

Handbook T-XVII

CIERMMI Women in Science

Social Sciences and Humanities

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Handbooks

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ECORFAN CIERMMI Women in Science

Volume XVII

The Handbook will offer volumes of selected contributions from researchers who contribute to the scientific dissemination activity of the Colegio de Ingenieros en Energías Renovables de Querétaro A.C. in their areas of research in Social Sciences and Humanities. In addition to having a total evaluation, in the hands of the directors of the Colegio de Ingenieros en Energías Renovables de Querétaro A.C., the quality and timeliness of its chapters, each individual contribution was refereed to international standards (RESEARCH GATE, MENDELEY, GOOGLE SCHOLAR and REDIB), the Handbook thus proposes to the academic community, recent reports on new developments in the most interesting and promising areas of research in the Science and Technology.

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Prologue

In the last years derived from the pandemic (COVID-19), the behavior of the human being changed, no matter where in the world we were located, no matter where in the world we were located, socially we found ourselves in the need to transform our habits, beliefs, styles, ways of doing things and socially we saw the need to transform our habits, beliefs, styles, ways of doing things, etc., we definitely evolved, we definitely evolved.

From the above situation, the concern of sharing knowledge with a greater awareness, multiplying the good practices of awareness, multiplying the good practices of professional women and men who, based on their experience, have developed experience, have developed techniques and executed methodologies that allow us to have an x-ray of the to have an x-ray of the environment and thus offer sustainable alternatives for the care of the environment and humanity in general of the environment and humanity in general.

We have a great challenge in sensitizing society, to make adequate and constant use of new technologies, which are of new technologies, which will allow us to grow in cultural, environmental, economic, and other cultural, environmental and economic issues, among others. Let us continue to develop research projects and join forces, I am grateful for the opportunity to join this forum and learn from women committed to science my admiration and respect to each one of them, thank you CIERMMI 2022.

*ALVAREZ ORTEGA – Annel Angelia
Universidad Tecnológica de San Juan del Río*

Introduction

The Colegio de Ingenieros en Energías Renovables de Querétaro A.C (CIER-QUERÉTARO), and its chapters of Renewable Energy, Industrial Maintenance, Mechatronics and Computer Science, technical sponsors of the International Interdisciplinary Congress on Renewable Energy, Maintenance, Mechatronics and Computer Science, CIERMMI 2022 has as general objective to establish a space for discussion and reflection on issues related to the areas of: renewable energy, industrial maintenance, mechatronics and computer science with the participation of students, professors, researchers and national and international speakers, promoting the formation and consolidation of research networks. Contributing to provide a space for dissemination and discussion of the presentations of students, graduates, academics and researchers, representatives of various higher education institutions, research centers in our country, as well as educational institutions beyond our borders. Promoting the formation of research networks between different institutions. Offering a space for undergraduate, master's, doctoral and postdoctoral students, in which they can present the progress of the research they carry out in their different educational centers. Providing a space in which study groups and members of academic bodies, linked to the curricular program of renewable energy, industrial maintenance, mechatronics and computer science careers, can present the research work developed within their institution and in collaboration with other national or international educational institutions. Establishing a training space for the attendees, through the development of specific lectures and conferences.

This volume, Women Social Sciences and Humanities T-XVII-2022 contains 8 refereed chapters dealing with these issues, chosen from among the contributions, we gathered some researchers and graduate students from the 32 states of our country. We thank the reviewers for their feedback that contributed greatly in improving the book chapters for publication in these proceedings by reviewing the manuscripts that were submitted.

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Chapter 1 Semiotic analysis of women on the front and back covers of the Benemérita Universidad Autónoma de Puebla gazette, Mexico

Capítulo 1 Análisis semiótico de las mujeres en la portada y contraportada de la gaceta de la Benemérita Universidad Autónoma de Puebla, México

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Abstract

It is known that women's image on the front and back covers is crucial for magazines in commercial and business fields; in academic magazines, nevertheless, the image on the outside doesn't get the same weight since the purpose of these magazines is to inform about the university life that every student, faculty, and administrative staff live day by day. Therefore, the objective of this work is to analyze women's representation on the front and back covers of the *Gaceta Universidad Benemérita Universidad Autónoma de Puebla* (BUAP's gazette) from 2012 to 2018. This was determined to identify the identity changes that these images have undergone based on institutional contexts. The chosen method to come to this was a semiotic model based on the proposal of Morris and Vilches retaking the syntactic and semantic dimensions to identify the identity elements of the female student. As a result of this analysis, the following categories emerged to reinforce the image of college women in its different facets: women entering the university; women in university spaces; women in academic activities; and women in sports activities. The analysis of these images leads us to conclude that the college women's representation is observed in two administrative periods of the rector's office, one of which women were represented from the gender stereotypes assigned to women; nevertheless, the other period shows a change in the representation of college women with more inclusive images influenced by the policies of gender mainstreaming in higher education.

Image semiotic, College woman, Academic magazine, Front covers, Back covers

Resumen

Se sabe que la imagen de la mujer en las portadas y contraportadas de las revistas en los ámbitos comerciales y empresariales son muy importantes para la atención del lector y la venta de éstas, sin embargo, en las revistas del ámbito académico no se le da el mismo peso a la imagen en los exteriores, ya que el propósito de éstas es informar acerca de la vida universitaria que viven día a día cada estudiante, docente y administrativo. Por ende, el objetivo de este trabajo es analizar la representación de la mujer en las portadas y contraportadas de la *Gaceta Universidad Benemérita Universidad Autónoma de Puebla* de los años 2012 a 2018 para identificar los cambios identitarios que han sufrido estas imágenes con base en los contextos institucionales. La metodología utilizada fue un modelo semiótico basado en la propuesta de Morris y Vilches retomando las dimensiones sintáctica y semántica para identificar los elementos identitarios de la mujer estudiantil. Como resultado de este análisis surgieron las siguientes categorías para reforzar la imagen de la mujer universitaria en sus diferentes facetas: mujeres ingresando a la universidad; mujeres en los espacios universitarios; mujeres en actividades académicas; y mujeres en actividades deportivas. El análisis de dichas imágenes nos permitió concluir que la representación de la mujer universitaria se observa en dos periodos administrativos de rectoría, uno de los cuales a la mujer se le representa desde los estereotipos de género asignados a las mujeres, sin embargo el otro periodo muestra un cambio de representación de la mujer universitaria con imágenes más inclusivas influenciadas por las políticas de transversalización de género en la educación superior.

Semiótica, sintaxis, Semántica, Gaceta, Representación

1. Introduction

For several years, women have been considered to be an important element of the front and back covers of printed and digital magazines to attract the reader's attention. The image of women has been a crucial element in the sale and production of these products, especially in advertising magazines. In some cases, such as on the covers of sports magazines, the presence of women continues to be practically inexistent as referred by studies conducted in this area (Gómez-Colell, Medina-Bravo & Xavier, 2017). Other studies emphasize the ethnic-racial aspect (Jaimes, 2017). There are plenty of studies of magazine covers aimed at the female population where the representation through images of women is presented from gender stereotypes; an example is the study of content analysis of magazine covers with presence in social networks in Ecuador that Brito-Rhor conducted (2019). In contrast, there are other related studies that present women as a protester, refugee, soldier, and mother and all these roles stand against discrimination and inferiority in Mohamed Shafik Abdelrazek (2022). Likewise, the work of Wardah & Kusuma (2022), show that women are represented as strong, dominant, and independent figures in an animated film, and the element of feminism is moderately presented, both in news agencies and animated films.

However in this paper, we return to the printed media of the Benemérita Universidad Autónoma de Puebla (BUAP) to analyze the representation of women on the front and back covers of the BUAP's gazette from 2012 to 2018 to identify the identity changes that these images have undergone based on institutional contexts.

It is necessary to clarify that higher education institutions are producers of subjectivities, identities, narratives, and discourses of men and women, but also of education and professional training, therefore, the tensions that are generated are present in the institutional, political, cultural and educational spheres. Likewise, these representations are framed in an international, national, and local context where gender inequalities and their manifestations through forms of exclusion, discrimination, and violence against women have been established in our daily lives and the university environment is no stranger, which is a challenge for university communities.

Therefore, the greatest challenge of gender mainstreaming in higher education is that politics is not enough to produce cultural changes, the university institutional culture is rooted under a perspective regulated by power and gender that order relationships in social life crystallizing in various practices and one of its expressions is objectified around the representations of women through images.

These approaches to the institutional gender culture make visible the inequalities that persist for women in higher education. Students, teachers, and administrative staff are still far from equity concerning their male peers in higher education institutions in Mexico. Concerning BUAP, few academic works are reporting on gender relations among university students. The book *Violencia de género en la Universidad* (List, 2015) presents some approaches that reflect on this social phenomenon.

There is an undeniable relationship between Higher Education Institutions (HEI) and the spheres of power because it is at this junction where "the imaginary representations of men and women in a given community crystallize" (Palomar, 2005, p. 8). And in this task, representations and discourses are key to understanding this institutional culture, which emerges from social actors from the various power groups.

One of the most important debates in recent times has been that of incorporating the gender perspective in higher education. In response to the question "What does it mean to incorporate the gender perspective in higher education?" "It means promoting an ethical change in institutions so that they incorporate respect for diversity and the search for equity, particularly gender equity, into their axiological systems" (Íbid, p. 11).

In recent years, the debate on the importance of incorporating the gender perspective in higher education institutions has become relevant. On the one hand, there is a need for men and women to coexist in a climate of respect for diversity and the search for equity; notwithstanding, these policies are also a response to the HEI's need to obtain prestige and economic resources, in addition to addressing neoliberal policies in the training of people capable of integrating into the labor market (Jaiven & Cruz, 2005; Zapata & Ayala, 2014).

In 2001 the Mexican State decreed gender equity through the Law of the National Women's Institute as part of its national policy with which all federal public administration agencies in the areas of education, health, labor, etc. had to comply with it throughout the national territory. That is why this work is divided into four parts: 1) the visual representation of university women in the BUAP's gazette, where we contextualize it as a means of institutional communication, as well as the "Manual de Identidad Gráfica BUAP" and gender policies through the "Protocolo para la Prevención y Atención a la Violencia de Género" (Protocol for the Prevention and Attention to Gender Violence); 2) the semiotic model based on the proposal of Morris and Vilches is approached, taking up the syntactic and semantic dimensions to identify the identity elements of the student woman in the front and back covers of the university gazette, taking up eight images; 3) the results of this visual analysis are shown with the categories: women entering the university; women in university spaces; women in academic activities; and women in sports activities; and 4) we conclude that the representation of university women is observed in two administrative periods of rectoría, one of which women are represented from the gender stereotypes assigned to women, nevertheless the other period shows a change in the representation of university women with more inclusive images influenced by gender mainstreaming policies in higher education.

2. Visual representation of women in the BUAP gazette

At BUAP, printed publications were for many years the means of internal communication for the university community. The BUAP's gazette is a monthly publication that is currently printed and digital, one of the few magazines that are still printed in the institution. It has a circulation of 10 thousand copies, distributed in all academic units to show the development of teaching, research, cultural dissemination, sports, and liaison, as it is the main publication by the Rector's Office to publicize institutional messages.

It is worth mentioning that the print media have played a leading role in HEI's for decades, as Andión (2005) points out: "As social agencies founded to preserve culture and transmit social and historically legitimate knowledge to new generations, universities have used the media as technological resources since their origin" (p. 11).

Likewise, Martínez (2008) mentions that the press:

It has a clear social responsibility so that every journalistic product (front pages, news, headlines, etc.) has an impact on the men and women who come into contact with such products. Hence, all responsible journalism has to pay attention to the discursive and visual use in the elaboration of its messages. The covers of newspapers and magazines orient readers towards the vision of the world they want to convey, i.e., they present readers with the information marked by the context in which it is framed and created with a clear objective according to the interests and ideology of the newspaper or magazine in question (p. 155).

That is why this printed media was taken up again to study the visual representation of university women since we consider that such visual representation transcends the formal aspects of creation, in which the discourses carrying ideologies, worldviews, and meanings are embodied. These visual representations question people and influence their interactions, so it is urgent to be aware of their importance as reproducers of social order among BUAP university students, as they are nowadays the only printed media in force.

The production and circulation of these visual representations about women at BUAP are carried out by one of the dominant actors: the university authorities who create and produce diverse visual representations about university women, changing and contradictory images depending on the interests, the dominant policies, the changes of the actors in power, among others in a dynamic relationship where representations are confronted over time and account for specific social constructions.

Given this context, it is necessary to mention that for the creation and production of the front and back covers of the BUAP the years 2012 to 2018, graphic and content elements were used, which resulted in the "BUAP Graphic Identity Manual" and "Protocol for the Prevention and Attention to Gender Violence".

Regarding gender mainstreaming policies in Higher Education, in 2002, the National Association of Universities and Higher Education Institutions (ANUIES), of which BUAP is a member, agreed to collaborate with the National Institute for Women (INMUJERES) to incorporate the gender perspective in programs, policies and research projects.

In 2003, INMUJERES created its Gender Equity Model, which consisted of a management system that provided companies, public institutions, and social organizations with tools to assume responsibility for equality between men and women. To this end, a Gender Equity Certification was contemplated as recognition for those organizations and institutions that demonstrated their commitment to equal opportunities.

In 2009, the UNESCO Conference "The New Dynamics of Higher Education and Research for Social Change and Development" promoted gender equity from the perspective of the responsibility of universities to train citizens committed to human rights and equality.

That same year, under the auspices of ANUIES, the National Network of Higher Education Institutions: Pathways for Gender Equity (RENIES) was founded to establish a commitment with rectors and authorities to address gender equity. In its declaration, the following guidelines are presented: university legislation, equal opportunities, reconciliation of professional and academic life, gender statistics and diagnoses with a gender perspective, language, raising awareness in the university community, gender studies in higher education, and combating gender violence in the workplace and at school.

Regarding gender studies in universities, BUAP was a pioneer in founding the Center for Gender Studies in 1995, which is attached to the Faculty of Philosophy and Letters and whose activities revolve around research and outreach. Subsequently, BUAP proposed its Gender Equity Model, which was implemented in the University Hospital and obtained its certification and distinctive in 2009, in addition to being the reference for its propagation to the different faculties, administrative offices, and institutes, likewise the Gender Equity Committee was created to meet all the requirements for certification.

Subsequently, a Gender Equity Model emerged in BUAP in 2014, and in turn, the Directorate of University Accompaniment (DAU) was created, which is in charge of the Coordination of Equality and Inclusion that includes the Program of Attention to Equality to carry out the following activities: training, care and psychological counseling to students in situations of discrimination and/or gender violence.

In 2019, the BUAP released the "Protocol for the prevention and attention of discrimination and gender violence" where different instances and procedures to address the prevention and attention of discrimination of gender violence in the institution are presented.

In 2020, the Institutional Direction of Gender Equality was created with the objective of "institutionalizing and mainstreaming the Gender Perspective, as well as the attention and prevention of gender violence and discrimination at the University" (BUAP, 2021). This direction was born to frame the work in favor of gender mainstreaming that instances such as the Center for Gender Studies and the Directorate of University Support (DAU) had carried out in previous years. These organizations promoted the advancement of actions in favor of equity, among which the "Protocol for the Prevention and Attention to Discrimination and Gender Violence at BUAP", the creation of the Gender Units of the University, and the creation of the Observatory for the Prevention and Attention to Discrimination and Gender Violence stand out.

Considering the aforementioned, there was a visual and content change in the front and back covers of the BUAP university gazette despite the emergence of the "BUAP Graphic Identity Manual" in 2014, which has the function of unifying the graphic elements to achieve a university identity. It is worth noting that these graphic guidelines impacted said gazette, so greater care was taken in the visual representation of the university woman as referred by Martínez (2008): "Images are representations that express certain meanings, hence we have to be critical readers to know what is hidden behind each of the choices that make up this type of text" (p. 154).

We need to clarify that in 2014 the combination of various changes in university identity in the aspect of the institutional visual image together with public policies and the emergence of various agencies that address Equality and Inclusion, achieved the modification of the visual representation of university women in the BUAP gazette.

3. Methodology

The image is an epistemological link and a methodological vehicle for research. Hence, several authors specialized in the use and application of the image, considering it as a new form for the generation of data and its interpretation, as well as the dissemination of knowledge. Belting (2007) emphasizes that "we live with images and we understand the world with images; this living relationship with the image extends equally to the physical production of images that we develop in social space" (p.14). That is why we set ourselves the task of analyzing a visual corpus of front and back covers from the years 2012 to 2018 of the BUAP's gazette. This visual corpus will be analyzed and interpreted as a visual text through two dimensions: syntactic and semantic.

Vilches (1984) indicates that the text can be studied as a set of procedures that determine a discursive continuum, that is, as a semantic-syntactic representation. A photograph can be studied as a visual text by highlighting the syntactic marks (its expressive or signifying plane), and the actualized sememe (its denoted meaning).

Likewise, Morris (1985) distinguishes three dimensions in semiosis: syntax, semantics, and pragmatics. The syntax is considered to be the study of the syntactic relations of signs to each other, abstracting from the relations of signs to objects or interpreters. Semantics is concerned with the relation of signs to their designation and, therefore, to the objects they can denote or denote. Pragmatics is the relation of signs to their interpreters.

It should be noted that in this text-only syntax and semantics will be taken up again as a model for the analysis of the images of the front and back covers already mentioned.

According to Charles Morris (1985) syntax admits:

The existence of classes of signs, such as individual constants and variables, and predicative constants and variables, which constitute the formal correlates of the various types of indexical and characterizing signs; operators correspond to class specifiers; periods, parentheses, and brackets are resources existing in language to indicate certain relations between signs; terms such as "sentence", "consequence" and "analytic" are syntactic terms to designate certain types of combinations of signs and relations between signs; sentence (or "prepositional") functions correspond to combinations of signs lacking certain indexical specifiers necessary for complete sentences ("propositions"); rules of formation and transformation correspond to how signs are combined or derived from one another by potential or actual language users (pp. 53-54).

Regarding semantics, "deals with the relation of signs to their designata and, therefore, to the objects they can denote, [...] pure semantics provides the terms and theory necessary to speak of the semantic dimension of semiosis, while descriptive semantics is concerned with actual aspects of that dimension" (Ibid., p.55). That is, semantics allows us to describe some social situation that will be analyzed and interpreted before any spectator.

At the same time, it can be said that a sign "has a semantic dimension to the extent that there are semantic rules (whether they are formulated or not is irrelevant) that determine its applicability to certain situations under certain conditions" (Ibid, p.59).

Within semantics are considered those elements that describe us as a social phenomenon, which can be analyzed and interpreted through semantic rules to understand the representation of university women in the visual media of the BUAP, therefore, in this work, all the front and back covers of the periods 2012 to 2018 BUAP's gazette were consulted. Subsequently, 16 images were selected to identify the identity changes; notwithstanding, only eight images were chosen for the visual corpus of this work.

For the selection of these front and back covers that integrate the visual corpus, the following points were considered: a) the representation of university women through photographic images; b) the representation of university women in various activities: academic, sports, and recreational; c) space of publication of the images: front and back covers; d) date of publication between the years 2012 to 2018.

With all the above, the methodological proposal for this work was based on semiotics emphasizing the semantic and syntactic dimensions to analyze and interpret the eight visual images of the visual corpus belonging to the Gaceta Universidad Benemérita Universidad Autónoma de Puebla, which was based on Morris (1985) and Vilches (1984) who work on these dimensions. We consider that both dimensions are necessary and useful because the syntax is related to perception and semantics to visual content.

In the dimension of semantics, all the visual elements represented in the image such as objects, actions, spaces, and people were considered to thematically categorize the representation of women considering the following elements: a) physical characteristics of women (age, hair, nose, face, eyes, complexion, complexion); b) poses; c) actors; d) protagonist in the image; e) things; f) actions and g) place.

In the dimension of syntax we find the technical elements of the image: a) device; b) format; c) publication space; d) publication date; e) dimensions; f) printing system; g) typography and h) color. Then there are the compositional elements of the image: a) axis; b) planes; c) golden points; d) angulation; e) light condition; f) depth of field; g) movement.

4. Results

In this research, we obtained the following results based on the two dimensions worked on in the methodology: the dimension of semantics and the dimension of syntax.

4.1 Semantics dimension

In this dimension, we worked with a visual corpus consisting of three front and five back covers of the University Gazette of the Benemérita Universidad Autónoma de Puebla from 2012 to 2018, selected from the archive of the Directorate of Institutional Communication and Dissemination of the same university; this archive has a digitized collection of this publication from 2011 to 2021 with a total of 126 issues, which can be found at the following link: <https://comunicacion.buap.mx/?q=content/ediciones-gaceta-universidad>

We previously mentioned that the semantics dimension allows us to describe some social situation that will be analyzed and interpreted by any viewer. That is why each front and back cover were considered to arrive at the following classification: 1) women entering the university; 2) women in university spaces; 3) women in academic activities; and 4) women in sports activities.

1. Women entering college

Figure 1 Cover from issue no. 156



Source: BUAP gazette, 2012

Figure 2 Back cover from issue no. 211



Source: BUAP gazette, 2012

2. Women in university spaces

Figure 3 Back cover from issue no. 172



Source: BUAP gazette, 2013

Figure 2 Cover from issue no. 230



Source: BUAP gazette, 2018

3. Women in academic activities

Figure 5 Back cover from issue no. 180



Source: BUAP gazette, 2012

Figure 6 Cover from issue no. 217



Source: BUAP gazette, 2017

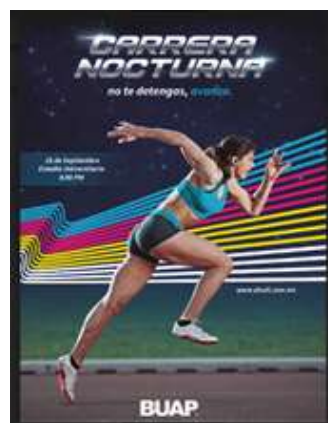
4. Women in sports activities

Figure 5 Back cover from issue no. 178



Source: BUAP gazette, 2014

Figure 6 Back cover from issue no. 195



Source: BUAP gazette, 2015

4.2 Syntax dimension

In the first dimension of the syntax are the technical elements of the image: a) Device, the three front covers, and the five back covers were taken with a digital reflex camera. b) Format, all images are in digital format. c) Publication space, three images are front covers, 1st liner, and five back covers, 4th liner. d) Date of publication, the images are from 2012 to 2018, of which, one front and back cover are from the same year (2017) and two back covers from 2014. e) Dimensions, all images are 21.5 x 28 cm. f) Printing system, all are offset. g) Typography, there are two large serif and sanserif groups that are interchanged in the publications. h) Color, the blue color is predominant both in the backgrounds and in secondary marking elements such as *folds*.

