asked to record short videos and audios that will later be sent to the teacher, who will provide feedback.

The next basic parameter is the sound and the suggestion is to make them, supported by the metronome, in a slow tempo of 60 bpm and focus on the round, warm and in tune sound. An important recommendation that can be included is to use the flater or flurulato as it is also known, this will allow us a better sonorisation and amplitude of sound, as well as the improvement of the centre of each of the notes. The use of the low and middle register sticks is also recommended.

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The exercises for sound work can be carried out both in person and virtually, the latter being supported mainly by tutorial and performance videos made by the teacher, as well as audios that will serve as examples for student practice. The use of the metronome is once again required, as well as careful tuning. For the evaluation of the results and feedback, the student can be asked to make video and audio recordings which will be sent to the teacher as well as to the students' peers who will be able to give constructive criticism.

To work on flexibility, resources such as the digital metronome will be used again and it is recommended to start at a tempo of 80 bpm and gradually decrease the metronome measure five by five, this is to equalise the cleanliness of the interval in the exercise, the objective would be to reach 60 bpm and then return to 80 bpm and go up five by five until the objective is reached, which would be 120 bpm. The exercise can start with the F scale and its following harmonic which is B flat. You can start in eighth notes and then do it in sixteenth notes all in 4/4 time signature.

Once again, this exercise can be carried out in the classroom and also virtually, where once again the main technological resources will be videos and audios, applying the same principle as in the didactic work on the parameter explained above.

Although the order in which the work of the parameters is presented in this document has been governed by one of the study routines that are put into practice in the trombone class of the Academic Unit of Arts of the UAZ, this may vary for each class session.

During the implementation of the course, constant evaluation is necessary either through the activities that can be integrated into the virtual and also in the classroom, through the application of exams where the future trombonist demonstrates the interpretative skills acquired during the semester.

The evaluation of the course and its development will also be carried out by the students and teachers outside the class, which will allow the contents, materials and resources used to be modified and/or adapted for a better performance, always having the students as the focus.

Conclusions

This article is a suggestion of what can be worked on in a trombone class, taking into account some of the learning theories such as constructivism.

The teaching-learning process in music, especially in an instrument class, is constantly changing, which is why the teacher and/or instructor must be constantly updating.

Technological resources and/or Tics are currently of great support for the teaching-learning process and we must continue to make use of them in favour of music education.

Each of the parameters presented, as well as the recommendations and/or suggestions have been previously reviewed for their implementation, development, evolution, evaluation and praxis for an adaptation of the programme within the UAA-UAZ to the b-learning modality.

It is necessary to continue implementing the hybrid modality for the development of the students within the teaching-learning process as it demonstrated within the trombone course a better development in its formative process. Continuing with the commitment to updating the teaching staff.

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The continuity of the traditional teaching of jipijapa weaving in the town of Becal, Campeche

La continuidad de la enseñanza tradicional del tejido jipijapa en la localidad de Becal, Campeche

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Abstract

This research considers everything related to the workshops that provide teaching of jipijapa weaving in the town of Becal, Campeche. Its objective is to identify the causes of change in the continuity in the teaching of jipijapa weaving in the town of Becal, Campeche. The method is descriptive with a qualitative approach. To obtain the information, interviews were carried out with the different managers of the workshops who, due to their experience in being master craftsmen, they provided objective and clear data to achieve a complete analysis. Four of the five participants expressed that the process of teaching the weaving of the jipijapa palm begins with the desire to expand the culture.

Workshops, Continuity, Participants, Crafts, Jipijapa

Resumen

En esta investigación se considera todo lo relacionado a los talleres que brindan enseñanza del tejido de jipijapa en la localidad de Becal, Campeche. Tiene como objetivo Identificar las causas de cambio en la continuidad en la enseñanza del tejido jipijapa en la localidad de Becal, Campeche. El método es descriptivo con un enfoque cualitativo. Para la obtención de la información se llevó a cabo entrevistas a los diferentes encargados de los talleres quienes, por su experiencia en ser maestros artesanos, proporcionaron datos objetivos y claros para lograr un análisis completo. Cuatro de los Cinco participantes expresaron que el proceso de enseñanza del tejido de la palma jipijapa inicia por querer expandir la cultura.