Regarding the compositional elements of the image we observed in the images: a) axis, all the images are on a vertical axis. b) Planes, in this section we took into account the type of plane in which the women appear, therefore, we have two general planes, two whole planes, two American planes, and two medium planes. c) golden points, all the images coincide with the golden points. d) Angulation, six images were observed with normal angulation and two images in sharp angulation. e) Light condition, we found four images with natural light and four images that combine both natural and artificial light. f) Depth of field, we observed five images with a lot of depth of field and three images with little depth of field; and g) Movement, in six of the eight images we can observe the movement of both the bodies of people and ornamental elements that suggest them.

According to the dimension of syntax, referring to the formal and technical aspects of the image on the front and back covers of the *Gaceta Universidad Benemérita Universidad Autónoma de Puebla*, we arrive at the following interpretation: The type of device with which all the images were taken was with a digital reflex camera, which shows the importance of the quality of the image for the type of publication, therefore the format of the images is in digital. In the publication space, we observed that the image of women is not the protagonist, since they appear more on back covers than on front covers, in addition to the fact that they do not appear alone when it is an academic activity.

Regarding the dates of the publications, it is important to mention a breakpoint in 2014, the year in which the institution implemented a new graphic identity system that was strongly disseminated and integrated into all areas including publications. The dimensions of all images are letter size, which complies with international standards for the use of paper. The typography is mostly sans serif type to have better legibility and be part of the visual identity systems of the university.

With all of the above, María Martínez (2006) mentions the different choices we find in texts such as:

The typology of the letters (capital letters, bold, etc.), the size, the colors, and the different ways in which the elements of multimodal texts are placed (above or below, to the right or the left) have an effect on the construction of meanings and conditions how our attention varies when reading a page since there is usually a hierarchical relationship between the different elements (p. 166).

Finally, these two semiotic dimensions allowed us to identify the university life of women on the front and back covers of the BUAP's gazette. The dimension of syntax allowed us to break down all the visual elements which were indispensable for semantic categorization.

5. Conclusions

In this paper we undertook the task of analyzing the representation of women on the front and back covers of the BUAP's gazette from the years 2012 to 2018 to identify the identity changes that these images have undergone based on the institutional contexts, therefore, we conclude that these university changes occurred from two periods:

1. The period from 2012 to 2014: the university woman was identified as the main protagonist of the editorial space of the gazette presenting her on the front and back covers as if it were an advertising magazine and not an academic one; that is, the woman was considered as a sales product to attract the reading public, this can be seen reflected in the covers of the gazette of those years, in which the woman is observed in the foreground and the background the elements that refer to university spaces such as buildings, laboratories, and sports spaces. In addition, in this facet it was identified that the graphic elements of the gazette are not maintained under the perspective of an institutional graphic identity manual, which causes the front and back covers to present changes in the color palette, the location of logos, the use of typographies and composition.
2. The period from 2015 to 2018: we conclude that the representation of university women is no longer the main protagonist in the gazette's editorial, now it moves to second or third place, sharing the space of the publication with typographies, texts, photographs of buildings, illustrations and digital backgrounds.

In this facet, the graphic elements are governed by a series of institutional graphic identity guidelines framed in the "BUAP Graphic Identity Manual", which defines a specific color palette in blue, as well as the location of institutional logos and secondary graphic elements such as the frame present on all covers to differentiate the back covers.

Finally, we consider that in the first period, women are reflected with stereotypically feminine traits such as feminine poses, clothing, and aesthetic and colorful accessories that have been representing the cliché of women in the media. While in the second period, due to the inclusion of gender mainstreaming policies such as "Protocol for the Prevention and Attention to Gender Violence" in the BUAP, the representation of university women was modified based on these guidelines, so that a change in the image of university women was observed in various areas: women entering the university; women in university spaces; women in academic activities; and women in sports activities.

It is worth mentioning that the inclusion of the "Protocol for the Prevention and Attention to Gender Violence" and the "BUAP Graphic Identity Manual" foster a university identity in women, which leads them to wear the institution's T-shirt and stand out in academic and sports life. Nevertheless, we must not forget that there will be new challenges in the mentioned protocol and manual, due to the changes in the rector's office management periods. It is important to remember that these terms are every four years with the possibility of reelection for one term only. It is necessary to take into account the social transformations that are lived day by day, which impact university policy decisions at different scales such as UN, SEP, ANUIES, and BUAP.

As female researchers, it remains for us to continue monitoring these changes in the identity of university women in the different media of the BUAP according to what has already been mentioned to have a more equitable identity that shows the diversity of people in university spaces. Likewise, to emphasize the creation and production of visual images of these media since they represent a part of the reality of university life.

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Chapter 2 Biopolitics: "letting die" and modes of resistance in Mexico. The case of the Nguia people of San Marcos Tlacoyalco

Capítulo 2 Biopolítica: “dejar morir” y modos de resistencia en México. El caso de la comunidad Nguia de San Marcos Tlacoyalco

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Abstract

Here biopolitics is understood as the management of life that ensures healthy and vigorous development in turn, its counterpart is the sovereign right of the State to let die those sectors of the population that are, for some reason, disposable. Here we look at if this is the case within the Ngigua community of San Marcos Tlacoyalco and how the COVID-19 pandemic has deepened this issue at stake of being disposable and to a greater extent, detrimental for them. Nevertheless, we also strive to illustrate the agency deployed among community members in order to ensure survival and health during the pandemic.

Biopolitic, COVID-19, Modes of resistance, Ngigua community

Resumen

La biopolítica como gestión de la vida para asegurar el desarrollo sano y vigoroso, tiene su contraparte en el derecho soberano del Estado para dejar morir a aquellos sectores de la población que resultan, por alguna razón, eliminables. Quisiéramos ver cómo esto se demuestra en la comunidad Ngigua de San Marcos Tlacoyalco y de qué manera la situación del covid 19 lo ha profundizado en perjuicio de las poblaciones. En este contexto, buscamos analizar las formas en que la gente de la comunidad ha enfrentado esta problemática.

Biopolítica, COVID-19, Modes of resistance, Comunidad Ngigua

1. Introduction

The economic and social crisis caused by the COVID-19 pandemic has specially affected the most vulnerable: Indigenous communities, the poor and rural communities. The experiences of Indigenous communities in Mexico included, but were not limited, to precarious working conditions, racism, discrimination, and their living conditions of being in the margins of the State (Daas and Poole, 2004). In most cases, they lack medical services, live in poverty and with few resources to get through this type of crisis. COVID-19 pandemic, therefore, has come to aggravate an already existing social and economic exclusion, which is directly related with the State biopolitics and racism (Foucault, 2006 & 2011). In order to get closer to this problem at stake, we analyzed the indigenous situation in Mexico since the 19th century in light of Foucaultian concepts that guide our methodological axis. This allowed us to see the general situation of indigenous communities during the pandemic, and to know if their living conditions were aggravated. Consequently, we discuss in the last section, the results of our fieldwork conducted in March 2022 among the Ngigua community members living in San Marcos Tlacoyalco in Tlacotepec de Benito Juárez. The focus of our research emphasized their modes of resistance during the pandemic affluence. In addition to demographic data survey collection, informal and semi-structured interviews were also collected among community members. Questions were directed to elucidate how Indigenous communities experienced the pandemic was lived in the area of study, if they received government help and which surviving strategies applied on individual, familiar and community level (see DeWalt & DeWalt, 2011).

2. Biopolitics and racism in Mexico

Historically, poverty and social marginalization represent a continuum among indigenous communities in Mexico. To a greater extent this is closely related to a racist subtract hooked with colonization. Independence did not improve this issue, but most of the time it was aggravated. Intellectuals from the nineteenth century had a keen interest on studying Indigenous populations specially, with the intention of integrating/aculturating them to mainstream Mexican society. Also of interest was the appropriation of their lands and their convergence into the productive system. As the 19th century progressed, interest and concern about Indigenous communities included journalistic articles, novels and historic essays.

To a greater extent, to delve at Indigenous communities had an economic rationale. Industrialization advance, capitalism and with it, the need for cheaper and exploitable labour force, moved many intellectuals to look at these communities in Mexican territory, most were isolated not only geographically but also, culturally.

Through the lens of different intellectuals, comprehensive and at the same time homogenizing constructed stories, the issue at stake related to the following: what are we going to do with them [referring to Indigenous people]? If we consider that by 1895 the first general census in the republic noted 12.576.730 people as the total population of which approximately 6 million were Indigenous¹. So, we can have an idea of the total number they represented in the country. Hence some newspapers proposed the idea and practice of assimilation through labour force, it represented a more economical solution than importing immigrants. Thus, these intellectuals were wondering the way to assimilate Indians into civilization projects. The *Diario del Hogar* (8/10/1892) published on its first page, the “Memory of Secretary of Finance”, which analyzed the country situation from July 1st 1891 to June 30th 1892. In these memories, and under the “Immigration” title, the following dilemma arose:

[Indigenous people] remained in a state of total isolation and self-sufficient, as far as possible, to cover their meager necessities; in a way that they consumed what is produced by themselves, and they produce[d] very little for exportation, and under that aspect they d[id] not represent a factor on public richness. The Government’s duty was civilization of our fellow citizens living in that situation; to put them in touch with the rest of the country and the civilized world; to make them producers and consumers of the national and foreigner merchandise; to educate them, teach them, at least, the Castilian language (Spanish), to read and write, and when that goal was achieved; then indigenous people disinherited until now, participated from the advantages and amenities of civilization, as being achieved. So to speak, transportation of millions of colons into our country without the expenses and the inconveniences of bringing foreign population.

But if we pay attention on this speech that was repeated an infinite number of times during 19th century and early 20th, we see a concern about life where Indigenous populations interest in assimilation through the flow of civilization. But if this did not occur, death was not lamented because within this context, this population was not be useful to the nation. In other words, disposable. This is the sense that diplomatic and writer Federico Gamboa, on September 29, 1898 and as part of his speech at the *Escuela Nacional Preparatoria*’s commemorative evening, after referring that all Mexicans came from Spain, and nothing was owed to Indigenous cultures, he added:

Pure blood Indian, legitimate and primitive, it’s a shame for me: sometimes I’m ashamed and I think that the United States, the Argentinan Republic and the Chilean Republic have been in the exact same, when they destroyed them [referring to the Indigenous population] or gave them to the deserts, although with such a measure they have not been accredited as humanitarian (Gamboa, 1910, p. 74).

During the 19th century intellectual, indigenous communities’ situation, isolated and at the same time denied their “national integration” it was something that greatly distressed Gamboa, almost getting to lament its practice in Mexico. Measures such as the ones opted by countries for the nearly extermination of their Native populations (e.g., Canada and the United States) and *letting them die* on “reserves” represents an important amount of those who survived.

We believe that these examples allow us to visualize the biopolitics functioning in Mexico on issues related to the policies of exclusion, racism and discrimination among and between Indigenous groups as well as the current suffering. Othering also target other social groups of biopolitical control (Andreucci & Zografos, 2022). Biopolitic is, roughly, as the term itself indicates, the biological treats turn into politics. To understand it’s functioning, we turn to synthesize Michel Foucault’s postulates.

This French philosopher discovered in the second half of the 18th century a transformation in the power mechanisms and it’s functioning. In order to clearly explain it, contrasts with what he calls the *sovereign power*, whose domain of the political field extends from the feudal period to the Enlightenment. The main characteristic of this power of the sovereign is the exercise, by the king, the appropriation of time, things and the life of his subjects too. It would be a question of a power of death that Foucault (2011) defines as the power to *make die and let live*. This power encounters its highest point in the right to kill.

¹ “We have pure blood Indigenous population that probably exceeds half of the population in the Republic, that is more than 6 million” (Memoria de la Secretaría de Hacienda. En el *Diario del Hogar*, de Filomeno Mata, 8-10-1892).

Well then, towards the end of the 18th century and with the industrial revolution, the peak of cities and the need of workforce, Foucault finds the displacement of sovereign power that is not going to disappear completely, but that it would be relegated to reduced spaces. With the arising of national states, we see another type of power objectifying the management of life to make it grow healthier. From this moment, the biologic involved the politics scenario. And in this sense, it will pay special attention to the different diseases that depleted it continuously. At this point medical knowledge came into play and, according to the degeneration theory, will identify vices and diseases alerting the population about the danger, not only for those who suffered but from all their descendants. Foucault explained that wars did not justify the king's defense, but everyone's protection. This power used two technologies. On one hand, disciplinary technique focused on individual bodies. Time control technique, on the spaces, on life in its detail. It was an anatomopolitic of the human body (Foucault, 2011, p. 129). On the other hand, biopower relied on regularizing techniques centered on populations as living bodies. This population biopolitics took care of the processes of natality, mortality, morbidity, etc. Both technologies allowed biopower the control of life in its entirety. These were techniques allowing "the subjection of bodies and the control of populations" (Foucault, 2011, p. 130). This meant that life came into the field of politics and under such rationale, it became part of the knowledge field, just as the intervention of power (Foucault, 2011, p. 133). At this point, Foucault identified a transformation on the exercise of power. If the sovereign exercised it to the extent that he caused death, in this historical formation we find ourselves with a power that had interest for life. In other words to make live and to let die.

The "let die", in Foucault's analysis, not only meant the fact of death itself as the end of life, but to all planned politic than the socially excluded both at the individual level or whole populations.

Let's see a 19th century example, within the speech of a doctor about alcoholism:

The individual with an alcoholic habit if it's not harmful, at least is useless, he gets physically and morally depressed. The population decreases because the genetic faculty weakens, and by the degenerate fruits of vice, they are, epileptic already, idiots already, or at least of weak constitution, unable for the same, to perform functions in society (Ortega, 1885, p. 38).

In the example that we just quoted, alcoholics, represented dangerous individuals for the author, that were genetically marked for vice and placed the society at risk as a whole; their life was of little matters. One of the consequences of this power upon life was the appearance of a normalized society. This is, a society that classifies, ranks, normalizes and therefore, distinguishes between individuals and populations. But that does not mean that killing stopped. On the contrary, the atomic bomb represents a proof that not only kills is meaningful, but actually kills on a previously inconceivable scale.

Foucault explains that death power could be possible thanks to racism. Biological racism, already located on state mechanisms, it allowed them to discern about those who must live from those who must be left to die because their existence itself puts in risk the society existence. "Racism caters to the death function on biopower economy, according to the principle that the death of others means the biological strengthening of oneself as a member of a race or a population" (Foucault, 2006, p. 233). This allows the integration of whole populations into the fight against those elements conceived as harmful and dangerous. Foucault makes here the distinction between racism understood as hate or contempt at the Other, that is considered different, against this new modality where this is part of power technology and functioning of the modern state. While it is governed from the principles of biopower, racism will be inevitable because it is part of the logic of this biopower.

Integration with civilization purposes was raised in the *Diario del Hogar*, common place for intellectuals at that time, it is another way to let die. Another very clear example is Andrés Díaz Millán, columnist in the newspaper *El siglo diez y nueve*, who presents about the possibility of blood mix among Indigenous people in order to "improve the blood".

Do you think you are not forced to improve that big race, like you would improve your cattle, crossing it with European immigrants, that makes their blood richer and fight against the physiological misery you have sunk in? (...) lets improve, them, these races, let's regenerate them, and we will make the theater of future human civilization from our America (08/23/1892)

Racism, as a social differentiation element, was crucial to sustain policies focused on life, as well as those connected to let die. We refer to death by omission, meaning, and not related to providing, to determine individuals or whole communities, the adequate medical services, or not to establish schools with all that implied, meant, not only the architectonic place but also paid teachers, study materials or even politics oriented to promote education, job opportunities with salaries according to the country wages, or even jobs that did not place the population in major vulnerability situations. As is the case of migrant day labourers, they had to move every year with their families to work in remote fields and, under extremely difficult situations (Martínez Gómez, Sánchez García, 2017).

Racism became, in modern societies, the differentiating element of populations. So, every time that the other's death needed to be justified, or letting whole populations to die, State racism was used.

3. COVID-19 and its impact on indigenous communities in Mexico

As we have stated since the beginning of this work, indigenous communities in Mexico, face a chronic vulnerability and marginalization that the COVID-19 pandemic aggravated. If we think in terms of the "let die" biopolitics, we think that an unexpected event like this, highlighted the critical conditions that this population experience.

From the systems of health access to the economic suffering, result in the growing difficulty to sell their produce, until the hard situation of children's education, those who have to look for a way of acceding basic knowledge with practically a lower number of teachers, but also, without the school breakfast that was given daily at the institutions, the indigenous saw their already delicate situation turned even more precarious.

On December 31st, 2020, the Secretary of Health, (Chair of Epidemiological Information) stated on the twelve COVID-19 epidemiological *analysis of Indigenous population* identified 25,694,928 Indigenous people, which represented 20.01% of the country's entire population. The Socioeconomic Index *of original people of Mexico, 2015 [Socioeconomic indicators of Mexico's indigenous population]* provided information about the Intercensal Survey 2015 made by the National Institute of Statistic and Geography, Indigenous population tallied 12,025,947, meaning, there was a difference as more as twice between both figures, which was probably due, to the self adscription factor, meaning, how each person defines oneself². In any case, the figures are just an estimate but they help to dimension the topic. provided information about the Intercensal Survey 2015 made by the National Institute of Statistic and Geography, Indigenous population tallied 12,025,947, meaning, there was a difference as more as twice between both figures, which was probably due, to the self adscription factor, meaning, how each person defines oneself³ as Indigenous. In any case, the figures are just an estimate but they help to dimension the topic.

According with the *Indicadores* (Indicators), the entities with a larger number of Indigenous populations were: Oaxaca (14.4%), Chiapas (14.2%), Veracruz (9.2%), Mexico City (9.1%), Puebla (9.1%), Yucatán (8.8%), Guerrero (5.7%) e Hidalgo (5.0%). These 8 states concentrated 75% of the Indigenous population in the country.

Furthermore, adding the 55.5% of the Indigenous population who live in states with higher or very high marginality, and 87.5% of Indigenous municipalities find themselves in high or very high marginality. In fact, 12.8% of the indigenous households lacked piped water and 4.4 did not have electricity. Moreover, 13.9% lacked flooring and 58.8% of the homes cooked with charcoal or lumber. Under these conditions, it is unlikely to follow the normativity that points out the importance of hand washing and the use of antibacterial gel, products that can be hardly found in Indigenous communities and the money needed for buying these products, including the facemasks (Alcalá Gómez, 2020). This gives us an idea of the socioeconomic situation faced by these populations, such as an unexpected event as the COVID-19 pandemic.

³ In the survey people were asked if according with their culture, they would consider themselves indigenous. The data that was obtained allows therefore to identify the population that, even without practicing a native language, speaker or being of an indigenous home, culturally they identify or self-ascribe as indigenous.

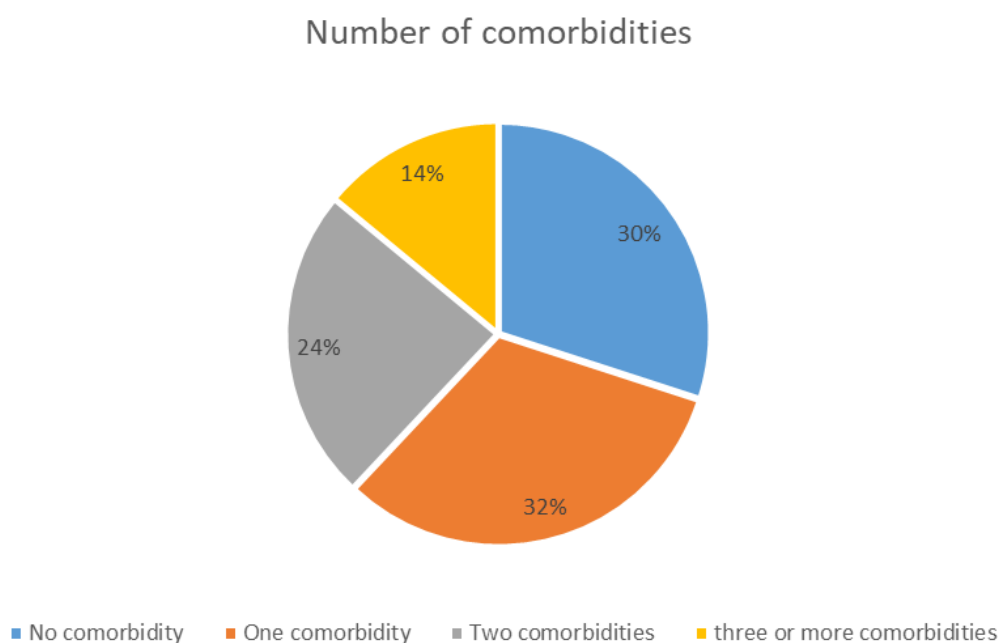
Although the census from 2015 notes that in medical services 8 out of 10 Indigenous person is affiliated to one health service and that in the entities of Guerrero, Chiapas, San Luis Potosí and Puebla, 9 out of 10 people is affiliated to the popular insurance, other factors must also be considered. We refer specifically to the location of hospitals with regards to the location of their communities and the possibility to move there, as well as the existence of medical care supplies. Health insurance does not make sense if you do not possess these factors.

A study made by the Consejo Nacional de Evaluación de la Política de Desarrollo Social (CONEVAL) [“National council of evaluation for social development policies”] in 2018, the organism calculated 69.5% of the Indigenous population lived in poverty, which represented around 8.4 million people and 27.9% (3.4 million) lived in extreme poverty.

Undoubtedly, the Covid-19 pandemic had a profound impact over this population group. In January 10th, 2021, a report submitted by the Secretaría de Salud [“Secretary of Health”] (*COVID-19 MÉXICO: Overview of the population who identify themselves as Indigenous*) provided a series of figures of the disease among Indigenous communities. Data extracted from hospitals receiving patients represented an approximate figure, because the light cases or those that did not need assistance were not counted. Furthermore, when a family group, a person was diagnosed with the disease the rest of the family also contracted the disease and notified their health status as long as they did not require hospitalization.

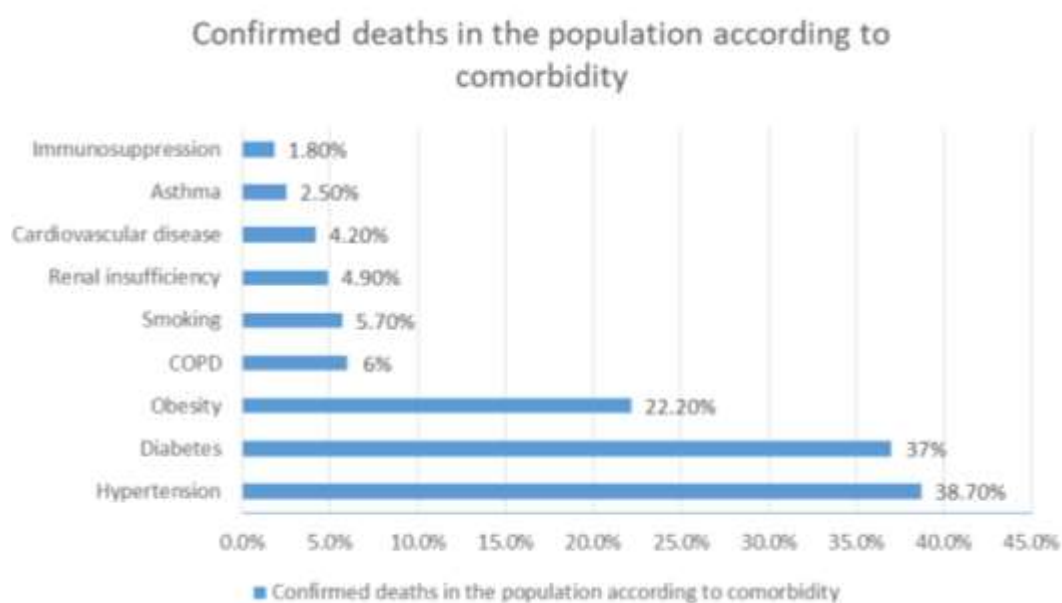
According to this report, there were 34,917 infections among Indigenous population, and 4,366 deaths caused by COVID-19. The state of Puebla occupied the 9th place with 1,300 infected, and the third place on death rankings, with 390, right after Oaxaca (714) and Yucatán (739). The report highlighted that 70% of Indigenous people also suffered comorbidity, of which hypertension, diabetes and obesity were highlighted as main concerns.

Graphic 1 COVID-19 Number of comorbidities in November 10th 2021



Source: Health Secretary, 2021

Graphic 2 COVID-19 Mexico: confirmed deaths in the population according to comorbidity in January 24th, 2022



Source: Health Secretary, 2022

In order to inform about the caring measures for facing the COVID-19 pandemic, the Secretaría de Salud [“Health Secretary”] jointly with the Instituto Nacional de Lenguas Indígenas (INALI) [“National Institute of Indigenous Languages”] distributed and printed posters and brochures, including audios and videos recorded in Indigenous languages. In Mexico, 68 Indigenous languages are spoken and the brochure “*Culture of Prevention*” was written in 62 Indigenous languages.

Figure 1 Government made brochure in indigenous language “Stay at home”



Source: National Institute of Indigenous Languages

Figure 2 “Prevention culture”



Source: National Institute of Indigenous Languages

Nevertheless, even that the effort made by organizations such as the INALI, it is clear that we must consider how difficult is to reach some of those communities. Most of them do not have internet, which means there is no connection with social media. Most of the information was accessed through the community radio. However, 30 of the 80 faced precarious conditions mostly related to government funding reduction by 50% (Alcalá Gómez, 2020).

In the midst of the pandemic and the difficulties faced by the population we thought again about the “let die” biopolitics. In November 16th, 2020, the state of Tabasco suffered serious flooding. The president traveled to that entity to, in conjunction with local authorities, in order to make a decision to help Villahermosa, the state’s capital. So, they decided to close the Carrizal River gate, which crossed the city:

All the dam water follows the Samaria, to the lower zone (...) we had to choose between drawbacks. Not to flood Villahermosa and make the water to come out for the Samaria, through the lower zones. Of course, people from Nacajuca were prejudicated, they are the Chontales, the poorest. But we had to take a decision (Video of the president Andrés Manuel López Obrador at the helicopter, flying over Carrizal River. In <https://www.youtube.com/watch?v=SW-5IUFSpmc>).

This is a clear example that allow us to prove the way that biopolitics, just as Michel Foucault delineates the state policy and decision making.

4. Modes of resistance: the Nguia community of San Marcos Tlacoyalco

Pandemic forced us to rethink the ways of life and social coexistence allowing us to adapt to the new configurations spelled out by the experience suffered by the most vulnerable populations: Indigenous people. Thus, their communities faced critical situations and the inhabitants sought new forms of resistance, as a way to survive the crisis.

To understand what Foucault, understood as resistances, we must refer to the conception of power, which we will briefly outline: For the French philosopher, power was fundamentally the relation of forces. Power did not come from a superstructure, but it related to the whole social body. It was about mobile relations, changing relations. “Power is everywhere; is not that covers it all, but it comes from everywhere” (Foucault, 2011, p. 87). This force of relations enacted themselves under three aspects: to be able to affect the other, to be able to be affected by the other and to be able to resist.

Resistances exceeded, in fact, a determined power diagram, but they were not in a position of exteriority with respect to it (Deleuze, 2014, p. 208). In fact, resistances allowed the power relationships to work, only from this multiplicity of resistances, this act as power adversary the last one can exist (Foucault, 2011, p. 90). And Foucault is very clear at the moment he explains that resistance does not understand a place of great rejection, but several mobile points that act as a counterweight in the power diagram and at the same time, forces it to constantly and mutates. While this diagram strives to capture those points, new resistances are emerging.

We want to see how the COVID-19 pandemic promoted, in San Marcos Tlacoyalco, modes of resistance to the adverse relations of power and that they hook with the racism and marginalization. San Marcos Tlacoyalco is a locality that belongs to Tlacotepec de Benito Juárez municipality, located in the Mexican state of Puebla. In the municipality inhabit 54,757 according to the 2020 population and housing census (INEGI). The region has a high level of poverty, 42,398 people live in poor conditions (Annual inform about the social lag and poverty, 2022)). In San Marcos Tlacoyalco inhabit 10509 according the same INEGI census. The population is mostly indigenous, belonging to the Ngigua ethnic. In fact, it is the population with the highest percent of Ngigua language speakers.

This research was conducted at the Intercultural University in San Marcos Tlacoyalco with students attending the school. 7 students between the ages of 20 and 36 years were interviewed. A survey of demographic data was also applied. From there, a series of issues related to pandemic emerged, which we will summarize in 5 points: Access to information, medical care, drinking water, economical support and finally, traditional healing methods to alleviate the adverse effects of the disease (see Figure 3.1).

Table 1 Demographics from our interviewees

Gender	Female	Female	Female	Female	Male	Male	Female
AGE	22	31	20	20	29	31	36
Do you work?	Yes	Yes	Yes	No	Yes	Yes	Yes
Do you study?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Marital status	Single	Single	Single	Single	Single	Single	Single
Do you have kids?	No	One kid	No	No	No	No	Three kids
Do you have family in the U.S?	Yes	Yes	Yes	Yes	Yes	No	No
Have you had COVID-19?	No	No	Si	No	No	No	No
Have any of your family had to be hospitalized?	Yes	No	No	No	Yes	Yes	No
Do you have any medical insurance?	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: Dr. Tiverovsky data

From the figure above we observe the following: 7 students had access to the Mexican Institute of Social Service (IMSS health provider), one had COVID-19 and three family members were infected. Only two have children but remain single. They contribute to their household income; 6 students work within the community and five of them have a community member living in the United States. Under this scenario it is relevant to note the precarious conditions faced while not being to study as a full time student without the need to complement their income with a job. Moreover, their health was also stricken by COVID-19 while taking care of a sick member and seeking medicines and oxygen. Now we turn to a few issues they highlighted during our interviews:

1. Information

The main information source came from university authorities. A *spot* in Ngigua language was made and shared in social media. Furthermore, some posters were put up in the town and also in public transportation. Nevertheless, they think it was difficult to access by the elders because some of them are illiterate and they don't know how to use the internet.

During the first months, and facing the lack of information available about the pandemic many people, especially the elders, questioned themselves if the disease was real. They thought it was a government deception or creation. People even thought and were afraid to take their relatives to the doctor because a rumor had circulated about being killed over there (the hospital).

2. Medical care

Although there is a health center in the community, the doctor is rarely there because he also treats other neighboring communities. A nurse is left in charge of the clinic, only to report that there is no service. This means that, in an emergency situation, the patient must go to a private doctor who charges \$400 per consultation, which represents an excessive expense if we consider the level of wages in the region, which does not exceed \$7,000 per month.

The intercultural university students have health access through the *Instituto Mexicano del Seguro Social* (IMSS) health insurance. In order to have access to the service they must travel to Tlacotepec or Tehuacán. Given that COVID-19 caused severe respiratory problems in some cases, it was the family itself who had to bear the cost of the oxygen tank.

Figure 3 Community Health Center



Photo: Dr. Sol Tiverovsky, 2022

3. Water

Water, an essential element to disinfect in times of pandemic, it is scarce in this region that is characterized by being arid-semi-desert. This means that water scarcity has been a real problem in the community. That was the main reason for the creation of Jagueyes, which helped irrigate the region's crops. A few years ago, deep wells were dug to provide the region with drinking water.

However, one of the two wells that supplied the community is running dry. Some students believed that the practices of washing and disinfection have caused a higher consumption of water and therefore, a decrease in it. The community rations to water reached homes once every 20 days, so people stored and manage it efficiently (see Figure 3.2).

Figure 4 Desinfection methods in a food establishment



Photo: Dr. Sol Tiverovsky, 2022

4. Support

The students explained to us that although their income decreased when the pandemic started, because most of them lost their job or decreased considerably, they did not go without food. On one hand, because most of the houses in San Marcos Tlacoyalco they had animals like chickens, turkeys and pigs. “In case of need, you can always sell a pig” one of the students told us. Furthermore, people use to grow corn or beans at their homes and kept the leftovers as a reserve. They were asked about any support received from the municipality, but neither they nor their families received any financial aid, gel, facemasks or medicines. They only remembered that on one occasion pantries were distributed, but only to a few houses.

The interviewees, as students at a public university, received the Benito Juárez scholarship. That allowed them to cope with the situation. In addition, some inhabitants of the community have family in the United States. They were the ones who helped financially by sending money. In other cases, some had to leave town to work elsewhere. A student told us that she and her family went to Monterrey because her brother, who had been living there for a while, found a job for them. Not only they were able to earn money and survive the pandemic, but the salaries were higher than in their community. An office job in this northern city meant fewer working hours and double what they would pay in the municipality of Tlacotepec.

5. Traditional healing methods

A student from San José Buenavista, a town near San Marcos Tlacoyalco, said that a woman from her town discovered a way to help people with herbs and steam. Apparently, this remedy did not prevent the disease but helped alleviate the symptoms. Many inhabitants went to her because it was effective and relieved them from discomfort, but also because her treatment, of natural origin, was cheaper than going to the doctor and buying medicine. In San Marcos Tlacoyalco these traditional healing methods were also practiced.

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Conclusions

In this paper we explored the concept of biopolitics and State racism as theoretical tools that allow us to understand the historical situation of marginalization of Indigenous peoples in Mexico. As well as to explain how communities faced COVID-19 since March 2020. We have verified that the biopolitics of "letting die" was expressed in the indifference or omission of the authorities in the face of the needs of the population. Specifically, we refer to the lack of information, as well as economic support and medical assistance.

The pandemic meant for a significant number of people, not only the loss or decrease of income, but also the increase in expenses, because care and disinfection implied an increase in water consumption and the purchase of disinfectants to prevent the spread and contagion. All this was assumed by each family.

From the interviews with the students of the Intercultural University in San Marcos Tlacoyalco, it appears, on the one hand, that not enough information was received about COVID-19. The University fulfilled an important role for the students in disseminating information, the gap seems to continue despite the efforts to provide clarity. However, they believed that older adults found themselves in a vulnerable situation, living in the uncertainty of not knowing how real the disease was.

The interviews also allowed us to understand that the pandemic had aggravated a precarious economic situation within the community. Faced with little help from the political authorities in the region, the population organized itself autonomously to survive and resist this adverse situation. At the family level, migratory work networks were created. In addition, those who had relatives living in the United States represented a pillar for economic survival. Likewise, in an emergency situation they resorted to selling their animals to solve a certain problem. At the community level, they spontaneously organized themselves by delivering food to help those families in need.

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**Chapter 3 Theoretical reflections and empirical evidence on informal employment:
An application using panel data with small within country-variation**

**Capítulo 3 Reflexiones teóricas y evidencia empírica sobre la informalidad laboral:
Una aplicación usando datos panel con variación pequeña por país**

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Abstract

This research paper presents some theoretical reflections on the economic sources of the informal economy phenomenon. The discussion is presented under a new approach called the *non-retributed factors approach*. Under this approach, we consider informal economy, all economic activities in which at least one factor of production is non-retributed or under-retributed. Additionally, using panel data for Latin American countries and other developing countries as well as data for developed countries, we present empirical evidence regarding the impact of physical capital and human capital on informal employment rates. Because these variables show very small variation over time, the *small within-group variation* characteristic must be considered when choosing the appropriate model estimation technique with panel data. Our findings show that the scarcer the physical and human capital, the higher the informal employment rates will be.

Informal Employment, Informal Economy, Panel data model, Small within-group variation

Resumen

Este artículo de investigación presenta algunas reflexiones teóricas sobre las fuentes económicas del fenómeno de la economía informal. La discusión se presenta bajo un nuevo enfoque llamado “*enfoque de factores no retribuidos*”. Bajo este enfoque, consideramos economía informal, todas las actividades en las cuales al menos un factor de producción no es retribuido o es sub-retribuido. Adicionalmente, usando un panel de datos para países Latinoamericanos y otros países en desarrollo, así como datos para países desarrollados, presentamos evidencia empírica acerca del impacto del capital físico y humano sobre las tasas de empleo informal. Debido a que estas variables presentan una pequeña variación en el tiempo, la característica de “*pequeña variación dentro de grupo*” debe ser considerada cuando se elige la técnica de estimación apropiada con un panel de datos para el modelo. Nuestros hallazgos muestran que mientras más escaso sean el capital físico y el capital humano, más elevadas serán las tasas de empleo informal.

Empleo Informal, Economía Informal, Modelo con datos panel, Variación pequeña dentro de grupo

1. Introduction

In Latin America and many developing countries worldwide, the informal sector and informal employment remain substantial. Countries like Bolivia, Honduras, and Paraguay, show informal employment rates above 70 percent, while in Peru, El Salvador, and Nicaragua, this rate is above 60 percent. On the other hand, the GDP share of the informal economy in these countries has been relevant; as an example, the GDP share of the informal economy has been 23.3 percent on average for Mexico during the period 2003-2017¹. These data are just a few examples of how important and persistent the phenomenon of informality continues to be. The economic activity under informality conditions is relevant as a source of employment and for producing goods and services. More importantly, knowing that informality is associated with poverty and precarity, these data tell a story about countries' difficulties in improving economic growth and social welfare.

International organizations have made vigorous efforts to measure the informal economy and informal labor in order to make cross-country comparisons, and we may find vast literature with theoretical explanations of this phenomenon. However, there is scarce literature showing evidence regarding factors influencing informality. In this paper, we use panel data for developing and developed countries to analyze the influence of human and physical capital, output growth, institutional functioning, and the cost of starting a formal business, on the country's informal employment rate. One of the characteristics of these variables is the small variation they show over time for each country. Data are not sufficiently rich in information when there is little within-country variation. Therefore, to estimate the model, the appropriate econometric technique must be chosen; otherwise, estimates will be poor and unreliable.

¹ Own calculation based on data from the National Survey of Occupation and Employment (ENOE), 2003-2017 II trimester, INEGI <http://en.www.inegi.org.mx/programas/enoe/14ymas/>

Our results show that education and physical capital are key factors that influence the informal employment rate. In particular, the empirical evidence provided by the estimated model shows that increasing human capital will reduce the informal employment rate.

The paper is organized as follows: Section 2 explains the informal economy, informal sector, and informal employment concepts with a brief theoretical framework. Additionally, this section shows some stylized facts regarding human and physical capital in developing and developed countries that help us understand the relationship between the variables used in the model. Also, as an example, we present data and a brief analysis of informal employment and the GDP share of the informal activity for the particular case of Mexico and some sociodemographic characteristics of informal workers contrasted with those of the formal workers. Section 3 presents the model and a detailed explanation of the estimation methodology considering the small within-country variation characteristic of the variables. This section also explains the methodology implemented to solve collinearity (the sequential regression method suggested by Graham, 1997 and Dorman et al., 2013) and heteroskedasticity problems. Estimation results are interpreted and analyzed in Section 4. And finally, concluding remarks are presented in Section 5.

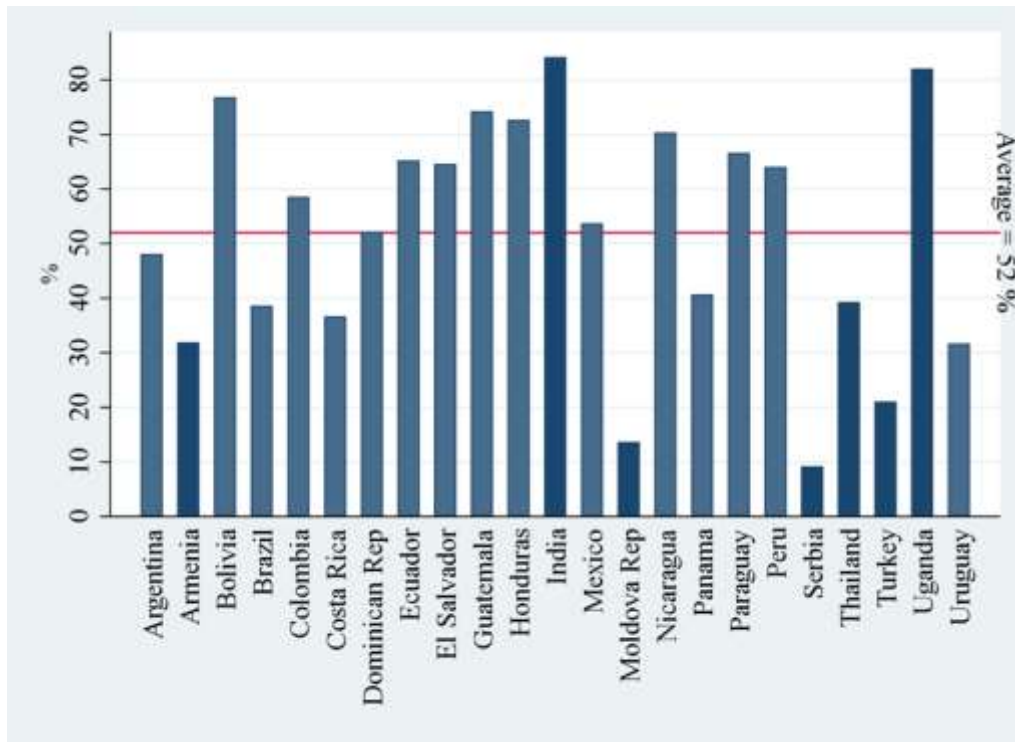
2 Conceptual framework and facts

The International Labour Organization (ILO) refers to the informal economy as “all economic activities by workers and economic units that are –in law or in practice– not covered or insufficiently covered by formal arrangements” (ILO, 2002). Accordingly, the informal economy emerges as a result of two kinds of economic activities: (a) economic activities in the informal sector and (b) informal economic activities in the formal sector (outside the informal sector). Concerning the first group of activities, the 15th International Conference of Labour Statisticians (ICLS) Resolution states that the informal sector is “...characterized as consisting of units engaged in the production of goods or services with the primary objective of generating employment and income to the persons concerned. These units typically operate at a low level of organization, with little or no division between labor and capital as factors of production and on a small scale. “Labor relations –where they exist– are based mostly on casual employment, kinship or personal and social relations rather than contractual arrangements with formal guarantees.” (ILO, 1993). Regarding the second group of activities, named “informal economic activities outside the informal sector” and also known as other forms of informality, we may say that “[...] although they are operating within the formal reach of the law, the law is not applied or not enforced; or the law discourages compliance because it is inappropriate, burdensome, or imposes excessive costs.” (ILO, 2002).

On the other hand, employment in the informal economy comprises two components: (a) employment in the informal sector and (b) informal employment outside the informal sector (ILO, 2013). Informal employment² “encompasses persons in employment who, by law or in practice, are not subject to national labor legislation and income tax or entitled to social protection and employment benefits. Informal employment can exist in both the informal and the formal sector of the economy.” (ILO, 2013, p. 4). “Employment in the informal sector and informal employment are concepts, which refer to different aspects of the ‘informalization’ of employment [...]” (Husmanns, 2005), and the difference between these two concepts is a consequence of the existence of informal employment outside the informal sector (ILO, 2013). Therefore, informal employment outside the informal sector refers to informal jobs in the formal sector.

Despite the implementation of economic policies aimed at reducing poverty and transforming traditional economies into dynamic and modern economies, informal employment accounts for a major proportion of employment for many poor and developing countries around the world. In Latin America, informal employment rates are particularly high in Bolivia, Guatemala, and Honduras, countries showing an average informality rate above 70 percent from 2008-to 2017 (see graph 1). Ecuador, El Salvador, Paraguay, and Peru report average informal employment rates above 60 percent, while Colombia, Dominican Republic, and Mexico show average rates above 50 percent. Why is this problem so persistent in developing countries? Is it the case that researchers, labor institutions, policymakers, and analysts have paid too much attention to characteristics and measurement and set aside the causes of the phenomenon?

² The 17th International Conference of Labour Statisticians defined informal employment as the total number of informal jobs, whether carried out in formal sector enterprises, informal sector enterprises, or households, during a given reference period (Husmanns, 2005).

Graph 1 Informal Employment Rate-Developing Countries Country Average (2008-2017)

Source: Own Calculations based on ILOSTAT Database.³ Averages are computed with the data available for each country using STATA software 16.1

The ILO definitions of informal economy and informal employment provide very clear concepts that help us understand the characteristics of informal economic activities and informal jobs. Indeed, the ILO definitions of informality might have their foundations in understanding the phenomenon; however, they were mainly designed to meet measurement objectives. Measuring and generating a system of statistics and a database for information on informal economy and informal employment is a key task for macroeconomic analysis, policy formulation, and evaluation. Additionally, informality measurement is essential for “...the formulation and implementation of policies for economic and social development, including employment creation, production, income generation, human capital formation and the mobilization of financial resources;” (ILO, 2013, p. 6). There is no doubt about the importance of having access to a definition of economic informality based on a statistical approach. Such a definition must be internationally accepted and may allow us to measure and carry out cross-country comparisons of this phenomenon. However, a measurement-oriented definition might not help us analyze the economic causes and roots of the problem.

To provide an economic definition of informal economy, we follow Guillermo & Angulo (2016), which presents a new approach called *non-retributed factors approach*. Under this approach, we consider informal economy all those economic activities in which at least one factor of production is non-retributed or under-retributed. This definition makes a critical difference from other general conceptualizations of the informal economy; it captures an essential part of the problem: non-retribution or under-retribution of production factors, characteristics which, as will be explained, are related to scarcity. In Mexico and other Latin American countries like Bolivia, Colombia, Nicaragua, etc., *non-retribution* is most frequently observed in the case of payment to physical capital. In contrast, the under-retribution characteristic is mainly observed in the case of payment to human capital. The scarcity of physical capital –with the corresponding high price of this factor– generates an invasion of public spaces, spaces that are essential for most of the informal economic units to carry out the production process of goods and services. But the invasion of public spaces is not restricted to informal economic units only. During the last decade, the appropriation of public spaces by formal economic units in Mexico has increased and become very common every day.