Talleres, Continuidad, Participantes, Artesanía, Jipijapa

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Introduction

Everyone can see that teaching has never been an easy task. Social and cultural changes and technological advances have had an impact on different levels, both institutional and individual (Alliaud, 2014). Preserving a trade, an activity, some knowledge is a great commitment for people and translating it into a legacy is even greater.

In the State of Campeche, one of the localities with traditions is Becal, which belongs to the municipality of Calkini. At Becal, great value is shown for its made products, especially those made by hand. Their culture remains shaped by the knowledge and characteristic features that are distinguished before society.

Tradition is equivalent to the concept of culture, which focuses on the narrative and psychological force that tradition contributes to cultural memory and the projection of identifications that reveals the symbolic power of the past and of ancestors as a powerful institution capable of delimiting in the present the calls, conventionally, "identity and otherness". Hence, its key role in identity processes that always transition between permanence (cultural preservation) and transformation (break with the past). Tradition must be articulated in a comprehensive and integrating manner and transit between continuity and change, between permanence and transformation.(Duch, 2010).

Historically, Becal is a land of culture and tradition in artisans. Since ancient times they have embodied their art, their ideology, their customs and identity in different materials. The crafts are traditional pottery, works with processed clays and synthetic fixatives; wood work, hand-embroidered textiles, crafts with natural fibers such as jipi, henequen and palms. In this town, handicrafts made with jipi predominate, in which the hat is the most outstanding before the others, made in places like caves by artisans from the same town.

The artisan of the State of Campeche is committed to his trade and promotes culture through his craft activity. In this work we can define him as a person who exercises a creative activity manually with his knowledge and technical skills, as well as artistic skills that produce unique objects.

Becoming a weaver involves a long process that begins in childhood and involves adapting to the humid and dark space of the cave. Long ago, weavers organized with members of their households in a similar way: parents wove a hat a day in the cave with the help of their children and supplemented their income with other activities, such as products from the milpa and the solar. However, some changes have occurred over time. With the agrarian reform of 1937, the inhabitants of the old henequen area organized themselves into ejidos and obtained the right to work their land.(Moßbrucke, 2001). From then on, a self-subsistence peasant economy began with which agricultural products were destined for the consumption of household members. These households produced almost everything they needed "through cottage industries and crafts"(Arizpe, 1989). The craft production was structured in family groups, this trade was learned daily in order to contribute financially to the home. The apprentices assumed the responsibility of learning the trade from their parents and then preserving the craft activity.

The artisans and the families of the artisans are characterized by a trajectory of the domestic life cycle of the traditional type. Obviously, their domestic units receive the impact of global phenomena such as migration, but what ensures the continuity of the craft activity are precisely the traditional arrangements between the members of the domestic unit. The distribution of productive and reproductive tasks varies according to the number of members, age, gender and kinship. Most minors, whether boys or girls, in addition to studying, support their parents in handicrafts (Aranda, 1990).

Gradually, the initial logic of producing handicrafts was transformed without this implying the loss of everything “traditional” intertwined in the activity. Some aspects of the production ceased to be "traditional" in order to adapt to the demands of consumers. Handicrafts ceased to represent only a cultural value for the majority of those who manufactured them. On many occasions, use value “has given way to utilitarian products and westernized ways of dressing; Handicrafts are produced mainly for the market, and not for personal or domestic use.

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In these scenarios, in a certain way, handicrafts have been commodified to the point of losing much of their identity and cultural significance among those who produce them (Quintana, 2001).

It is decided to analyze the situation of Becal, due to the high recognition it has had over time. The artisan families have enriched themselves with culture in artisan production and have achieved greater recognition in the continuity of this trade. For this reason it is important and crucial for them to continue showing the value that traditional activity has despite time.

Justification

Handicrafts represent part of the cultural tradition of a people. It is the representative identity that is passed down through generations, which should not lose value in the teaching of its production. Becal, Campeche is a town enriched by handicrafts and the monitoring of their elaboration by the people of the same place, however, there has been a low promotion in the continuity of the traditional teaching of jipijapa weaving, as well as a minority in workshops that They teach learning courses to the current public. That is why it is relevant to know the different social, economic and governmental changes that artisanal production has faced and the continuity of this culture.

In order to recognize these changes, it is important to obtain in-depth information provided by local people, who are still teaching these crafts. As well as establishing objective sources that provide us with exact information on what has currently been transformed into its artisan production and continuity in artisan teaching/learning.

The reason for carrying out these studies and delving into the process of change that these people have led, is because the town of Becal is enriched and distinguished by the jipijapa weaving, which should not be devalued, since this trade has given the families economic sources of work for the growth of commercialization, and by not continuing to promote it, this distinction is lost in the region.

The importance of promoting traditional culture through teaching is to continue with the interest in learning in people and thus gain greater recognition in culture and tradition that remains in the locality.

General objective

Identify the causes of change in the continuity in the teaching of jipijapa weaving in the town of Becal, Campeche.

Theoretical framework

Crafts

To think of the natural wealth used to make handicrafts is to think of a variety of woods, fibers, skins, resins, etc., an enormous diversity of materials used in the manufacture of popular art (Mexican Biodiversity 2022). This highlights the large number of shapes and objects from these different materials from which they are made.

Crafts are created as a product, lasting or ephemeral, whose original function is determined by the social aspect and culture. It is framed in different uses and approaches, such as ceremonial, artistic, domestic, religious, etc.

Crafts are defined as an object of community cultural identity, made by continuous manual processes, aided by rudimentary implements and some with a mechanical function that lighten the tasks. (National Fund for the Promotion of Crafts of Mexico [FONART], 2015)

Crafts can also be defined as a product created from manual work or with the help of simple tools or machines (Artisans Fair, 2022).

Within the categories established by FONART (2015) are the use of vegetable fibers, here are palms, vines, among others. That gave rise to the use of natural resources in the environment.

One of the surprising aspects of this work is its easy adaptation to the life of each generation, which depends more on the skill of the weaver and his knowledge of the material than on his strength (FONART, 2015).

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García Canclini 1989 cited in Suarez, (2013) has argued that the new generations of artisans have developed new learning that allow integration into modernity, achieving links between the traditional and the modern.

Endogenous development

In local aspects it is detected that it has its own productive structure, local forms of work, natural resources and infrastructure created with the social and political conditions that at the time influenced its formation.

Endogenous development is a set of characteristics that allow it to have a local configuration that includes capital accumulation processes typical of localities and territories (Pérez and Carrillo, 2000). This development occurs thanks to the use of local economic potential favored by the institutions and regulatory mechanisms in each place.

The form of social and productive organization together with family structures, traditions, culture and social structure condition local development processes and influence endogenous development.

It is important to highlight that local initiatives together with their own and local environment stimulate productive conditions and favor sustainable development. By being characterized as random and uncertainty, they allow a more realistic explanation of this endogenous development process (Zarate and Artesi, 2007).

Education and teaching

Education is a fundamental element for knowledge to pass from one generation to another, as expressed by López (1978). The types of teaching have an operative and basic constitution in the family environment and society, as in the program, its structure and methods and It consists of a basic structure where the teaching takes place, that is, the center or place, its administration, and the actor, the teacher, group, or student.

The origin of education comes from two etymologies, educare, which means to feed or fill with knowledge, and educere, which corresponds to the student's ability to enhance their learning; Teaching, originating from the Latin insignare, that is, "to point towards", "to guide towards", understands that the teacher becomes a guide in this process, a counselor who can lead students towards wisdom (Renés, 2018).

On the other hand, there are different forms of teaching which have a relationship approach between the teacher and the student, among which are considered directed research, learning by discovery, Learning by inquiry, among others. From a positivist approach, scientific knowledge is a set of logical derivations and empirical contrasts, in which the main thing is internal coherence and the correspondence of autonomous formal constructions with the progress and characteristics of real events (Torres, 2010).

The concept of learning style starts from the undeniable fact that we are different (Rojas et al. 2006), both in age and in culture and way of looking at the world. It is a way of doing learning tasks.