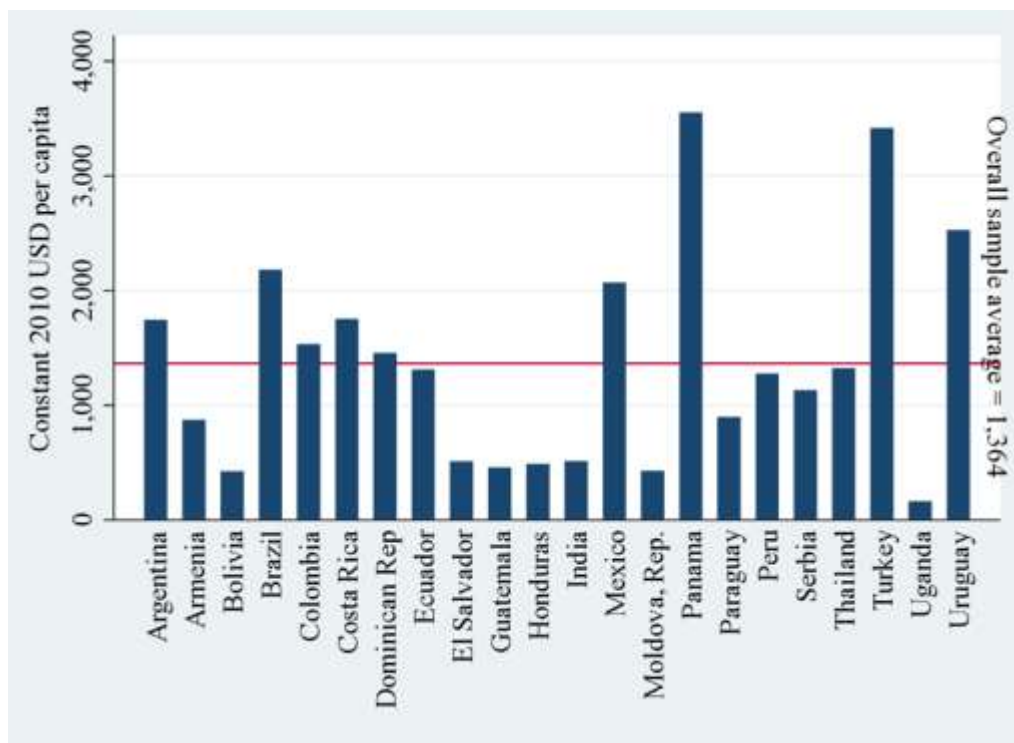
³Available at <https://ilostat.ilo.org/topics/informality/>

As an example, formal businesses –usually small– without enough customer parking space or enough space for tables and seats use public spaces to carry out their activities. We refer here to those formal businesses that use the surrounding streets and sidewalks to expand their grounds to provide parking or a dining table for their clients that otherwise would not go to those businesses.

The scarcity of physical capital in developing countries is evident when comparing the data with developed countries. Although we do not have data on capital stock, we may compare the gross fixed capital formation per capita for developing countries with that of developed countries. Graphs 2 and 3 show this variable's 2008-2017 country average for developing and developed countries, respectively. Comparing the overall sample average, we may observe that gross fixed capital formation per capita in developed countries is 6.5 times as much as in developing countries. Human capital is also very scarce in developing countries relative to developed countries. Graphs 4 and 5 show the 2008-2017 average educational attainment rates for developing and developed countries, respectively. The overall sample average educational attainment rate for developed countries is almost twice (1.8 times) the rate in developing countries.

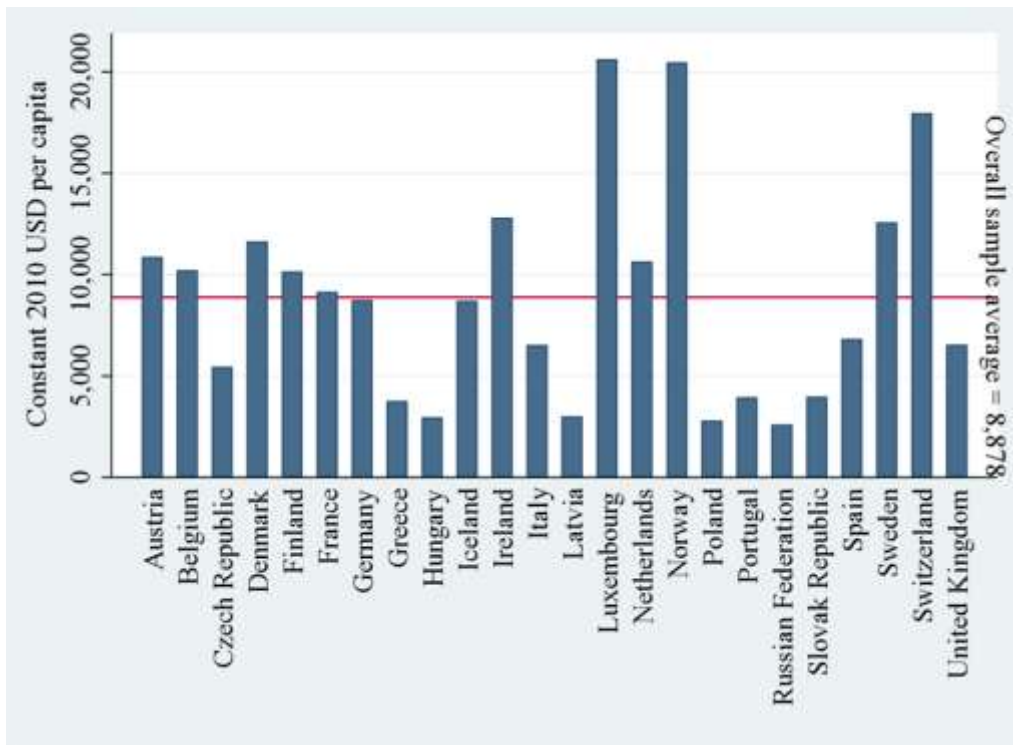
Education has been widely perceived as one of the crucial determinants of an individual's decision to participate in the informal economy. Education is also a very important characteristic of a country's population related to other sociodemographic characteristics that might help us to describe and identify differences between formal and informal workers. As shown in section 3, education and physical capital are key factors influencing the informal employment rate. In particular, the empirical evidence provided by the estimated model shows that increasing human capital will reduce the informal employment rate, and the effect is stronger in developing countries.

Graph 2 Gross Fixed Capital Formation Per Capita- Developing Countries Constant 2010 USD (2008-2017 average by country)



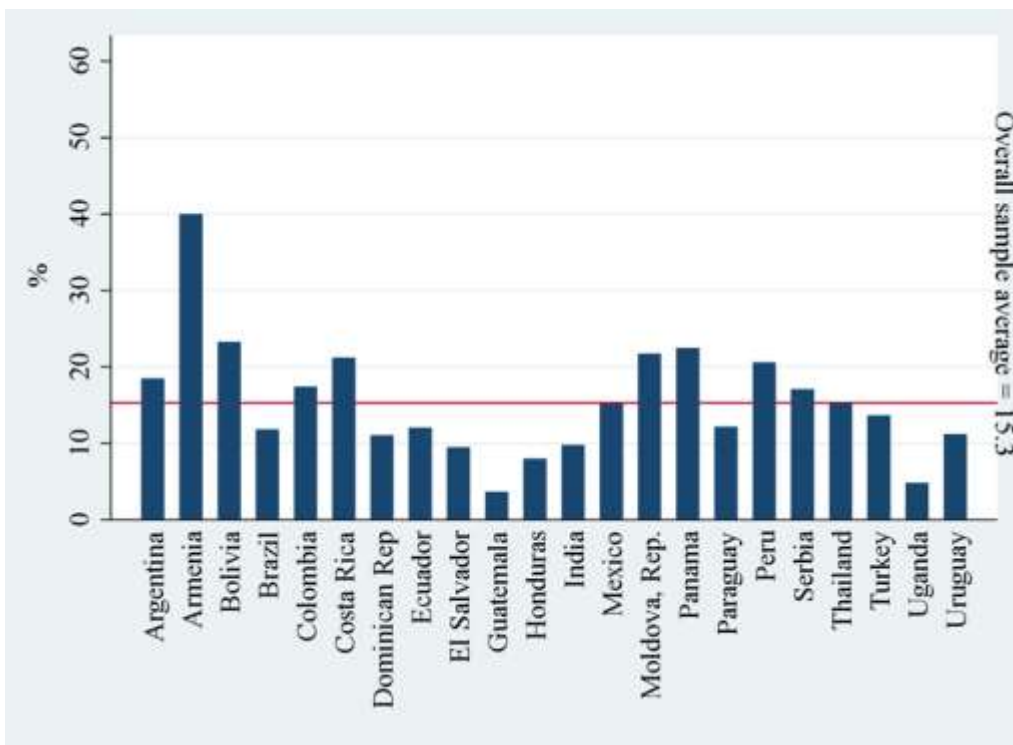
Source: Own Elaboration using STATA software 16.1 and based on data from The World Bank, World Development Indicators

Graph 3 Gross Fixed Capital Formation Per Capita- Developed Countries Constant 2010 USD (2008-2017 average by country)



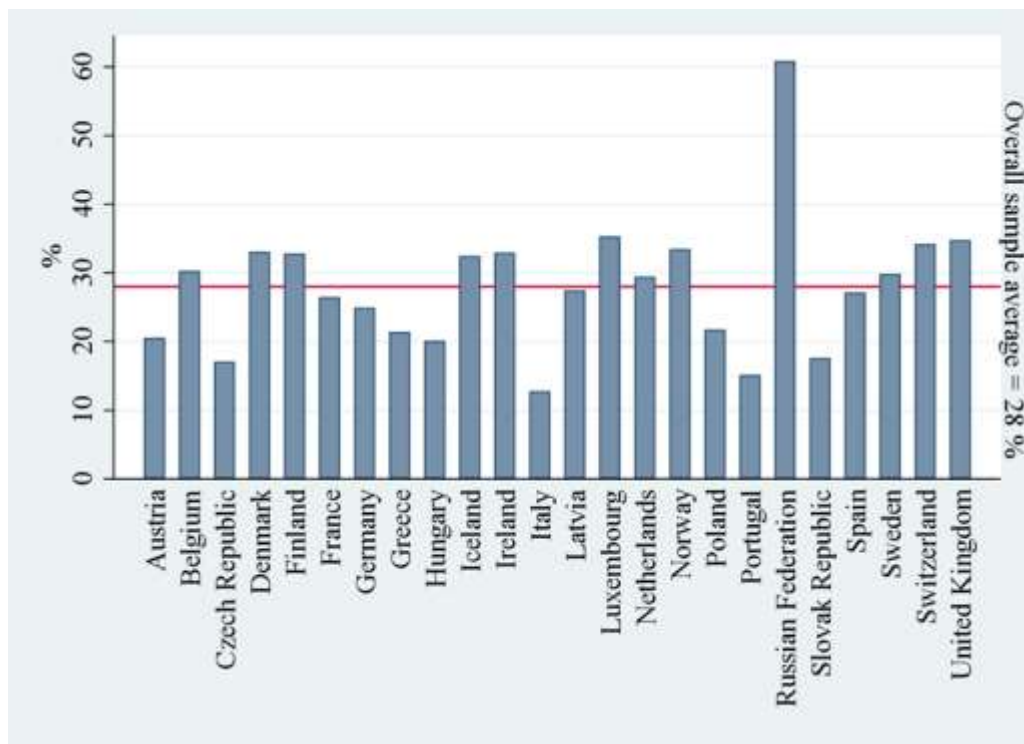
Source: Own Elaboration using STATA software 16.1 and based on data from The World Bank, World Development Indicators

Graph 4 Educational Attainment – Developing Countries (2008-2016 average by country) % of Population 25+years that at least completed short-cycle tertiary education



Source: own elaboration using STATA software 16.1 and based on data from UNESCO

Graph 5 Educational Attainment – Developed Countries (2008-2016 average by country) % of Population 25+years that at least completed short-cycle tertiary education



Source: Own Elaboration using STATA software 16.1 and based on data from UNESCO

2.1 Informal Economy and some Sociodemographic characteristics of Employed Workers in Mexico

This section describes some sociodemographic characteristics of employed workers in Mexico. Why analyze this for Mexico? Because of data accessibility, special interest in our country, and very likely, employed workers in other Latin American countries have similar sociodemographic characteristics to Mexican workers (we keep this last issue for further research).

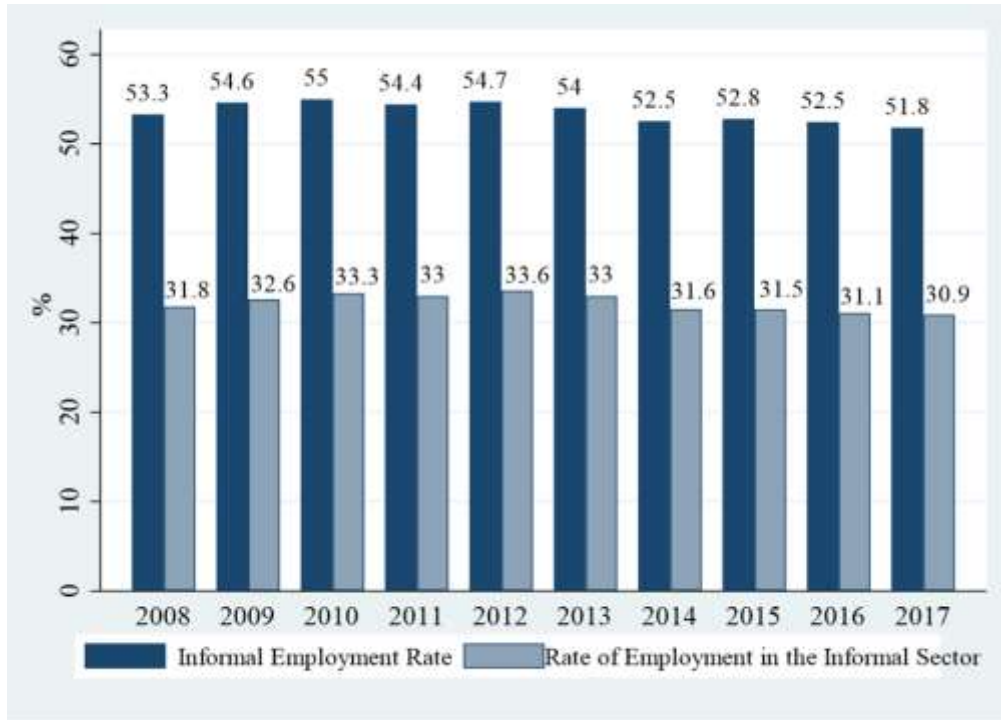
The objective is to review some basic sociodemographic indicators of employed workers and identify the differences between informal and formal employment workers. First of all, it is important to point out that more than half of the non-agricultural working population in Mexico has an informal job (see Graph 6). On the other hand, the informal sector's employment rate is close to 30 percent considering non-agricultural activities. This fact tells us that the informal sector is an essential source of employment in Mexico and that half of the informal jobs are outside of the informal sector, accounting for a substantial proportion of employment in this country. Therefore, informal employment is the largest component of the workforce.

In Mexico and many Latin American countries, the informal economy is not only the largest source of employment but also has essential participation in the production of goods and services. The contribution of the informal economy (inside and outside the informal sector) is substantial. Graph 7 shows that, on average, during the period 2003-2017, the informal economy's contribution to Mexico's GDP has been around 26 percent, reflecting the importance of informal economic activities in income generation and hence poverty alleviation.

To identify specific sociodemographic characteristics of informal workers, table 1 compares some basic indicators of employed workers (aged 15 years or older) by type of employment: informal or formal. During the analyzed period (2008-2017), the sociodemographic characteristics of employed informal workers have not significantly changed. The particularities of informal workers that mark a difference from formal workers are the following: First, we see in table 1 that among the workers with informal employment, 40.3 percent live in urban localities, while 67 percent of formal workers live in urban areas. The distribution of workers by sex is very similar for both informal and formal workers since women represent 38.2 and 36.6 percent of informal and formal employed workers, respectively.

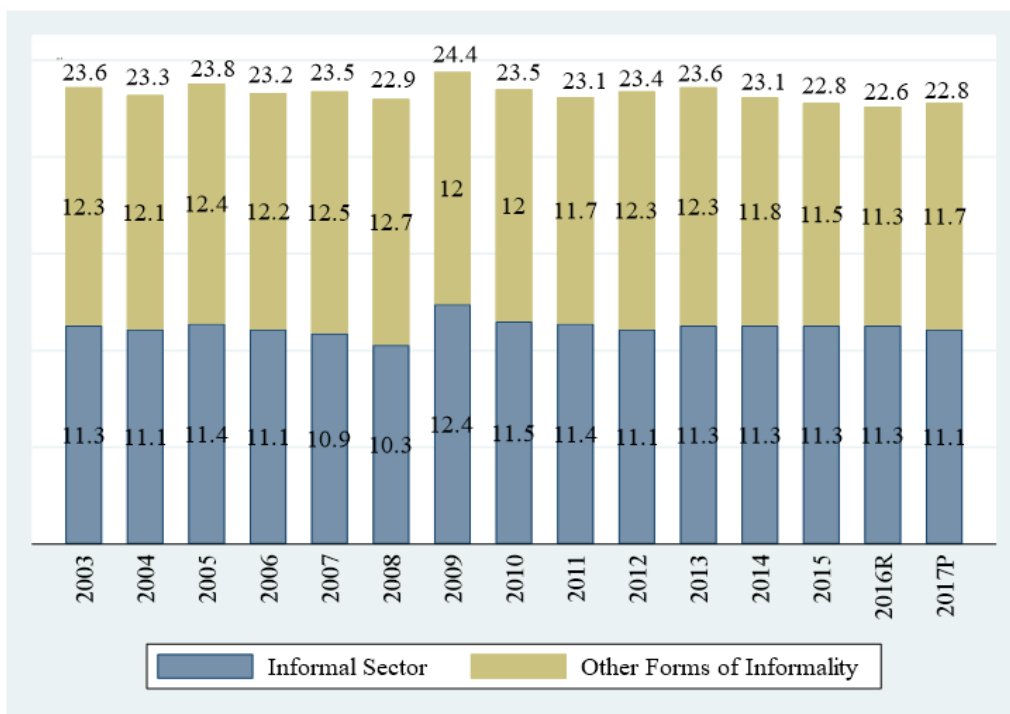
The data tell us that women and men are almost equally likely to be engaged in informal economic activities or informal employment. One particularity of informal workers is their age distribution. Informal workers have greater proportions of young (aged 15 to 24) and elderly (aged 65 and older) relative to formal workers. In particular, 23 percent of informal workers –on average– are school-aged workers, while only 14 percent of formal workers –on average– are under this condition. Regarding marital status, differences are practically indistinguishable. Also, the proportion of informal workers being the head of household is around six percentage points lower than that of the formal workers.

Graph 6 Mexico: Informal Employment and Employment in the Informal Sector (Share of working population in Non-agricultural activities)



Source: Own Elaboration using STATA software 16.1 and with data from the National Survey of Occupation and Employment (ENOE). INEGI, Strategic Indicators 2008-2017 (Q2). Rates are calculated as the share of the working population in non-agricultural activities.

Graph 7 Mexico: Contribution of Informal Economy (% of GDP)



Source: Own elaboration with data from INEGI. R: Revised estimate; P: Preliminary https://www.inegi.org.mx/temas/pibmed/default.html#Informacion_general (Abril, 2022)

Table 1 México: Sociodemographic characteristics of employed workers by type of employment 2008-2017 (workers 12 years and older)

Indicator	Type of employment	Year									
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
% living in urban localities ^a	Informal	40.3	40.2	39.9	39.9	39.9	39.7	38.9	38.9	38.3	38.4
	Formal	67.2	67.3	67.4	66.5	66.7	66.6	65.7	65.7	66.0	65.9
% of women	Informal	38.2	37.4	38	30.8	39	39.1	38.2	38.1	38.4	38.0
	Formal	36.6	37.4	37.2	36.8	37.2	37.6	37.3	37.1	37.7	37.8
% aged 12 to 24 years	Informal	23.7	23	23.6	22.9	22.6	21.8	22.6	21.7	21.4	21.0
	Formal	15.3	13.5	14.0	13.9	14.0	13.6	13.2	12.7	12.7	12.8
% aged 65 years and older	Informal	6.3	6.3	6.4	6.4	6.3	6.4	6.5	6.8	6.8	6.9
	Formal	2.5	2.3	2.4	2.3	2.3	2.2	2.5	2.5	2.5	2.7
% married or living with partner	Informal	60.7	60.6	60.3	60.5	60.4	61.1	60.0	60.0	60.4	60.5
	Formal	64.5	64.4	64.2	64.3	63.8	63.9	65.7	64.7	63.5	63.7
% single	Informal	30.6	30.6	30.7	30.3	30	29.9	30.8	30.7	30.1	29.9
	Formal	28.0	27.6	27.7	28.1	28.3	28.2	26.5	27.2	28.0	27.9
% head of household	Informal	45.1	45.9	45.6	45.9	45.6	45.6	44.9	44.9	45.5	45.4
	Formal	52.3	52.7	52.0	52.3	51.4	51.3	51.5	51.5	51.0	50.2
% working children of the household head	Informal	28.6	28.5	28.1	27.5	27.5	27.3	28.2	28.2	27.5	27.6
	Formal	24.4	24.1	24.8	24.5	25.0	24.7	23.8	24.2	24.6	24.8

Source: Own Elaboration with data from the National Survey of Occupation and Employment (ENOE). INEGI, 2008-2017
^aUrban localities with more than 100 thousand inhabitants

Concerning education, the differences between informal and formal workers are an issue to highlight. Table 2 shows that although illiteracy rates are low, the proportion of informal workers considered illiterate is seven times higher –on average– than that of formal workers.