The holistic vision of the learning style elaborated by Keefe and Languis (1983), which classifies the learning style in the cognitive, affective and physiological/environmental domains, mentions that it is a compound of cognitive, affective and physiological characteristic factors that serve as indicators. relatively stable patterns of how the learner perceives, interacts with, and responds to his environment (Rojas et al. 2006). There is a mental effort that is later transferred to an aspect of recognition and affection that gives rise to a formation with cultural identity.

Teaching has been transformed depending on the historical and social moment. Depending on social structures, teaching has gone from being considered passive to becoming an active process.

González, Fernández and Martínez (2022) conclude in relation to the teaching of Law that it is necessary to abandon traditional methods to make way for dynamic and interactive models focused on legal constructivism.

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Method

Kind of investigation

There is a descriptive investigation, where reference is made to the artisans of the town of Becal, who continue with the teaching of Jipijapa weaving.

Design of the investigation

It is of a non-experimental type since an experiment was not carried out in this work, and it is also cross-sectional since the information is collected through a survey in a single moment (Hernández et al 2014).

Population

The selected population is made up of artisans who have a workshop in the town of Becal, in the State of Campeche, who continue to teach Jipijapa weaving.

Sample

In this study, the total population of existing artisan workshops in the town of Becal was selected. This population is made up of a total of 5 workshops.

Instrument

The instrument that was used in the investigation consists of a questionnaire that contains open questions.

Instrument Features

The instrument consists of 23 open questions, which includes the name of the craftsman, interest in teaching jipi weaving, to whom the course is directed, among other questions.

Results

The surveys were carried out in five public workshops that teach a course on jipijapa palm crafts (table 1).

Workshop number	Owner occupation
Workshop 1	Craftswoman and Trader
workshop 2	Craftswoman and Trader
Workshop 3	Craftsman and Trader
workshop 4	Craftswoman
workshop 5	Craftswoman and Trader

Table 1 Jipijapa workshop that offers courses in the town of Becal
Source: Own elaboration

Workshop 4 is dedicated solely to teaching Jipijapa weaving courses. The others began to personally make their own handicrafts and began to sell them, with this they began to commercialize to the point of having their own business. Women are the ones who show the greatest interest in it, since they are the majority who continue to promote production and teaching in the locality. In the same way, they are the ones who deal with domestic activities, which has a growing impact on families.

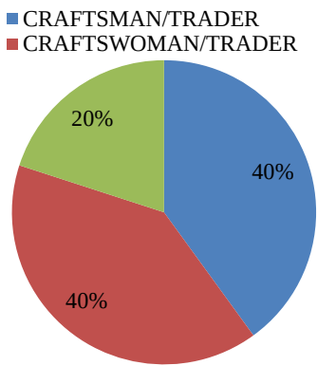

Figure 1 Occupation of artisans
Source: Own elaboration

Experience as a master craftsman

Now, the exclusive questions about the courses that they implement in the artisan workshops are the following:

Most began to start teaching due to family inheritance, since Becal is a place where artisan families predominate and continue teaching this trade from a young age, adapting to the culture and tradition. Two workshops began to want to expand the culture and not lose the identity of its heritage, that is when the learning workshops were created to achieve a better recognition of the culture and tradition of making Jipi Japa fabric.

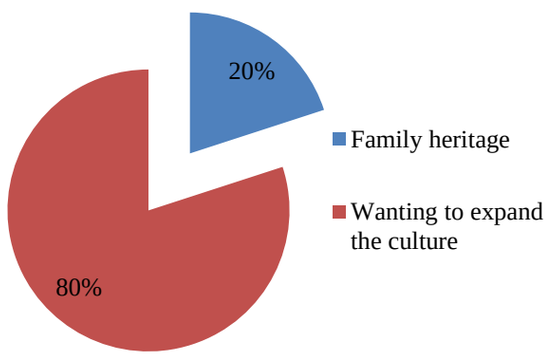

Figure 2 Interest in teaching jipijapa weaving
Source: Own elaboration

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The personal interest of the artisans who continue with the teaching, do it without any remuneration of any scope, they themselves are in charge of having the raw material, the place and giving the courses, otherwise those that are paid by the government, are the who maintain a bonus for being in charge of the caves and giving the courses to interested people, the artisans who have a fee per student, in this, specifically each person interested in learning gives a bonus in the form of money, with this they are supported to the obtaining of raw material and the service in showing their knowledge in the teaching of these crafts.

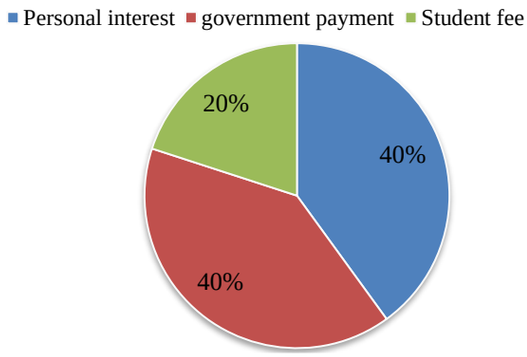

Figure 3 Economic means for teaching jipijapa weaving
Source: Own elaboration

Workshops 3 and 4 handle their material to teach the courses, requiring each student to bring their raw material. In workshop 1 they provide it in the same course. In workshop 5 he has suppliers that provide it and in workshop 2, they suggest the support of the H. Ayuntamiento. The artisans mostly prefer that the people who want to take the workshops bring their raw material to be able to learn, since they do not make extra sources to bring the raw material to each person, which would affect them economically, which they mention that, if the person has the interest to learn, each of the participants must acquire the material for their learning.

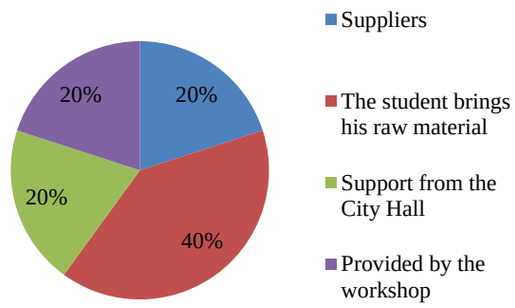

Figure 4 Source of raw material for teaching jipijapa weaving
Source: Own elaboration

The workshops 1,4 and carry out the workshop-courses for the general public, this in order that everyone can obtain the learning opportunity to any of the courses, which in the same way will also help beginners, having mutual support among all. Workshops 2 and 3 only teach beginners who are still beginning to learn the weave, this in order to pay more attention to them and to advance more quickly, until they can be in courses for the general public and adapt.

Most opt for 10-30 students, and when asked specifically, they mentioned 20 students, which falls within that range. This number of students is for the purpose of not having too few or crowding them, in order to be able to pay more individual attention to each one. In the same way they adapt it to the place of space. Regarding the current COVID-19 pandemic, they opted for that number because they have to keep a distance between people, for better health care between them. In the range of 1-10 students, only two workshops are chosen, adapting to their work space, some caves are small and cannot exceed the number of people.

Workshops 2 and 4 implement their courses once a year, this is because they have a business and they are personal managers, which does not give them enough time to teach as many times as they would like.

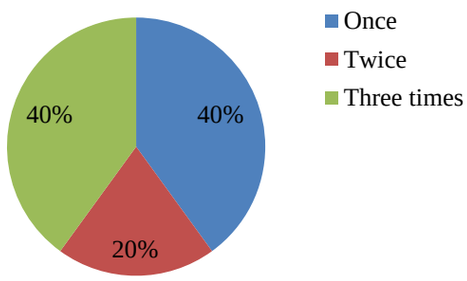

Figure 5 Frequency of teaching jipijapa weaving
Source: Own elaboration

Three of the workshops teach it collectively and they mentioned that they are from 2 to 4, so that they can have better collaboration and attention to everyone who is participating. The two people teaching it on their own didn't have many students, which achieves more focused attention for everyone, yet they didn't ask for help because they felt more comfortable teaching on their own.