Table 2 México: Selected indicators of Education for employed workers, 2008-2017 (workers 12 years and older)

Indicator	Type of Employment	Year									
		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
% of illiterate	Informal	8.7	8.0	7.9	7.7	7.0	6.6	5.9	5.6	5.4	5.3
	Formal	1.4	1.1	1.2	1.0	0.9	0.9	0.7	0.6	0.6	0.6
% with primary school (complete or incomplete)	Informal	40.7	39.4	38.5	37.2	36.2	35.5	35.3	34.8	33.9	32.7
	Formal	16.3	14.7	13.8	13.5	12.6	11.7	12.0	11.7	10.9	10.8
% with middle school (complete or incomplete)	Informal	28.5	28.9	29.2	30.1	30.7	30.8	31.1	32.0	32.1	32.4
	Formal	25.0	24.0	24.5	24.4	24.3	24.3	24.8	24.9	24.5	24.1
% with high school or post-secondary (non-tertiary) education (complete or incomplete)	Informal	15.3	16.2	17.0	17.6	18.1	18.5	18.6	18.5	19.1	11.6
	Formal	29.1	29.9	29.9	30.2	29.9	30.3	29.1	28.7	29.7	29.2
% at least completed short-cycle tertiary education	Informal	6.8	7.5	7.4	7.5	8.0	8.5	8.3	8.4	8.8	9.1
	Formal	28.1	30.1	30.6	30.9	32.1	32.7	32.9	33.8	34.1	35.0
% workers with school attendance	Informal	8.6	8.2	8.3	8.0	8.6	8.1	7.8	7.6	7.5	7.5
	Formal	4.8	4.4	4.5	4.5	5.1	4.9	4.5	4.4	4.4	4.2

Source: Own Elaboration with data from the National Survey of Occupation and Employment (ENOE). INEGI, 2008-2017

We observe an important proportion of informal workers with educational attainment below the middle (secondary) school compared to formal workers. In general, the educational gap between informal and formal workers gets wider the higher the educational level. For example, the gap between informal and formal workers reaches 24 percentage points on average for employed workers with some-tertiary educational attainment. This gap shows an increasing trend during the period 2008-2017. In particular, for 2017, the percentage of informal workers that attained or completed some tertiary level of education (short-cycle tertiary, bachelor's or equivalent, master's or doctoral degree) was only 9.1 percent, while for formal workers was 35 percent. This fact provides some evidence for our hypothesis that human capital is an essential factor in explaining and reducing informal employment.

Another aspect that must be highlighted in this regard is that the proportion of informal workers combining school with work is almost twice that of formal workers in this situation. On average, 8 percent of informal workers attend school, while only 4.6 percent of formal workers do so.

3. The Model and Estimation Methodology

This section aims to show some empirical evidence regarding the influence of physical capital and human capital on informal employment rates and the influence of other macroeconomic variables like GDP growth and corruption. The majority of studies that explore the relationship between education and informality are mainly focused on how an individual's decision to participate in the informal economy is influenced by the level of education (Jimenez *et al.*, 2015; Angel-Urdinola & Tanabe, 2012; Günsel, 2012; Yamasaki, 2012; Gërxhani & Van de Werfhost, 2011; Bucheli & Ceni, 2010; Pisani & Pagan, 2004). Using microdata for specific countries, the studies in the literature show evidence of a negative relationship between education and informal economy participation.

Besides physical and human capital, other factors may influence the informal employment rate; omitting them from the model may yield biased and inconsistent parameter estimators. This is the case of the GDP per capita growth rate, an explanatory variable that must be included to capture the impact of the economic expansion (and economic development over time) on the informality rate. Although there has been a widespread assumption of a negative relationship between economic growth and the informal economy, the empirical evidence is unclear. On the one hand, some studies have shown a negative relationship between the size of the informal economy and the level of per capita GDP. For example, La Porta (2008) uses different proxies for the informal economy's size on data for 96 countries to show that the size of the informal economy declines as one moves from poor to rich countries. Loayza & Rigolini found similar evidence (2006); these authors showed that, in the long run, informality (measured as the self-employment rate) is larger in countries that have lower GDP per capita. Galli & Kucera (2003) also explored the relationship between the share of informal employment and the GDP. Using panel data for fourteen Latin American countries in the 1990-1997 period, these authors found evidence of a negative GDP elasticity of informal employment share, indicating a countercyclical behavior of informal employment.

On the other hand, some empirical studies have shown that high informality rates can co-exist with high economic growth rates. According to Castells and Portes (1989, pp. 16-17), between 1950 and 1980, Latin American countries grew at a weighted average of 5.5 percent, while informal employment declined only from 46 percent to 42 percent of the Latin American labor force. Heintz & Polling (2003) found that increasing economic growth will reduce the rate at which informalization is increasing in developing countries. Still, economic growth does not produce an absolute decline in the informal employment rate. More recently, Loayza (2016) modeled, calibrated, and simulated the behavior of the informal sector. As a result, this author presents projections of the percentage of the informal labor force for several developing and developed countries and concludes that the TFP growth will lead to a reduction in informality in the long run. Perhaps this is why the influence of GDP growth on the informal employment rate is unclear. We must remember that the TFP is only one component of the GDP growth rate; hence, even though an economy might be experiencing an important positive GDP growth rate, its TFP growth rate may be zero or negative.

As we know, one of the main problems faced in research studies is data availability. Our research on informal employment is not an exception. Even for a particular country (developing or developed) is very difficult to have data with an appropriate time length to perform a time series analysis. In this sense, the data don't allow one to set up a model to analyze the factors that influence informal employment and estimate the impact of those factors on the country's informal employment rate. But data availability becomes even more problematic when we talk about developing countries. Because economic activities under informality and informal employment are particularly –but not exclusively– found in developing countries, the study of this phenomenon becomes complicated.

Considering data availability on the variables included in the model, we started setting a model based on a panel data set. We have data for 46 countries (22 developing countries, among which 15 are Latin American countries and 24 developed countries) with a time span from 2008 to 2013. However, the panel is not balanced because the number of time observations is different across countries; hence, the sample shows some missing observations for some countries. In particular, for some developing countries, we have the entire period of observations (six). In contrast, for some other developing countries, we have less than six observations (see table A1 in the Appendix for the list of countries included in the sample).

The limitation of data coverage across countries is an obvious disadvantage for our study for adequately identifying the factors that may influence the informal employment rate and the magnitude and direction of those influences. Moreover, the limitation of data coverage across countries may also translate into *small within-country variation*, data characteristics that must be considered when choosing the model estimation technique.

Based on the data characteristics, we initially set up the model to estimate the informal employment rate as a function of GDP per capita growth rate, Gross Fixed Capital Formation per capita, Educational Attainment (as a proxy of Human Capital), the Corruption Index (as a proxy of a country's institutional functioning) and the number of days it takes to start a business (as a proxy of the cost to start a formal business). It should be mentioned here that capital stock data is unavailable, which is why we use Gross Fixed Capital Formation instead (change in Gross Fixed Capital Stock). Additionally, the effect of a country's development is captured by a binary variable taking the value one if the observation in question corresponds to a developed country and zero otherwise, and by the interaction terms of this binary variable with the other explanatory variables. The model's functional form was chosen after graphically exploring the relationship between each explanatory and the dependent variable. Therefore, the baseline model for our panel data set is expressed as follows:

$$\begin{aligned} infe_{it} = & \alpha_i + \beta_2 dc_{it} + \beta_3 gdp_g_pc_{it} + \beta_4 (dc_{it} \times gdp_g_pc_{it}) + \beta_5 lgf_{cf_pc_{it-1}} \\ & + \beta_6 (dc_{it} \times lgf_{cf_pc_{it-1}}) + \beta_7 educ_{it} + \beta_8 (dc_{it} \times educ_{it}) + \beta_9 ci_{it} \\ & + \beta_{10} (dc_{it} \times ci_{it}) + \beta_{11} tsb_{it} + \beta_{12} (dc_{it} \times tsb_{it}) + e_{it} \end{aligned} \quad (1)$$

Where:

$infe_{it}$ = Informal employment rate for country i at time t

dc_{it} = binary variable taking the value one if country i is a developed country and zero otherwise (time-invariant for the sample period).

$gdp_g_pc_{it}$ = GDP per capita growth (annual rate) for country i at time t

$lgf_{cf_pc_{it-1}}$ = Natural log of the Gross Fixed Capital Formation per capita for country i at time $t-1$

$educ_{it}$ = Educational Attainment for country i at time t . This variable is measured as the percentage of population 25+ years old that at least completed short-cycle tertiary education⁴

ci_{it} = Corruption Index for country i at time t .

tsb_{it} = Time to start a business (days) for country i at time t

e_{it} = Idiosyncratic error term

As we may observe, equation (1) includes interaction terms to capture differences in coefficients between developing and developed countries. The commonly used and suitable model set up for short and wide panel data sets specifies the term α_i to capture all the *unobserved heterogeneity* across countries. Under the fixed effects approach, the term α_i is a country-specific constant term in the regression model embodying some unobserved elements correlated with the explanatory variables. Under the random effects approach, however, the unobserved heterogeneity term α_i does not embody any elements correlated with the explanatory variables of the model (Geene, 2018). On the other hand, if α_i is constant for all countries –meaning that there are no behavioral differences across countries–the model estimation procedure reduces to pooled ordinary least squares (pooled OLS).

The appropriateness of each model or estimation technique strongly depends on the data characteristics. In particular, the appropriate estimation technique depends on the assumptions about the unobserved heterogeneity effects. As is well known in panel data econometrics, if α_i is uncorrelated with the explanatory variables, random effects will produce consistent estimators and efficiency gain over fixed effects estimation. However, if the effects of heterogeneity across countries α_i , are correlated with the explanatory variables, implying an endogeneity problem, only the fixed effects estimation technique will produce unbiased and consistent parameter estimates. In order to solve the estimation dilemma of random versus fixed effects estimation, the Hausman test provides a suitable methodology to find evidence of the correlation between the unobserved cross-country heterogeneity and the model's explanatory variables.

⁴ UNESCO. <http://data.uis.unesco.org/>

Nonetheless, when carrying out empirical work, other *sample* characteristics of the data may also influence the choice of estimation technique. In this regard, we have previously mentioned an important limitation on our data coverage across countries and an unbalanced panel. These two characteristics of the sample, particularly for the variables we use in our model, translate into a very *small within-country variation* for each variable in the model. Hence, the question now is how the *small within-country variation* of the model's variables affects the choice of the estimation technique under a panel data context.

Following Hahn *et al.* (2011), “if the within variation is small, the fixed effect estimates may not be asymptotically normal, potentially invalidating the basic premise of the Hausman test.” Consequently, the conventional Hausman test may not be reliable (*ibid.*, 294). The authors provide a valid version of the Hausman test for between effects versus fixed effects⁵. However, we have not found econometric software⁶ that provides a command to implement Hahn's valid version of the Hausman test, which requires a bootstrap algorithm to generate the corresponding valid critical values. Therefore, we discarded the use of the conventional Hausman test as a criterion for choosing the estimation procedure (fixed effects versus random effects).

Now, considering that our sample data shows little within-country variation, working with country average data (the so-called between-effects estimator) could be much better than fixed effects specification. This is so because the fixed effects transformation (transforming the variables in deviations with respect to their country means) restricts sample information –for estimation purposes– to within-country action only. That is, fixed effects models rely on within-group variation, which is why we need a reasonable amount of variation of key explanatory variables within each group (Dranove, 2012). Thus, data are not sufficiently rich in information if we have very small within-country action due to the nature of the variables and short time series length. In such a case, the fixed effects model will produce poor and unreliable estimates because most of the variation in the model will come from across-country variation. Fixed effects estimation washes out all across-country variation, which explains why fixed effects estimates will be poor and unreliable when having little within-group variation. To summarize this issue, we must point out that an important limitation of fixed effects models is that we cannot assess the effect of those variables that have small within-group variation (*ibid.*), which is the case in our data set.

Once we have explained the problems associated with fixed effects using small within variation conditions, we must consider other estimation procedures. Is it the random effects option? We must consider that random effects estimation will produce inconsistent estimates if the unobserved country-heterogeneity is correlated with the explanatory variables; however, the conventional Hausman test to discard this possibility in our model cannot be implemented. Additionally, we must consider that random effects estimation through the generalized least squares procedure transforms the data by partially demeaning each variable. That is, instead of subtracting the entire country-specific mean (for each variable), only a fraction θ of the mean is subtracted, so we estimate the model with *quasi-demeaned data* (Wooldridge, 2003). The estimated fraction used to partially demean each variable is between zero and one and is a function of the number of time-series observations T , the estimated variance of the idiosyncratic error component $\hat{\sigma}_e^2$ showed in equation (1) and the estimated variance of the individual (country) error component⁷ $\hat{\sigma}_u^2$.

In particular, in the case of unbalanced panels, the fraction $\hat{\theta}_i$ is computed for each cross-section unit (e.g., country-specific) in the following way (Wooldridge, 2010)⁸.

$$\hat{\theta}_i = 1 - \sqrt{\frac{\hat{\sigma}_e^2}{T_i \hat{\sigma}_u^2 + \hat{\sigma}_e^2}} \quad (2)$$

⁵ The authors also show that a version of the bootstrap provides valid critical values for this test.

⁶ Developing a program (for example with STATA) to implement Hahn's (2011) version of the Hausman test with the corresponding valid critical values, goes beyond the scope of this paper.

⁷ Recall that, under the random effects model, the individual (country) heterogeneity term α_i is defined as $\alpha_i = \bar{\alpha} + u_i$, where $\bar{\alpha}$ is the population average (common intercept) and the u_i 's are the unobserved random individual differences from the population average (Hill *et al.* (2011)). Therefore, $\hat{\sigma}_u^2$ is the estimated variance of the unobserved individual heterogeneity term α_i .

⁸ See also Stata 13. Longitudinal-Data/ Panel-Data Reference Manual, pp. 384

From this expression (2), we can easily observe that if cross-sectional variation $\hat{\sigma}_u^2$ explains almost all model variation given by $\hat{\sigma}_u^2 + \hat{\sigma}_e^2$, then $\hat{\theta}_i$ will be close to one. In this case, random effects and fixed effects estimates will be very similar⁹ (Wooldridge, 2003, pp. 471).

But why is this explanation relevant for our data and model estimation choice? The explanation takes relevance when we again consider the small within-country variation of our data set. Under such conditions, we may expect values for $\hat{\theta}_i$ very close to one (and the median of the $\hat{\theta}_i$'s close to one, too), implying that fixed and random effects estimates will be similar. The problem with this expected similarity between fixed and random effects estimates is that –as we have previously explained– fixed-effects estimates are poor and unreliable when there is *small within variation*.

4. Estimation Results

Given the small variation of variables in the data set, the first estimation attempt for the model specified in equation (1) was under the random effects approach. As expected, the estimation results show a very high fraction of total variation due to cross-sectional variation as $\hat{\sigma}_u^2$ was 0.9738, meaning that almost all variation in the model is explained by cross-country variation. As a consequence, the estimation results also report the distribution¹⁰ of $\hat{\theta}_i$ with a median equal to 0.9333, which is a value very close to one. This result implies that random and fixed effects estimates are very similar; hence, the random-effects estimates are as poor as those we get with the fixed-effects model. We conclude that random and fixed effects models are not suitable estimation techniques for our data set.

Considering all mentioned characteristics of our data set and all the caveats associated with alternative estimation procedures under such characteristics, we estimated the model using two approaches. The first one was generalized least squares on the pooled data set, implying that the α_i coefficient is constant across countries. The estimated model can be expressed as:

$$infe_{it} = \alpha + \mathbf{x}_{it}\boldsymbol{\beta} + e_{it} \quad (3)$$

Where \mathbf{x}_{it} is the raw vector of all the eleven explanatory variables shown in equation (1) including interaction variables, and $\boldsymbol{\beta}$ is the (11×1) column vector of coefficients.

The feasible generalized least squares (FGLS) procedure was necessary to account for the presence of heteroskedasticity. A heteroskedastic partition was found associated with the country development effect dc_{it} . The estimated residuals for developing countries showed greater dispersion than those for developed countries.

The Breusch-Pagan (Lagrange Multiplier) and Goldfeld-Quandt tests were carried out to test the null hypothesis of homoscedasticity. Both tests provided evidence to reject the null hypothesis, as the sample values of the test statistics were 38.43 and 14.74, respectively, with p -values of zero in both cases. Therefore, FGLS estimation was implemented assuming the following variance function¹¹.

$$\sigma_{it}^2 = \begin{cases} \sigma_1^2 & \text{if } dc_{it} = 0 \\ \sigma_2^2 & \text{if } dc_{it} = 1 \end{cases} \quad (4)$$

⁹Recall that the fixed effects estimation procedure transforms the observations into time-demeaned data (deviations with respect to group means). This is the reason why the fixed effects transformation is also called within transformation (see Wooldridge 2002 and Wooldridge 2003 for a comprehensive explanation of the fixed effects and random effects models).

¹⁰Summary of the sample distribution of $\hat{\theta}_i$ (factor used to partially demean observations under the random effects model):

$\hat{\theta}_i$				
min	5%	median	95%	max
0.8850	0.8850	0.9333	0.9333	0.9333

¹¹The Breusch-Pagan statistic has a χ_{p-1}^2 distribution where p is the number of parameters included in the auxiliary regression, which were two in this case (as dc_{it} was the only one explanatory variable). On the other hand, the Goldfeld-Quandt statistic obtained from the estimated partitioned regression into two subsamples (one for developing countries and the other for developed countries) has an F_{v_1, v_2} distribution where $v_1 = 91$ and $v_2 = 138$ degrees of freedom respectively.

Collinearity was another problem found during the estimation procedure. In particular, the Gross Fixed Capital Formation per capita is highly linearly correlated with the corruption index ($r = 0.86$). Besides obtaining wide standard errors, the consequence of this very close linear relationship between two explanatory variables in the model is that we cannot properly isolate the individual effect that each explanatory variable has on the dependent variable. To deal with this problem –and because we are particularly interested in estimating the effect of fixed capital and human capital on the informal employment rate¹² – we follow the sequential regression method proposed by Graham (1997, 2003) and also suggested by Dorman *et al* (2013). With this method, we can isolate the effect of the corruption index on the informal rate from that of the gross fixed capital formation. Therefore, be careful when interpreting the meaning of the estimated coefficient for the corruption index¹³.

The estimation results under the pooled FGLS approach¹⁴ are presented in table 3. We may observe that, in general, the effects of the explanatory variables on the informal employment rate are bigger for developing countries (e.g. magnitude of coefficients is bigger for developing countries). Also, except for the GDP per capita growth rate in developing countries and the time to start a business variable, all coefficients are statistically significant (at 1% and 5% significance levels). While informal employment in developing countries is not affected by the GDP growth rate, for developed countries, a one-percentage-point increase in the GDP per capita growth rate will reduce the informal employment rate –vulnerable employment– by 0.7 percentage points, on average.

Our estimation results show that, taking into account the logarithmic transformation of the gross fixed capital formation per capita, a one-percentage-point increase that took place in the previous year ($t-1$) in this variable will (on average) decrease the informal employment rate by approximately 0.15 and 0.013 percentage-points (at time t) in developing and developed countries respectively. The linear-log relationship between the informal employment rate and the gross fixed capital formation also implies that the marginal effect of the physical capital on the informality rate is smaller at higher levels of gross fixed capital formation¹⁵. For example, for the 2008-2013 period, the gross fixed capital formation, on average, was 225 and 1,826 (constant 2005) USD per capita in Bolivia and México, respectively¹⁶. With these gross fixed capital formation levels, our results estimate that a 100 dollar increase in this variable in year $t-1$ will decrease the informal employment rate in year t by 6.7 percentage points in Bolivia, while in Mexico, informal employment will only fall by 0.82 percentage points. This is so because a 100 dollars increase in gross fixed capital formation per capita means increasing this variable by 44.4% in Bolivia (which is a considerable increase in capital formation!); while for Mexico, increasing 100 dollars the gross fixed capital formation per capita, only represents a 5.5% increase in this variable.

¹² Eliminating the corruption index from the model must not be considered as a choice to solve the collinearity problem, because this will generate bias due to omission of a relevant variable. Omitting the corruption index as explanatory variable will make the coefficient of the gross fixed capital formation to explain part of the effect of the omitted one. Inferences will be incorrect and prediction may be compromised (Dorman *et al*, 2013).

¹³ Sequential regression is a method that creates new explanatory variables in the sense that they have been *purified* from the effect of other explanatory variables. That is we extract the unique contribution of an explanatory variable, from its shared contribution with other explanatory variables. When two explanatory variables are collinear, “This can be done by regressing the less important variable against the other, and replacing the less important variable with the residuals from the regression [...]” (Graham, 2003 pp. 2810). In our model, we consider the corruption index as the less important variable which is highly collinear with the gross fixed capital formation. Hence, the first step in applying the sequential regression method was to regress the corruption index against the logarithm of gross fixed capital formation per capita, and obtain the estimated residuals from this regression. This residuals –by construction– are orthogonal to the log of gross fixed capital formation per capita. In this sense, they represent that part of the corruption index which is not explained by the gross fixed capital formation. As second step, we use the estimated residuals (which we named *ehat_ci*) as explanatory variable in our pooled FGLS regression.

¹⁴ Because the model in equation (1) allows for different coefficients between developing and developed countries, and there is a heteroscedastic partition due to development condition (dc), then estimation with FGLS is actually estimating two separate regressions (developing and developed countries).

¹⁵ Recall that if two variables y and x have a linear-log relationship like $y = \beta_1 + \beta_2 \ln(x)$, the slope of this function will be $\beta_2 \frac{1}{x}$. This is the marginal effect of x on y .

¹⁶ Own calculations based on World Bank data.

Table 3 Estimation Results, Feasible Generalized Least Squares on Pooled Data

Dependent Variable: $infe_{it}$			
Variable	Coefficient	Std. Error	P-val
$_cons$	162.9782***	12.8534	0.000
dc_{it}	-135.0791***	15.2729	0.000
gdp_pc_{it}	0.4208	0.3060	0.170
$dc_{it} \times gdp_pc_{it}$	-0.6982**	0.3427	0.043
lgf_pc_{it-1}	-15.0382***	1.9843	0.000
$dc_{it} \times lgf_pc_{it-1}$	13.7366***	2.1872	0.000
$educ_{it}$	-1.1246***	0.1672	0.000
$dc_{it} \times educ_{it}$	0.8897***	0.1752	0.000
$ehat_ci_{it}$	-0.5786***	0.1215	0.000
$dc_{it} \times ehat_ci_{it}$	0.4503***	0.1313	0.001
tsb_{it}	0.0533	0.0461	0.249
$dc_{it} \times tsb_{it}$	-0.0289	0.0690	0.675
Number of obs = 241			
F(11, 229) = 104.69			
Prob > F = 0.0000			
Adj R-squared = 0.8262			

Source: Own estimations. (***), (**) statistically significant coefficient at 1 and 5 percent respectively

Regarding the effect of education, our estimation results show that a one-percentage-point increase in the educational attainment rate will bring a 1.125 and 0.24 percentage-points fall in the informal employment rate in developing and developed countries, respectively. Therefore, based on our results, increasing human capital has a more considerable effect on reducing informality than increasing physical capital. This result particularly makes sense for developing countries. Why? Because even if the increase in capital investment takes place in the formal sector, an important proportion of the newly hired workers will likely be employees holding informal jobs; that is, workers not covered by social security and not entitled to other formal employment benefits. A poor labor regulation system, lack of law enforcement, and corruption in general are –unfortunate and prevailing– conditions that create incentives for informal jobs in formal enterprises. On the other hand, for developed countries, the increase in physical capital investment may go to own-account workers, which are classified as vulnerable employment workers.

Concerning the impact of corruption, we might expect a unit increase in the corruption index, –implying that a country becomes less corrupt– will bring a 0.58 and 0.128 percentage-point fall in the informal employment rate in developing and developed countries, respectively. As previously explained, this is the unique –independent from gross fixed capital formation– influence of corruption on informality. Regarding the *time to start a business* variable that we included to capture the time-costs of opening a formal business, we can see that the corresponding coefficients have the expected sign; however, the variable has no significant impact on the informal employment rate. Finally, the estimated intercepts are 162.98 and 27.9 for developing and developed countries, respectively.

The second estimation approach implemented was the between-effects model, which estimates regression on country-average data. Although this model is not commonly used, the small within variation of our data set suggests that this approach may be a suitable estimation technique in this case. The between-effects estimation results are shown in table A2 in the Appendix. In particular, the estimated coefficients associated with the (log of) gross fixed capital formation, educational attainment, and corruption index ($ehat_ci$) are very similar to those obtained with FGLS on pooled data. These results support the unbiasedness and reliability of the estimated coefficients obtained under the first estimation approach. However, the GDP per capita growth rate coefficients are very different in magnitude (and significance for developing countries) compared to those of the first estimation approach. The fact that the GDP per capita growth rate is the explanatory variable that shows more within-country variation may explain the difference between the alternative estimation approaches.

5. Final Remarks and Conclusions

The data shown tell us that informal employment accounts for a major proportion of employment for many poor and developing countries worldwide. Taking the *non-retributed factors approach*, we have explained that, economically, the source of the persistent presence of informal economy and informal employment in developing countries (Latin American countries in particular) is the scarcity of physical capital and the scarcity of human capital. The empirical evidence presented by estimating a model to explain the informal employment rate by country showed that human capital and physical capital are the main factors explaining informal employment. Together with the corruption index and the GDP growth rate, these variables explain 82 percent of the informal employment rate movements around its mean. Except for the “time to start a business” variable, the magnitude of marginal effects of each explanatory variable on the informal employment rate is different for developing countries compared to developed ones.

Regarding the econometric methodology used, we must point out that for panel data sets showing small within-group variation, the estimation approach must be carefully chosen to avoid low reliability and biasness. The application shown in this paper tells us that the little within-country variation, implies that the data are not sufficiently rich in information; therefore, a fixed-effects approach under these conditions is not the appropriate estimation technique. When we have data with small variation over time, the fixed effects transformation of variables in deviations with respect to their group means washes out all across-country variation, and estimates will be poor and unreliable.

Additionally, the fixed effects model with small within-variation conditions has another caveat. Following Hahn *et al.* (op. cit), the fixed effects estimates may not be asymptotically normal. Consequently, the conventional Hausman test used to show evidence of endogeneity of the individual (country) effects may not be reliable.

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Appendix

Table A1: Countries and observations included in the sample

Developing Countries			Developed Countries		
Country	Observations Included	Year	Country	Observations Included	Year
Argentina	6	2008 - 2013	Austria	6	2008 - 2013
Bolivia	2	2008, 2009	Belgium	6	2008 - 2013
Brazil	4	2009, 2011 - 2013	Czech Rep	6	2008 - 2013
Colombia	6	2008 - 2013	Denmark	6	2008 - 2013
Costa Rica	5	2009 - 2013	Finland	6	2008 - 2013
Dominican Republic	6	2008 - 2013	France	6	2008 - 2013
Ecuador	3	2008 - 2010	Germany	6	2008 - 2013
El Salvador	6	2008 - 2013	Greece	6	2008 - 2013
Guatemala	4	2010 - 2013	Hungary	6	2008 - 2013
Honduras	6	2008 - 2013	Iceland	6	2008 - 2013
Mexico	6	2008 - 2013	Ireland	6	2008 - 2013
Panama	3	2009, 2012, 2013	Italy	6	2008 - 2013
Paraguay	6	2008 - 2013	Latvia	6	2008 - 2013
Peru	6	2008 - 2013	Luxembourg	6	2008 - 2013
Uruguay	6	2008 - 2013	Netherlands	6	2008 - 2013
Armenia	3	2009, 2012, 2013	Norway	6	2008 - 2013
India	2	2010, 2012	Poland	6	2008 - 2013
Moldova Republic	4	2009, 2011 - 2013	Portugal	6	2008 - 2013
Serbia	4	2010 - 2013	Russian Fed	6	2008 - 2013
Thailand	3	2011 - 2013	Slovak Rep	6	2008 - 2013
Turkey	4	2009, 2011 - 2013	Spain	6	2008 - 2013
Uganda	2	2010, 2013	Sweden	6	2008 - 2013
			Switzerland	6	2008 - 2013
			United Kingdom	6	2008 - 2013

Source: Own Elaboration

Table A2 Estimation Results from the Between Effects Model

Between Effects Estimates			
Dependent Variable: $infe_{it}$			
Variable	Coefficient	Std. Error	P-val
$_cons$	174.2197***	26.9010	0.000
dc_{it}	-132.1177***	46.6737	0.008
$gdpg_pc_{it}$	2.9347**	1.4097	0.045
$dc_{it} \times gdpg_pc_{it}$	-4.9259**	2.2254	0.034
$lgfcf_pc_{it-1}$	-17.4748***	4.2635	0.000
$dc_{it} \times lgfc_pc_{it-1}$	14.3251**	6.1039	0.025
$educ_{it}$	-1.2245***	0.3572	0.002
$dc_{it} \times educ_{it}$	0.9922**	0.4167	0.023
$ehat_ci_{it}$	-0.7455***	0.2629	0.008
$dc_{it} \times ehat_ci_{it}$	0.7053**	0.3507	0.052
tsb_{it}	0.0668	0.1012	0.514
$dc_{it} \times tsb_{it}$	0.0384	0.2514	0.880
Number of obs = 241		Obs per group: min = 2	
Number of Groups = 46		average = 5.2	
F(11, 34) = 18.74		max = 6	
Prob > F = 0.0000			
Overall R-squared = 0.73.64			

Source: Own estimations. (***), (**) statistically significant coefficient at 1 and 5 percent respectively

Table A3 Data Sources and links

Variable	Data Source	Link	Year the data were retrieved
Informal employment rate for developing countries	International Labor Organization	https://ilostat.ilo.org/topics/informality/	2019
Vulnerable employment rate for developed countries	World Bank	Vulnerable employment, total (% of total employment) (modeled ILO estimate) Data (worldbank.org)	2019
GDP per capita (constant 2005 US\$)	World Bank-World Development Indicators	https://databank.worldbank.org/reports.aspx?source=world-development-indicators	2019
Gross Fixed Capital Formation (constant 2005 US\$)	World Bank-World Development Indicators	http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators&Type=TABLE&preview=on#	2019
Educational Attainment	UNESCO & World Bank - Barro-Lee Indicators	http://data.uis.unesco.org/Index.aspx?queryid=134# http://databank.worldbank.org/data/reports.aspx?source=education-statistics---all-indicators&preview=on	2019
Corruption Perception Index	Tranparency International	https://www.transparency.org/en/cpi	2019
Time to start a business	World Bank -Doing Business	https://databank.worldbank.org/reports.aspx?source=doing-business	2019

Note: The Educational Attainment data was collected from two sources, given the data availability for each country in the sample; we basically used UNESCO and as a secondary source, we used the Barro-Lee Indicators (Barro-Lee: Percentage of population age 25+ with tertiary schooling. Total (Incomplete and Completed Tertiary) from the World Bank site.

Chapter 4 Social media as a marketing strategy in commercial microenterprises in the Southern Region of Tamaulipas

Capítulo 4 El social media como estrategia de marketing en Microempresas comerciales de la Región Sur de Tamaulipas

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Abstract

Local businesses everyday face problems in sales and last year was no exception as it was more marked by the pandemic we are experiencing worldwide. The emergence of social media and the COVID-19 pandemic has changed the way businesses interact with customers so they can communicate more directly and quickly, as well as their advertising or marketing strategies. In addition, the cost of advertising on social networks is much lower than in traditional media such as radio and television. All this clearly shows that entering social networks is not only a trend, it is a requirement of every company and organization that wants to expand its horizons. In this sense, there are several points to consider, it is necessary to understand that each company is an independent entity, and its products are unique and different. In principle, you must set the objectives and not forget your philosophy as a company. . Based on what has been experienced in recent years as a result of the COVID-19 epidemic, social media has had an impressive boom, speaking of the case of Mexico, the forecasts that were had according to the Mexican Internet Association Mx, the forecasts that were had according to the Mexican Internet Association Mx, was that we would have a presence of between 85-90 million people within the internet by 2020, but by the end of that year the mark of 100 million internet users was exceeded, this opens up a huge channel for us, where talking about the business approach can be used in different ways to obtain an economic benefit.

Social Media, Strategies, Companies

Resumen

Los negocios locales cada día se enfrentan a problemas en ventas y el año pasado no fue su excepción ya que fue más marcado por la pandemia que vivimos a nivel mundial. La aparición de las redes sociales y la pandemia de COVID-19 ha cambiado la forma en que las empresas interactúan con los clientes para que puedan comunicarse de forma más directa y rápida, así como sus estrategias publicitarias o de marketing. Además, el costo de la publicidad en las redes sociales es mucho menor que en los medios tradicionales como la radio y la televisión. Todo esto muestra claramente que ingresar a las redes sociales no es solo una tendencia, es un requisito de toda empresa y organización que quiera expandir sus horizontes. En este sentido, hay varios puntos a considerar, es necesario entender que cada empresa es un ente independiente y sus productos son únicos y diferentes. En principio, debes establecer los objetivos y no olvidarse de su filosofía como empresa. Basado en lo vivido en los últimos años en consecuencia a la epidemia de COVID-19 el social media han tenido un auge impresionante, hablando del caso de México, los pronósticos que se tenían según la Asociación Mexicana de Internet Mx, era que tendríamos una presencia de entre 85-90 millones de personas dentro del internet para el 2020, pero para finales de ese año se superó la marca de los 100 millones de usuarios de internet, esto nos abre un canal enorme, donde hablando del enfoque empresarial se puede aprovechar de diferentes maneras para obtener un beneficio económico.

Social Media, Estrategias, Empresas

Introduction

Talking about social media in recent years, such as Facebook, Twitter, YouTube, or Instagram changed the way people communicate, so companies had to consider this form of communication to integrate it into their marketing strategies in order to reach consumers not to be absent or to be present as an option in their purchases. Internet consumption increased up to 70% in our area and not only in the south but nationally as the pandemic forced us to evolve and make use of social networks to communicate with family, friends, schools, for procedures but especially mainly in the commercial area.

It is worth mentioning that companies had to implement customer recovery strategies since many of them did not have a database or updated customer portfolios, this was a great challenge and from there began to venture into the world of social media. The use of social networks or also called social medial is not easy depending on the agility of communication of the internet, its capacity, even the company you hire as well as the update of the same and that is where companies forget their update.

Problem

Nowadays the traditional methods that were used in sales have changed, this is due to two important points, one of them is the pandemic, surprisingly, where we would never have imagined the isolation for more than a year, there the companies began to suffer because the customers did not want to have contact with anything or anyone for fear of contagion, the second is the pattern of consumption changes as generations use other means of communication and contact with companies. The problem is framed in the last two years in the southern area of the state of Tamaulipas as 40% of microenterprises in the commercial area began to close their doors for not adapting to these changes and customer information not being updated, never worried about changing their sales strategies to have updated and dynamic social networks to attract customers or keep them.

The research objective of this problem is to identify strategies that allow the use of social media in commercial microenterprises in the southern area of Tamaulipas. As well as the specific ones to be investigated, the following are proposed:

- Identify the main variables that make up the current social media marketing strategy of local businesses.
- Evaluate the functionality of the current strategies in social networks used by commercial companies in the region.
- Develop digital marketing strategies based on the current trends and needs of local businesses according to their needs.

This research will focus on small commercial companies and entrepreneurs in the southern area of Tamaulipas (Altamira, Tampico and Cd. Madero) that have a small presence in social networks or already have an established strategy on their presence in social networks or already use it as a means of dissemination of their company to collect real data on their current situation in social networks, covering different sectors of the productive sector.

Theoretical approach

Digital Marketing

Today's digital marketing has become an effective tool and a process facilitator for national and international companies, using various technologies can design business models and strategies aimed at discovering global market opportunities, so business development methods are needed to communicate and integrate the marketing plan for this, the company must be able to segment the market and understand the social media used in each market. Currently, professionals in the field of digital marketing, believe that if a product or service cannot be found on the Internet, it does not exist at all (Kotler, Kartajaya and Setiawan 2013). In the past only companies that were interested in making profits through business relationships together with customers, are now looking for ways to understand the best and meet their needs in efficient ways.

Evolution of marketing

In the 90's digital marketing was used as a definition for the first time, it is mainly about advertising, but the evolution of social and mobile digital tools continues to expand in the years 2000 and 2010, little by little the concept of creating an experience that involves users was created, which made them change their concept of what it is to be a customer of a brand.

This evolution of new technologies gave way to the concept of Web 1.0. It is the Internet in the classic sense with specific protocols, such as entering the Web site, which published content but without much interaction with users, then came the Web 2.0, where it is linked to services, and gave use to social networks, video sharing, graphics, and interaction with brands, and collaborative platforms, then came the Web 3.0, which is related to the semantic web, users, equipment, software, databases, these advances have undoubtedly generated an exponential growth of digital marketing, and access to information is easier (Kotler, P., & Armstrong, G. 2010)

Marketing 1.0 to 4.0

In recent years, marketing evolution scholars, mainly Kotler, have proposed a scale of marketing use starting from 1.0 to 4.0, where they detail the approach that marketing acquires according to the needs of the context in which it lives.

Today's marketing seeks its own expansion and deepening to focus on covering all aspects of the products required by customers. It aims to humanize brands with human characteristics, provide better offers and interact with customers. Marketers must demonstrate their strong personality and morality while establishing the human side of their brand. Marketing, since its beginnings in the 20th century, has shown itself to be the ideal companion to the processes of production, marketing, distribution and advertising of products and services. Today, with the same dynamics, it is part of the organizational architecture and influences the strategic decisions of the company and, of course, the purchasing and investment decisions of the global community. Today the world is not the same as it was 100 years ago and tomorrow it will be different. "Marketing changes as institutions, technology and the environment change" (Jose Maria Ancin, 2011).

Methodology

The research is based on quantitative and qualitative aspects, in relation to this, it acquires a mixed character, on the quantitative side the study aims to measure or collect independent information on the variables of our study universe to measure, select and evaluate data on the use of social networks as a marketing strategy in businesses in the southern area of Tamaulipas today. Thanks to this research, it will be possible to generate strategies that generate positive results for the businesses; likewise, it is descriptive since with this type of research it is possible to characterize an object of study or a concrete situation where the objects involved in the research work can be ordered, grouped or systematized.

The population of this research is made up of businesses and entrepreneurs in the southern zone of Tamaulipas who have direct contact with social networks as a marketing strategy for their businesses. According to data from the National Statistical Directory of Economic Units of INEGI with the latest update of 2020, we have data that speak of an estimate of about 18,000 economic units called MiPymes, which would be an approximate of our population.

The type of sampling of the research will be based on a convenience sampling, i.e., non-probabilistic, because we do not have an exact number of population for the extraction of the sample, due to the large number of variables that this has such as the exact number of economic units in the area, the number of population that has internet connectivity and how many of these economic units have this connectivity.

That is, they meet the characteristics of interest for this research, which are the MSMEs and entrepreneurs in the southern zone of Tamaulipas that have within their business some indication of using social networks for visibility, sales or other actions related to the economic unit, in addition to intentionally selecting individuals from the population to which there is generally easy access or through open calls, in which people come voluntarily to participate in the study, until reaching the number needed for the sample.

To draw an approximate number of the sample, we will first take into account the approximate population of economic units in the southern zone of Tamaulipas, which is approximately 18,000 and the percentage of the population that has access to internet, which is relatively 70% of the population, according to INGENI 2020, assuming that all these economic units comply with this characteristic, we would have an approximate population of 12,600, in this approximate there may be bias because we do not have the exact data. Taking into account this study population of 12,600 business units, our formula for drawing the sample would be as follows, using a reliability value of 95%:

$$N=12,600$$

$$z=1.96$$

$$p=0.5$$

$$q=0.5$$

$$e=0.05$$

$$n = \frac{Nz^2pq}{(N-1)e^2 + z^2pq}$$

$$n = \frac{(12,600)(1.96^2)(0.5)(0.5)}{(12,600-1)0.05^2 + 1.96^2(0.5)(0.5)}$$

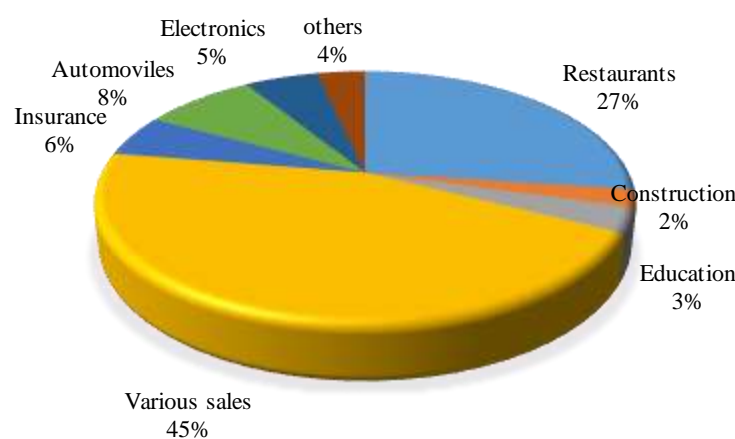
$$n = 373$$

In this case, 373 surveys will be applied to different entrepreneurs and users of these marketing tools focused on small businesses.

Analysis of the results

The method used to analyze the data will be based on a descriptive analysis method with frequency measures that will focus on the relationships on how beneficial is for commercial enterprises (small) in the southern region of Tamaulipas the use of social networks as a marketing strategy under the current parameters of the economic units, talking about the use of this type of strategy. The following graphs show the results obtained from the instrument applied to the merchants in the southern region of Tamaulipas.

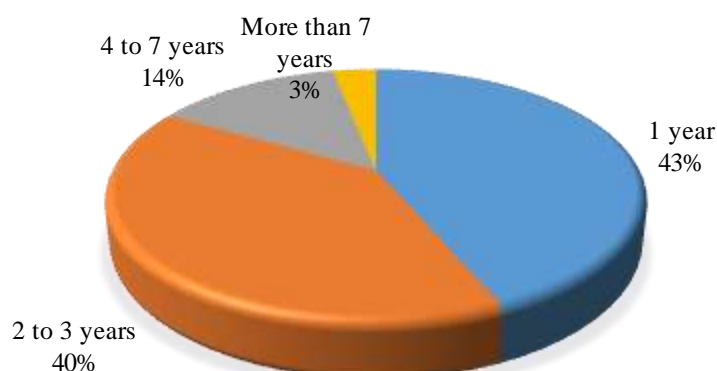
Graph 1 Line of business



Source: Own Elaboration

In the graph that shows us the line of business of the company, it tells us that 45% of the sales are miscellaneous, which means that they are dedicated to the commercialization of products. The following graph shows the time of existence of the business in the market, since this point is important because in Mexico the probability of businesses is low, normally when they are small, their life lasts less than 5 years.

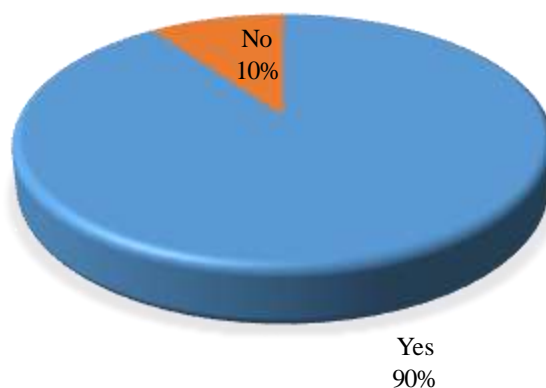
Graph 2 Time of existence of the business



Source: Own Elaboration

Forty percent of the surveyed businesses say that they have been in the market for between 2 and 3 years, on average, the graph shows that only 3% of the total of those surveyed have been in the market for more than 7 years.

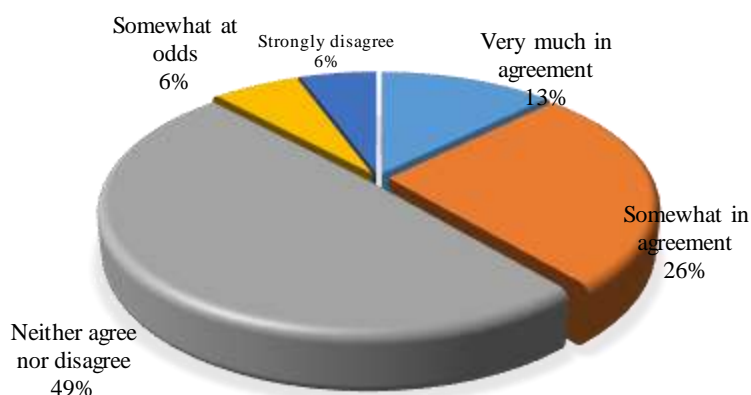
Graph 3 Use of social media



Source: Own Elaboration

In this graph we are interested in knowing if the businesses use social media as a marketing strategy. 90% answered that they do use it as a means to attract their customers.

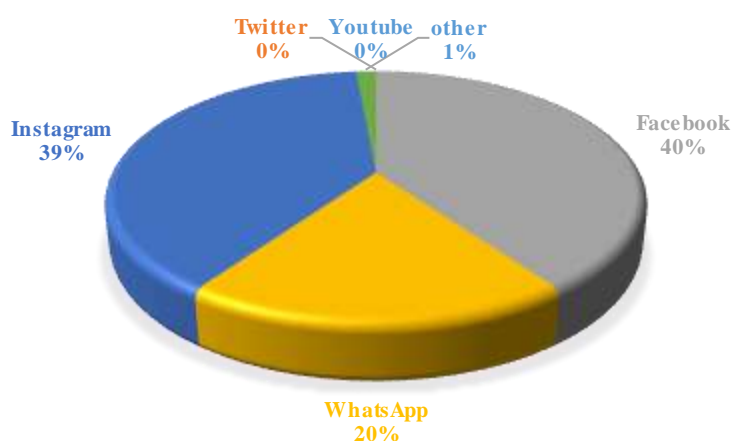
Graph 4 Benefits of using social media



Source: Own Elaboration

49% of respondents answered that they neither agreed nor disagreed about the benefits of using social media. In the previous graph, 90% answered that they did use it as a strategy, but when the benefits of its use were mentioned, only 26% agreed, which tells us that most of the businesses do not have the experience to manage social media as a strategy or marketing tool.