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Learning interest

Workshops 1 and 5 mention that, from 5 to 15 years old, mostly children, they are the ones who show the greatest curiosity in learning these crafts, since family heritage is one of the traditions in learning Jipijapa weaving in the locality. In workshops 3 and 4, any age range visits the courses, from children, adolescents and adults, and in workshop 2 only adults who enter the courses show interest in order to learn more about it and to be able to make their own garments.

The purpose of all this is to find a way for all people to be interested in learning how to make these crafts, so that they appreciate and value the great job of continuing to promote the culture of the town.

Discussion

The importance that the craft represents for the culture and the inhabitants of the localities of the state of Campeche is of great value, both economic and cultural identity, in this work there is a good acceptance on the part of the population that the teaching is given especially in the youngest to continue working in the traditional way. Other studies such as Dussan et al (2018) conclude that there is a change in students when they are involved in learning and making crafts since they maintain traditions and customs. For his part, Vega (2012) concludes that the historical content of the communities must be integrated into the curricula of official schools.

This paper seeks to identify the importance that jipijapa crafts represent for the town of Becal, Campeche and how conservation and manufacturing mechanisms are established through in situ workshops. Here it is found that these workshops contribute to a know-how, as Calmotti, 2020 concludes in his research.

The workshops were asked about the participants who take the workshops and they mentioned that most of the people who attend the courses do it for fun but most are dedicated to another activity. This activity is related to the production and sale of garments.

Conclusion

Throughout the Yucatan Peninsula, in the country and internationally, the town of Becal is recognized for being a region with artisan families that have impacted the culture and tradition in the production, marketing, distribution and teaching of jipijapa handicrafts that predominate in this place. Since the artisanal activity of the jipijapa weaving began, some changes have occurred in the artisans, families and workshops that teach the teaching that are located in the town where the present investigation was carried out.

All the artisans interviewed were very kind to answer each question and mentioned how the COVID-19 pandemic has affected all of them in general, since their sales in their stores dropped and they could no longer support the workshops with their own merits.

Most of the shops and workshops are run by artisan families, therefore, from an early age they begin to learn about the traditions of the town, and the culture that identifies them, as well as the enormous importance that people have internationally. From an early age they develop the curiosity of wanting to learn how to make these handicrafts, therefore, this knowledge is inherited, preparing them so that in the future they can have a good economic livelihood and manage to have their own business; this is how they become artisans.

The courses they teach are mostly for the general public, outside and inside the town, with a duration of 1 to 3 months, 1 to 2 times a year, with 10 to 20 students per course. They do it personally, however, the H. Ayuntamiento is planning a workshop that the teacher there is benefited from with financial support.

The workshops are an important part of the town, since it is the source that achieves continuity in learning the crafts of jipijapa weaving. Among the data analyzed, people in general are interested in knowing and learning all types of garments, therefore, promoting teaching will allow more workshops to open and adapt to the changes that have occurred. And thus increase the interest in the people of the locality and outside of them, also making the shops continue to grow and the caves have a greater number of visits.

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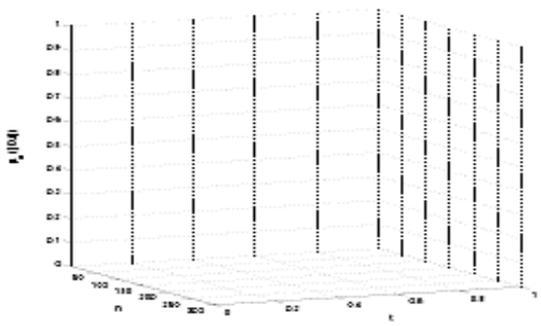

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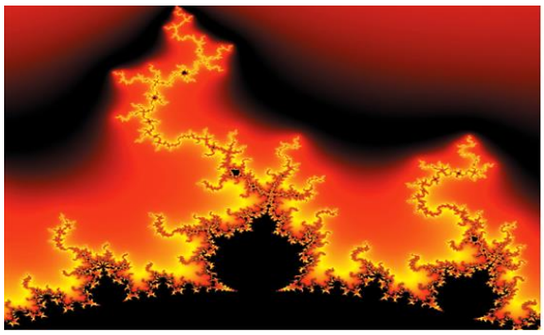

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