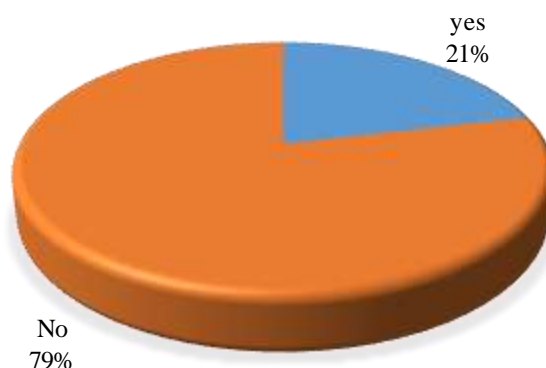
Graph 5 Use of the most commonly used platform



Source: Own Elaboration

This graph shows that 40% of respondents use Facebook as a commercial medium to inform their customers about promotions and advertising of their products they offer because it is a medium that does not cost them and is related to Instagram 39% we can conclude that 79% benefit from these platforms.

Graph 6 MKT plan development



Source: Own Elaboration

For the good management of social media in commercial companies, it is necessary to develop a marketing plan, which is why this graph asks about the development of the plan. The 79% of respondents told us that they do not make any, which we can see that in the graph where it shows the benefits 26% shows benefits.

Graph 7 Results from the use of social media



Source: Own Elaboration

This graph shows the results obtained in the use of social media in commercial companies, 43% has been for promotions and advertising, others have benefited from the increase in sales, 25% has been effective.

Conclusions

According to the data collected it is concluded that most of the commercial companies in the southern area of Tamaulipas use Facebook, and secondly Instagram as advertising and promotion of their business, looking for immediate sales in the first instance, and secondly the increase of followers; it is noteworthy that according to data from the Institute of Internet Mx (2020), the busiest social network within the country is YouTube with about 110 million users, and surprising that it does not turn to see this platform where it is a channel with a high potential to create a marketing strategy. In some businesses it was noticed the use of platforms such as whatsapp, which are more personal platforms that handle information of families and friends, but the real reach of this platform within the country is unknown.

It was possible to analyze that as a result of the conditions created by the COVID-19 pandemic, many businesses decided to start paying their expenses and that is why the vast majority of respondents are young economic units that are almost entirely focused on retail sales or the restaurant sector, all this based on the fact that these economic units saw a channel of contact with society through these platforms that did not present them with a strong economic expense. That is why social networks are an essential tool for companies to stay in the market as well as one of the advantages of using them is that they do not require much investment, especially in this research we noticed that small merchants with low budgets for the development of strategies for their business. It is also important to emphasize that it is necessary to make a marketing plan to follow up on the strategies established, this will help the entrepreneur to measure the impact on social media or specifically in which social network was effective.

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Chapter 5 The human habitat in relation to the new paradigm of the social distancing by covid19

Capítulo 5 El hábitat humano en relación con el nuevo paradigma del distanciamiento social por covid19

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Abstract

Pandemics have always generated a change in all fields, in the social, cultural, habits, customs and even in the spaces, at the end of 2019 (COVID19) is declared a global pandemic by the World Health Organization. Due to this, changes in social habits and customs are required, including distancing, which has caused controversy, social and psychological problems and conflicts throughout the world. The objective of the work is to determine what changes have been generated regarding social distance in interior spaces and shopping habits in the Saltillo metropolitan area. The methodology is of a mixed approach, longitudinally; using a virtual survey and the traditional and virtual ethnography method to document its phases in 2020 and early 2021, as well as a bibliographic review of theories on social distancing. The results show that the biggest problem is inside the houses and that there is an increase and decrease in mobility in purchases and use of public spaces, faced with this contingency the answer is different, due to the culture and customs of each place. So, there is a lot to work on this topic.

Habitat, Pandemic, Social Isolation

Resumen

Las pandemias han generado siempre un cambio en todos los campos, en lo social, cultural, hábitos, costumbres e incluso en los espacios, a finales del 2019 se declara al (COVID19) como una pandemia global por la Organización Mundial de la Salud. Debido a esto se requieren cambios en los hábitos y costumbres sociales entre ellas el distanciamiento, que ha provocado polémica, problemas sociales, psicológicos y conflictos en todo el mundo. El objetivo del trabajo es determinar qué cambios se han generado respecto a la distancia social en los espacios interiores y hábitos de compra en la zona metropolitana de Saltillo, la metodología es de enfoque mixto, de forma longitudinal; empleando una encuesta virtual y el método de etnografía tradicional y virtual para documentar sus fases en el año 2020 e inicio del 2021, además de una revisión bibliográfica de teorías sobre distanciamiento social. Los resultados demuestran que el mayor problema es al interior de las viviendas y que existe un aumento y disminución en la movilidad en las compras y uso de espacios públicos, ante esta contingencia la respuesta es distinta, debido a la cultura y costumbres de cada lugar, por lo que hay mucho que trabajar sobre este tema.

Aislamiento Social, Hábitat, Pandemia

1. Introduction

According to the Higher Council for Scientific Research (CSIC) in 2020, pandemics have always generated a change in all fields, in social, cultural, habits, customs and even in spaces. And at the end of 2019, the coronavirus (COVID19) was identified in the city of Wuhan, People's Republic of China, recognized as a global pandemic on March 11, 2020 by the World Health Organization (WHO). As this current pandemic situation poses, changes in social habits and customs are required, including distancing, which has generated social and psychological problems throughout the world, due to confinement and isolation in order to control infections, this demands an analysis about the paradigms that are having to be broken to fulfill this new reality in society, including social distancing.

Ethology studies, like anthropology, the "hidden dimension" of animal life, the behavior of individuals with respect to other individuals and the group, the space they keep among themselves in particular situations, territoriality, relationships between individuals under stress conditions, etc.; it is based on the management of the basic concepts of space and distance (Ardelean, 2001).

Ardelean (2001) continues stating that this discipline handles two criteria on animal species, contact and non-contact. For example, species such as imperial penguins enter the first, which usually live in conditions of physical contact with each other, while species such as swans, which do not usually touch individuals of the same species and which maintain a constant distance from the nearest individual. In this he applies the mechanism of spatiality when they come into contact with individuals of the same or different species.

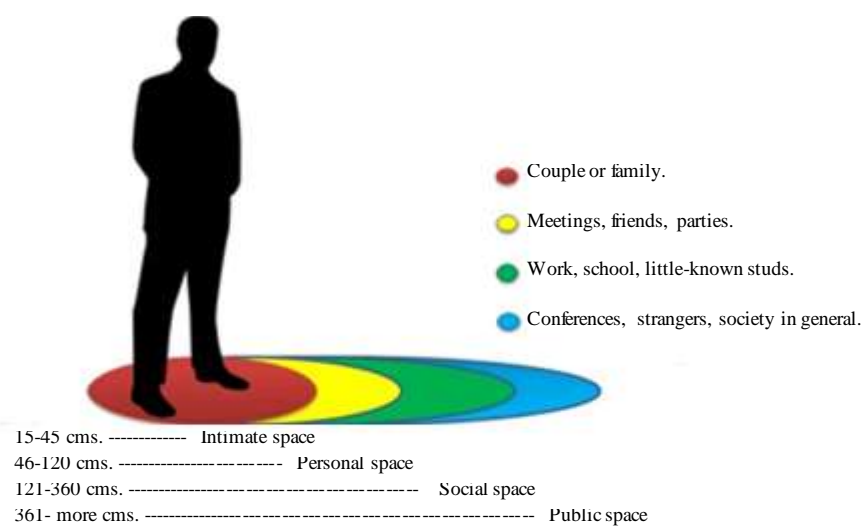
In conclusion, ethology studies the use of space by individuals of a species to meet survival and communication needs based on the behavior patterns of the population to which it belongs (Ardelean, 2001), from which proxemics is born. From a more human point of view to study their behavior.

Taking into account the above, two basic levels of distance emerge, proposed by Hall (1990), the first level is when they are individuals of the same species (no contact) it is considered an invisible bubble and the second level is the social distance which refers to the maximum distance that an individual manifests with respect to his group without losing his security. Also, there is the withdrawal distance, where the bubble is larger to preserve conservation.

According to Hall (1990) there are two types of spaces:

- The first is governed by the senses that serve to obtain information about the environment.
- The second is based on the criterion of contact with other individuals, from which the intimate, personal, social and public distances are inferred, figure 1.1.

Figure 1.1 Our space, 2020



Reference source: HALL, E. (1990)

Intimate distance: close phase. The physical contact.

Intimate distance: far phase (from 15 cm to 45 cm).

Personal distance: close phase (from 45 cm to 75 cm).

Personal distance: distant phase (from 75 cm to 1.20 m).

Social distance: close phase (from 1.20 m to 2.15 m).

Social distance: far phase (from 2.15 m to 3.65 m).

Public distance: close phase (from 3.65 m to 7.50 m).

Public distance: distant phase (from 7.50 m onwards).

The spaces can generate a different behavior, those that keep people apart, this is called sociofugo; and others that promote the meeting called sociopetal (Osmond, 1957), an aspect to consider in the post-covid reality. According to Hall (1990) people belong to different cultures, therefore, they live in different sensory worlds, which results in a physical perception of space, where each culture responds differently in these and with their peers, being a relevant and forgotten aspect when designing interior and exterior spaces.

Where Hall (Apud Gómez, 2016) contemplates the dynamic space, which deals with the imaginary conditions that the subject keeps during the encounter with the other individuals of the community, each one handles it in a personal and different way depending on the cultural factors, contextual or personal.

From the point of view of Ardelean (2001), it is important to consider the heterogeneous aspect of proxemics, so architects should design homes, offices, recreation places according to the culturally different proxemic sub-patterns that make up the proxemics pattern mosaic. local.

Castells (2014) writes about it:

The relationship between a certain type of habitat and specific modes of behavior is a classic theme of urban sociology. It is even at this level where the "builders" seek to find a utility for sociological reflection, which allows urban spaces to be translated in terms of sociability (pp.118).

Rivera and Insuasty (2004) consider the urban habitat as:

Space where "ties of cultural identity" are defined and can be associated with sociological and political problems (pp. 2).

Londoño and Chaparro (2011) indicate

That: ...for people, the relationship between habitat and health is direct and has several dimensions, going beyond the idea that it is limited to the effects of the physical structures of the home and the environment (pp. 16).

Múnera and Sánchez (2012) point out:

The social construction of the habitat starts from the projection and direct action of those who inhabit it, without ignoring the participation of other actors... (pp. 19)

Ü. N. A. L., Tuydes, Özdek & Sandiraz (2022) point out that:

COVID-19 pandemic has dramatically changed people life in terms of working, moving, shopping, training. Pandemic also created equity problem in terms of gender, age, economic situation and education (pp. 19 to 21)

Earl (2022) indicates that:

As a result of the pandemic what is new is the whole-of-society participation in and surveillance of more-than-human relations within a biosocial paradigm. New restrictions on existing social practices, such as sitting side-by-side on a public bus, limit the ways that friends and strangers can interact in public places (pp. 20 and 21)

About personal interaction Nessaibia. Sage, Atwood, Bouslama, Cocci, Merad and Tahraoui (2021) affirm that:

Peoples needs for connection, love, flirtation and sexual expression remain whether they are confined or not. These social needs may be amplified or reduced, but they persist (pp. 118)

Assuming that covid-19 is transmitted by talking, sneezing or coughing, it is advisable to keep a distance from other people (Secretary of health and secretary of labor, 2020), figure 2.1 and 3.1, therefore, the habitat has been spatially modified.

Figure 2.1 Original Sana Distance promotion in Saltillo businesses, 2021



Reference Source: Molar

Figure 3.1 Correct use of a face mask with a healthy distance, 2021

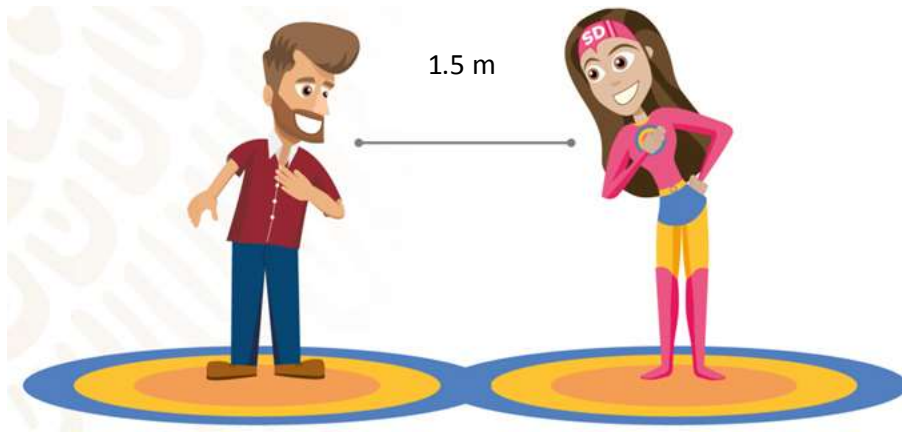


Reference Source: Jaime González

Creation of Susana distance

The healthy distance concept is a social measure to reduce contact between people and reduce the risk of spread, it suggests distances of 1.50, 1.80, 1.95 and 2.25 m, according to the scenario, a space of at least 1.5 must be maintained m, figure 4,1; although the latest studies recommend that it be more than 2 meters, because the virus behaves like an aerosol (Health Secretary, 2020).

Figure 4.1 Minimum distancing without contact, 2020.



Reference source: Health Secretary

Other recommendations issued by the Ministry of Health (2020):

- Clean and disinfect commonly used surfaces and objects (Kampf, Dodt, Pfaender, & Steinmann, 2020) since the virus can remain for hours or days, Figure 5.1.

Figure 5.1 Access cleaning and object cleaning area in a home, 2020



Reference Source: Molar

- Ventilate, figure 6.1 and allow sunlight to enter.

Figure 6.1 Extractor fan, 2020



Reference Source: Molar

- Keep distance avoiding physical contact, the same when you arrive at the house.
- Have a containment space (this at work may be easy, but inside the homes in some, due to the dimensions it is impossible).

Changes of habits in public spaces

In many parts of the world, guidelines have had to be established that allow the control of the opening of spaces. The Ministry of Health in Spain (2020) developed a plan, from which the following parameters stand out:

1. Have protective screens, figure 7.1, take care of the distance between client and client, which must be at least 2 meters, and the mandatory use of masks.

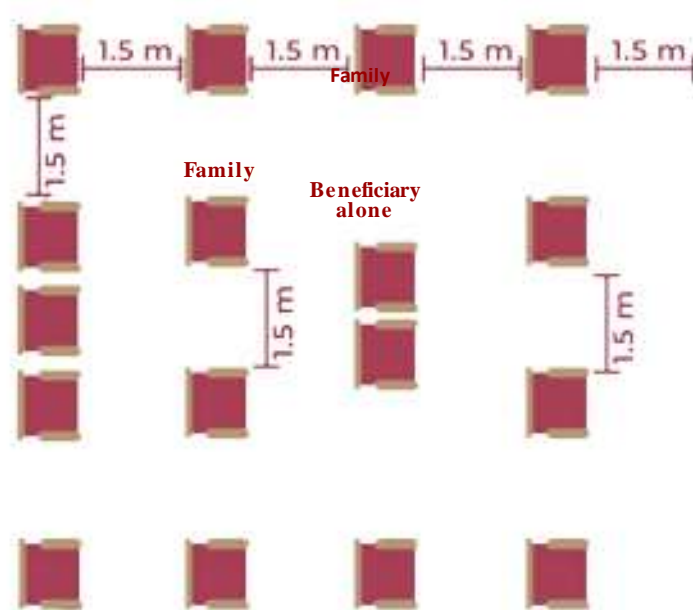
Figure 7.1 Protection screen, 2021



Reference Source: Molar

2. Phase 0 shops open and serve by appointment only.
3. Phase I will be able to carry out active and nature tourism in limited groups of people within the same province. You can go to a bar, but with limited capacity, on the terrace or to take away. Ensure distance and limited capacity conditions, figure 8.1.

Figure 8.1 Distance between spaces from 1.50 to 2 meters, 2020



Reference Source: Health Secretary

4. Phase II will allow active and nature tourism for larger groups of people and visits to monuments and other cultural facilities (limited forum), in this phase the bar must guarantee separation and limit capacity.
5. Phase III, the above activities may have a greater capacity (maintaining security and distance) only within the same province.
6. Outdoor cultural acts and shows may be held in Phase I with less than 200 people, in Phase II, for less than 400 people and, in Phase III when it is for a capacity of less than 800 people, it must be sitting and keeping your distance.
7. Gyms in closed spaces will begin in Phase I but only for individual activity, which does not involve physical contact or use of locker rooms and by appointment. In Phase II they will continue with more people. In the case of outdoor gyms, from Phase I, increasing the capacity in Phase II.
8. For events such as congresses and seminars in Phase I, they may be held respecting the social distance of more than 2 meters and less than 30 attendees. For Phase II, up to 50 participants will be allowed, while during Phase III, 80 people will be allowed, including the fairs.

In the Government of Mexico (2020), opening strategies were established, considering the following:

1. They considered 3 stages; in the first stage they include 3 phases and in the other stages they proposed a traffic light.
2. In the first stage; proposed sanitary fences and established security measures
3. In the second stage; protocols, training, readjustment of spaces and entry and sanitization filters were established, each color of the traffic light allowed the opening to different activities, gradually
4. The third stage; this was based on the traffic light for opening in each state; with the objective of health, solidarity, the economic aspect and the responsibility of all.
6. They also established guidelines and protocols for different activities

By virtue of the above, the objective of the work is to determine what changes have been generated regarding the paradigm of social distance in relation to the current considerations that COVID19 demands in interior spaces and purchasing habits, in the metropolitan area of Saltillo in 2020 and early 2021.

Methodology

The approach is mixed, longitudinally; using a virtual survey to know the behavior of the population and the traditional and virtual ethnography method to document images and comments, during the year 2020 and the beginning of 2021, in addition to a bibliographic review.

- The survey was carried out based on the Likert scale, made up of 29 items, only those related to social distance, perception of the pandemic and purchasing habits will be shown. To calculate the sample size; with a margin of error of 5% and a confidence level of 95%; based on the total metropolitan population of Saltillo of 997,913 inhabitants (INEGI, 2015) (equation 1):

$$n = \frac{N * Z^2 * a * p * q}{d^2 * (N - 1) + Z_a^2 * p * q} \quad (1)$$

where:

N = total population

Z²a = 1.962 (if the security is 95%)

p = expected proportion (in this case 5% = 0.05)

q = 1 - p (in this case 1 - 0.05 = 0.95)

d = precision (in this case we want 3%)

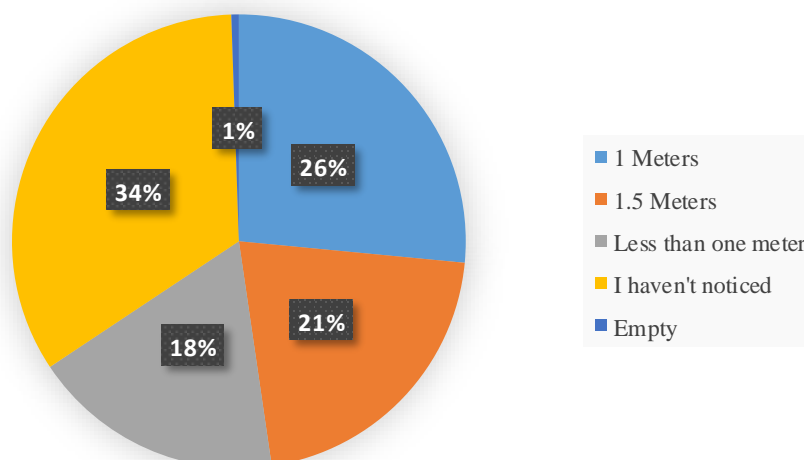
- The WhatsApp social network was used, from the beginning of May to October 2020; A pilot test was previously carried out. The survey was reviewed by UN Habitat Mexico and the Secretary of Housing and Territorial Planning of the Government of the State of Coahuila.
- The traditional ethnography was done through first-hand data collection through the presence of the researcher on the site, the virtual one was through the observation of the activities with the interactivity in the virtual worlds, allowing closeness to be able to understand, but keeping a distance, which allows an appropriation of a digital culture that characterizes the current world, complemented with observation of the habitat and conversations in social networks to describe sociocultural situations, since it is important to study the subject inside and outside the network.

Results and discussion

Poll

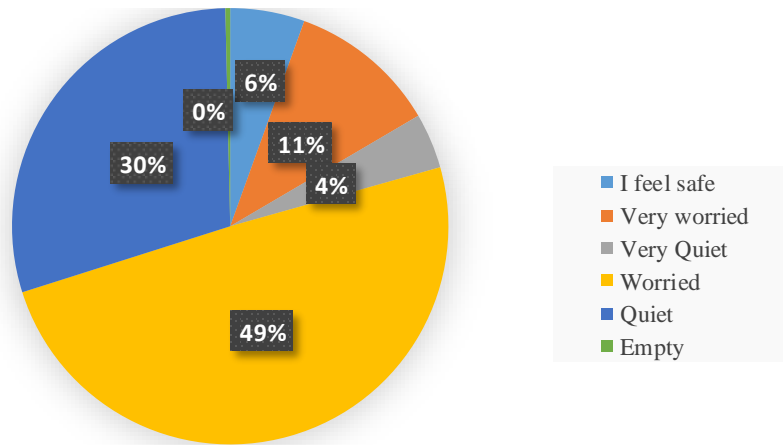
The representative sample is 384, obtaining 462 with the following information:

Graph 1.1 Distance maintained inside the home



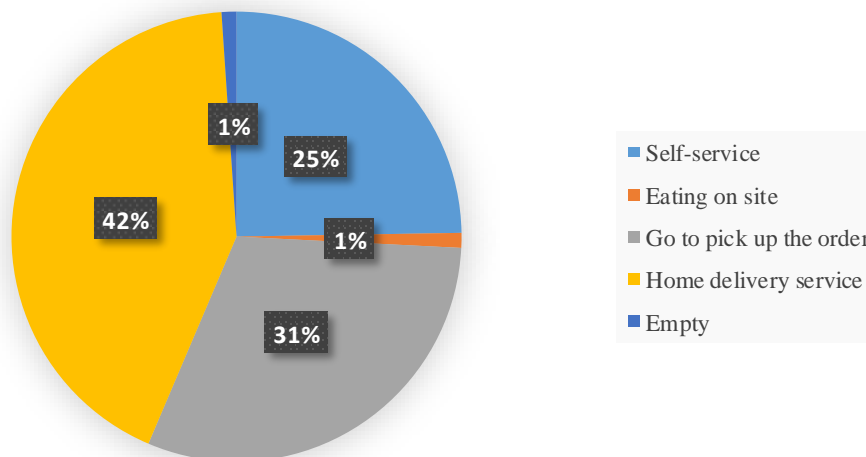
Regarding the healthy distance inside homes in 2020, 34 percent did not realize how far away they were from their loved ones when they arrived from the street, 26 percent indicated that they kept 1 meter away, 18 percent percent that it was less than a meter and only 21 percent that it was 1.5 meters, this shows that inside there is no control or culture of healthy distancing, perhaps it is done in public spaces. but not inside your home, being an area of opportunity, which comes in relation to the next question.

Graph 2.1 Perception in the face of the pandemic

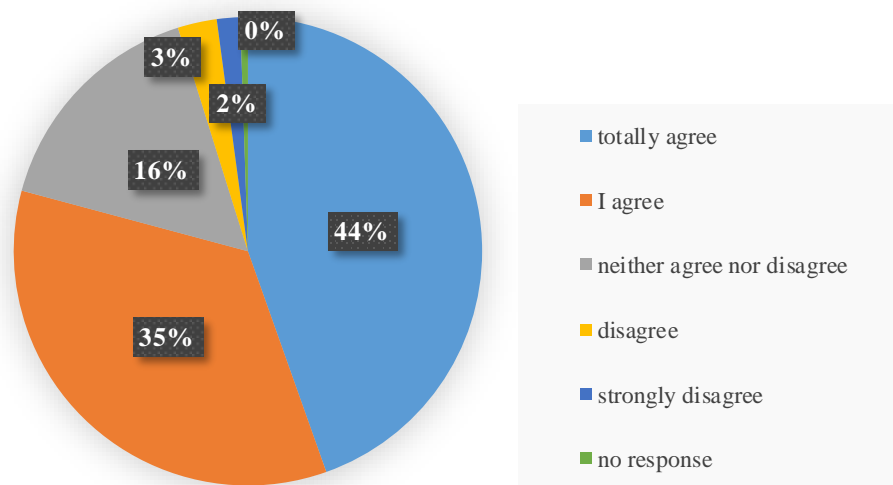


60 percent feel worried or very worried, consequently, they follow the protocol more if it is required in their work area, but 30 percent feel calm and in some cases they do not follow the protocols or distance themselves.

Graph 3.1 Most Frequent Food Shopping Options



But now, in consumption it shows that 42 percent preferred home delivery, 31 percent for picking up the order, 25 percent for self-service and only 1 percent for eating in establishments, the majority decided to maintain a healthy distance, reducing mobility and increasing stay at home.

Graph 4.1 Consideration of distancing in public spaces

The most important thing is that 79.17 percent consider that public spaces should establish conditions that generate distance in meeting areas; On the other hand, 16 percent seem indifferent or undecided, even so, it is a low percentage of those who do not agree with having these conditions, and this can be seen in the news of annoying and rebellious people who do not want to comply with protocols in some establishments.

Traditional ethnography

This first stage is carried out from observing for a considerable time, the set of images, as a first part of the analysis a classification of the visual representations is carried out (Carmona, 2017).

The documentation began from the quarantine in 2020 to February 2021 in the Saltillo metropolitan area, capturing the situations that were observed in the daily life of the researcher.

Figure 9.1 Two friends keeping a healthy distance in an open space, 2021

Reference Source: Molar

When people take photos, they no longer appear together, they try to take selfies at a certain distance, even if it is an open space, with the protocol of wearing a mask, figure 9.1.

The healthy distance between strangers is possible, figure 10.1, but there are environmental or social conditions that generate disorder.

Figure 10.1 Queuing, distancing in public space, 2021



Reference Source: Molar

There are signs that are generating sociofugal spaces, to educate people and encourage a prudent distance with their peers, figure 11.1, 12.1, 13.1, 14.1, 15.1, 16.1, 17.1 and 18.1, which are being part of the most common signs such as not throw trash.

Figure 11.1, 12.1, 13.1 and 14.1 Types of signs used on the floor, 2020 and 2021



Figure 15.1, 16.1, 17.1 Types of signs used on the floor, 2020 and 2021



Reference Source: Molar

Figure 18.1 Type of wall signage, 2021



Reference Source: Molar

The signs invite people to maintain their social distance, although they may be different from each other, the message is the same. Social distance has generated greeting alternatives, according to uses and customs, but they can be a contagion factor, figures 19.1, 20.1 and 21.1.

Figure 19.1 Non-contact fist shake, with distance, 2021



Reference Source: Molar

Figure 20.1 Elbow salute, does not keep distance, 2021



Reference Source: Molar

Figure 21.1 Remote and contactless handshake, 2021



Reference Source: Molar

Virtual ethnography

At this point, what is related to the context is detailed; who created the images and for what, the news was observed, the internet search was carried out and the social networks and internet pages were reviewed to document what was commented or uploaded, obtaining the following information. Alvarado (2020) with respect to the current situation, and how the way of living is changing, reflected:

Our way of living must be flexible. We are going through something temporary, which will have permanent effects on the way we connect. We are clearly doing it differently. The days of mandatory preventive social isolation seem to be the same or at least similar. Being creative is up to us, as individuals. Living is a cluster of rituals and almost automatic movements, in which one must innovate and qualify. It is possible to modify the perspective of things, from something as minimal as changing the location of a chair and pots.

By virtue of the foregoing, the use of spaces considered useless, have served as connectors to the outside, revaluing themselves due to the confinement, figures 22.1 and 23.1 are part of a publication by Infobae with the following electronic address <https://www.infobae.com/opinion/2020/03/15/la-vida-desde-los-balcones/>. Entitled “Life from the balconies”, it shows the different uses of the balconies when the quarantine began in Europe, whether it is a space to take music classes or exercise, life does not stop, alternatives were sought.

Figure 22.1 and 23.1 Life on the balcony due to COVID19, 2020



Reference source: Infobae, on the internet

Figure 24.1 Life on the balcony by COVID19, 2020

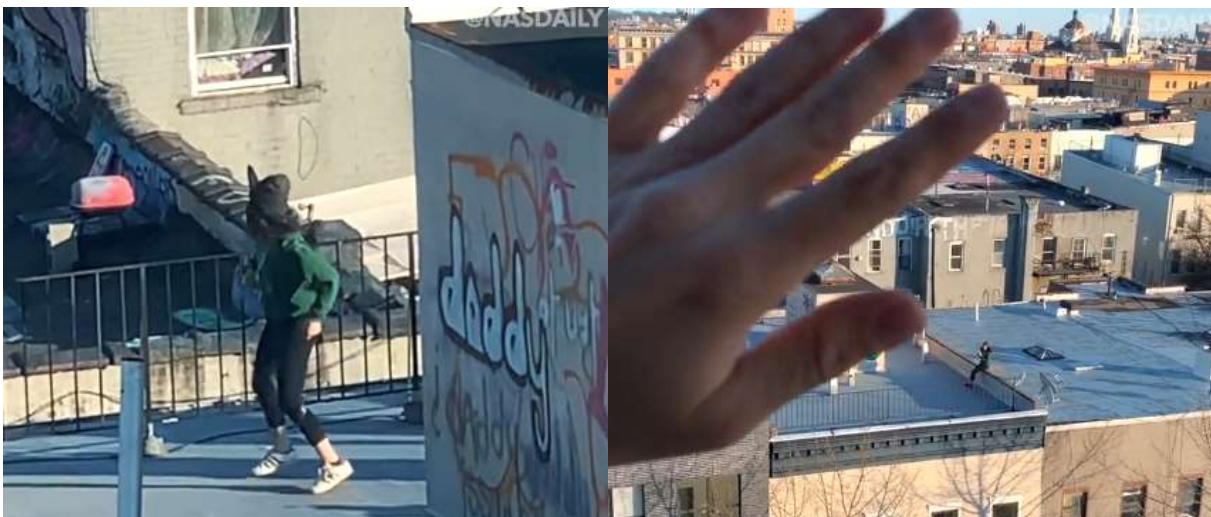


Reference source: La Vanguardia, on the internet

You can see the need of the human being to be in contact with another and how a space allows this communication. This outdoor space is currently the most used and valued in the home, its use ranges from work space, recreation and even meeting, figure 24.1 published by LA VANGUARDIA with the following electronic address <https://www.lavanguardia.com/vida/junior-report/20200416/48504164327/europa-coronavirus-measures-epidemic.html>. Entitled “The response of European countries to the coronavirus pandemic”, the balcony has gone from being a space to renew the air to being a space for contact with the outside.

Another alternative space is the rooftops in the United States, figures 25.1 and 26.1 are part of a NAS DAILY ESPAÑOL episode with the following electronic address <https://www.facebook.com/NasDailySpanish/videos/628382654378108/>. With the title "Episode of Nas Weekly", about the romance that took place from a balcony overlooking a rooftop, people use it to exercise, dance or read, as an extension in the quarantine, showing how the human being seeks expand their habitat and meet their needs for coexistence.

Figure 25.1 and 26.1 Love on the roof and the neighbor's balcony, 2020



Reference source: Nas Daily Spanish

Public spaces have had to be transformed, in order to maintain a healthy distance and not stop productive activities, figure 27.1 is part of an image published by KALAW from the following electronic address <https://www.boomlive.in/fake-news/image-of-myanmar-markets-social-distancing-shared-as-mizoram-7882?fbclid=IwAR3H4wgkue8CMgLKeURXGQwBR9IIQoibKg6EXn1wlpLCuwCtw27a-NfkD3A>. Entitled “Image Of Myanmar Market's Social Distancing Shared As Mizoram. De Nabodita”, shows the feasibility of creating public spaces without conflict that maintain a healthy distance.

Figure 27.1 Social distance in public space, Myanmar Market's, 2020



Reference source: Kalaw, online

The problem occurs in the family nucleus to be able to comply with the protocols, figure 28.1 is part of a publication in Vanguardia of a TWITTER/@DORANIMATED with the following electronic address <https://www.lavanguardia.com/cribeo/viral/20200330/48167595341/lagrimas-medico-no-poder-embrazar-hijo-miedo-contagiarle-coronavirus-viral-twitter-sanitarios.html> entitled “The tears of a doctor who cannot hug his son for fear of infecting him with coronavirus”, presents the image of pain that a medical staff suffers from not being able to hold their child in their arms, in some cases they do so and others seek alternatives that allow contact.

Figure 28.1 Distancing of a medical staff for safety between their family



Reference source: Twitter/@Doranimated published by Vanguardia, 2020

In other words, a change in society is necessary, as can be seen reflected in some films, which have anticipated situations and scientific advances, we have as an example *The Demodeler*, released in 1993, is a clear example of where we could go, it shows a world in the year 2032, where the transfer of fluids was prohibited, changing the way of thinking, laws and customs, figure 29.1 are excerpts from the film on the YouTube internet sites https://www.youtube.com/watch?v=6IZRwZHgfVQ&list=PLgbo_FdxDtmNuH2RyY5Lgm4nuhelPyXLz&index=4 the scene shows the greeting without physical contact, with the aim of avoiding germs and viruses, something very similar to what should be considered.

Figure 29.1 Greeting without physical contact, movie *El Demoledor*, 1993



Reference source: YouTube

This in the future may be a reality, there are currently bracelets that warn when a person is not at a healthy distance from another, which can help maintain space to avoid contagion inside homes.

Thanks

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Conclusions

The human being is a social entity, as Ardelean (2001) points out, people fall into the classification of beings that need human contact, for which it is difficult to break the paradigm in the intimate distance to be with their family group and even in personal distance with close friendships as established by Hall (1990). Being easier to apply healthy distance in public spaces in relation to social distance and not at home.

In spite of everything, alternatives are observed in the habitat of coexistence that allows this sociocultural or emotional contact between their peers or new spaces to continue in contact with the outside world, confirming the assertion of Nessaibia (et.al).

In the domestic environment there has been no great change, only adaptations to the new work or study needs; unless a member of the family is a medical staff and has modified the spatial conditions to avoid direct contact with their loved ones or someone has been sick in the family and the conditions for isolation were met based on protocols established by the secretariat of health.

Meanwhile, a change of culture should be considered (Earl), where sociofugal spaces are given to promote distancing, and this is being achieved through signage on the ground, although it still needs to be fully complied with. The biggest problem occurs inside the houses, as it is a space that fosters coexistence, called sociopetal as indicated by Osmond (1957) that, according to the results of the survey, it is difficult to break this ingrained habit.

Faced with this contingency, the response is different in each place, due to the culture and customs for some, it was easy to maintain distance and protocol, on the other hand, in other cultures where the rules of personal etiquette are relaxed, it is difficult to comply with them in accordance with the theory of Hall's proxemics, apud Gómez (2016).

Unless, we rethink the urban habitat for this new reality that allows us to generate a habit both in family and social spaces, that becomes customary and in the end a culture focused on health and quality of life is constituted, which may be seen in the new generations, as recommended by Londoño and Chaparro (2011), remembering that the human being can change by habit, but gradually, because this pandemic has come to stay and must be lived with, perhaps creativity and technology play an important role in this. But you shouldn't think as dramatically as Ü. N. A. L. (et. al), the human being has shown that he is capable of evolving in other moments of crisis.

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Chapter 6 The Influence of Manga and Taoism in the Mexican Comic *Hermanas* (2021)

Capítulo 6 La Influencia del Manga y el Taoísmo en la Historieta Mexicana *Hermanas* (2021)

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Abstract

This work states that the comic book *Hermanas (Sisters)* (2021), by Paulina Ramos González, is the result of a productive consumption that retakes Japanese manga elements: ways of creation, philosophy, and imageries, thus resulting in a hybrid that transposes references and imageries from similarities and conflict. We base our argument on a methodological proposal based on the paradigm of indexical inferences proposed from the microhistory of Carlo Ginzburg and Giovanni Levi; from which we analyze the details present in the comic's graphics and narrative, to make interpretative inferences about the context of creation, and the socio-cultural and historical processes present in the author's visual culture. Our primary sources are the *Hermanas* graphic novel, and a series of interviews made to the author. Secondary sources are the background resources used in this analysis.

Paradigm, Historical, Hybrid, Cultural, Indexical

1. Introduction

In this paper, we argue that the comic book *Hermanas (Sisters)* (2021), by Paulina Ramos, is the result of a productive consumption that assimilates oriental elements of Japanese manga: ways of doing, philosophy, and imagery, thus resulting in a hybrid product that transposes referents and imagery from similarity and conflict.

We base the above on the following premises:

First, the graphics of *Hermanas* (2021) assimilate the forms of the face, the childish characterization of the characters, the handling of emptiness, and the representation in black and white typical of Japanese manga. Concerning the story's philosophy, we can see it returns to Taoism, representing, Life and Death as complementary opposites of each other through allegories.

Second: In this comic, the representation of Yin resorts to Western media and contemporary references, such as the image of Death with a skull on the head, which alludes to the religious reference of the scapegoat (often called Azazel in the Bible). The Yang takes up the myth spread across cultures of the symbolism of the renewing symbolism of the deer. The interaction of both characters alludes to the imagery of the vegetable tomb.

Third, the conflict inherent to the cultural hybridization of its referents is present in the representation of polarized and opposed spaces (life-death forest, death-war desert) typical of Western Christian philosophy.

Finally, the elements are mixed from the contact by the accentuation of the rapprochement between cultures, from which, the author made a productive consumption in which she assimilated elements from sympathies between her culture (graphic tradition, opposites in religion), which is not exempt from processes of conflict and tearing.

Concerning the studies linked to the sociocultural influence derived from the contact of manga and anime with Mexican production, we were able to locate two main aspects:

1. Influence of Japanese manga and anime on cultural practices in Mexico. The studies included in this area have the characteristic of focusing on the impact that both Japanese anime and manga have had on the communities of young fans. These studies show the forms of organization and meetings between young people who share the hobby, as well as the consumption and production of goods that derive from or are highly influenced by these Japanese products. Moreover, the processes of interaction and internal relationships among them are also studied (Rivera Posada, Piña Moedano, San Román Arteaga, & Jiménez Cuellar, 2016), (Cobos, 2010), (Cedano González, 2017), (Romero Quiroz, 2012), (Rodríguez Aguirre, 2017).

2. Influence of Japanese manga and anime on Mexican cultural products. The studies included in this section have the purpose of analyzing the results of the processes of cultural contact, which result in the exchange and hybridization of cultural products with different traditions. These works have a particularity focusing on how the content of such cultural products accounts for particular social processes (Castelli Olvera, 2017), (Castelli Olvera, 2019a), (Castelli Olvera, 2019b), (Castelli Olvera, 2021).

As we have observed, the contact between cultures and the consequent impact of manga and anime in Mexico, have aroused the interest of academic research; nevertheless, even though various spheres of the practices and productive processes of the agents who consume these products have been analyzed; it is still necessary to examine the influence that oriental narratives, impregnated with philosophical elements, have had on these processes of cultural appropriation, and it is also necessary to provide a broader view of these processes of hybridization, change and cultural enrichment, observable in Mexican products such as *Hermanas*.

In this article, we intend to account for these processes, based on a case analysis of the aforementioned comic strip; to this end, we have structured this article into three main sections: in the first one, we review the graphic elements typical of Japanese graphics, which are adapted to this Mexican comic strip. In the second section, we examine the main iconographic references that build the characterization of the two main characters of the story, to later identify the thematic points of conflict, which are a source of conflict in the process of cultural hybridization within the process of cultural linkage and transposition. Finally, in the last section, we analyze how the processes of cultural hybridization that give way to this source are structured; from the type of dispersion to the identification of convergent elements that allowed the linking and cultural transposition between elements of different traditions. In the last section, we offer appropriate conclusions.

2. Methodology

This work is based on a qualitative, interpretative analysis of the comic strip, based on its graphic and narrative elements. The methodology is structured in the following order:

1. Formal description of some vignettes that conglomerate formal and thematic representative elements of the comic.
2. Identification of iconographic and cultural references of the comic.
3. Interpretative analysis of the processes of cultural hybridization implicit in the source of information.

This work is based on the epistemic-methodological proposal of microhistory, developed by Carlo Ginzburg and Giovanni Levi, which consists of paying attention to details that would otherwise be considered insignificant. These details serve as sources of sociocultural and contextual information on the creative processes of the source. It is a proposal that implies a microscopic approach to the source of information, which allows a more complete approach to the details, based on processes of deep interpretation, since “For microhistory, downscaling is an analytical procedure applicable anywhere, independently” (Levi, 1996, p. 122). This proposal is based on the assumption that this type of detailed observation of the source “will reveal previously unobserved factors” (*Ibidem*, 1996, p. 124). In this sense, through the interpretative analytical process described above, we approach the details present in the graphics and narrative of this comic strip, which support our argument.

As theoretical support for Taoism, we refer to Paulina Rivero Weber and Anne H el ene Su arez Girard (2016), who proposes two dimensions of Taoism: the religious and the philosophical; the latter is defined as the “philosophy of becoming” (Rivero Weber, 2016, p. 12). For culture and its processes, we use Alfred Kroeber (1963), who analyzes the processes of cultural survival and change; on the other hand, N estor Garc a Canclini (2016), whose studies on cultural hybridization, marked not only by the points of convergence but also of conflict, are of importance. Finally, we take up, in the same way, Keisuke Matsui (2014) and Tetsuro Watsuji (2006) with their proposals on the cultural link that is established in religion, based on geographical conditions.

Finally, our primary sources are the single fascicle of the comic book *Hermanas* (Ramos González, 2021) as well as interviews with its author conducted first-hand. Secondary sources are the bibliography and general audiovisual material.

3. Analysis

Story and format

Hermanas is an independent publication created in 2021 by graphic designer Paulina Ramos González, a Mexican author whose work style was strongly influenced by Japanese creators such as CLAMP, Ogure Ito, and Daisuke Moriyama. Among her first contacts within the field, the visits to the comic conventions held in Mexico City since the nineties stand out; in them, Paulina met Mexican independent artists, whose work moreover influenced her; among them are Larenn Syanne,²⁰ Sareki,²¹ Alberto León,²² Tozani,²³ Ivonne Cruz,²⁴ etc. (Ramos González, 2022).

Hermanas was published independently in a format measuring 13.3x20 centimeters; the volume consists of 18 pages of bond paper printed in black and white. The covers are in color and printed on couché paper.

As an initial situation, Life and Death (Yin and Yan, in a perhaps reduced sense),²⁵ are two sisters who live peacefully in the forest, both notice that they have powers over the life and death of the beings that surround them, nevertheless they do not understand them nor make sense of them. The transformation comes when both are forced to act during a forest fire: to avoid the agony of the animals, the sister who attracts death kills them, so that after the fire, her sister regenerates the forest.

Eventually, both sisters understand their role and set about traveling the world, activating the cycle of death and resurrection throughout the story.

Japanese manga and the graphics in *Sisters*

In this section we argue that formally, in *Hermanas*, the graphic forms and canons of manga are assimilated; while conceptually, Taoist philosophy is taken up again, representing, life and death as complementary opposites of each other through the use of allegories. Among the characteristics that make evident the influence of manga in this Mexican comic, we find the graphic feature that is characterized by broad expressiveness, minimal development of facial features, as well as a representation of eyes that occupy much of the dimensions of the face. The latter is one of the best-known elements of manga, which allows identifying it, without being the only definitive element. In general, the drawing styles of manga authors are very varied, so establishing a specific typology is complicated. Santiago Iglesias (2013), states that “The only way to standardize all these different artistic typologies is to repair in the purely pictorial aspects that all of them share: in other words, the simplification and dynamism of the strokes” (p. 147). So, we are before a criterion that allows us to identify the use of simple graphics, designed to be highly expressive; as well as the exacerbation of dynamism from the kinetic line and expressive characters, strategically highlighted. Aspects that we observe in this cartoon, where certain features of the face such as the mouth and nose of the characters have economized in favor of exacerbating the eyes; the same happens with the body, from which details are eliminated in favor of accentuating the kinky details of the hair of life and the skeletal form of a sternum with ribs that is explicitly observed in death. We observe as expressed by Santiago Iglesias (2013):

²⁰ <https://estudiosyanne.mercadoshops.com.mx/>

²¹ <https://tandemcomics.mx/sareki-lopez/>

²² https://www.tebeosfera.com/autores/leon_abad_alberto.html

²³ <https://www.deviantart.com/tozani>

²⁴ <https://dibujando.net/Yvon>

²⁵ Both Ying and Yang, philosophically, imply more aspects than just life and death; but in this comic, these two are the ones that stand out primarily.

[...] the secret of the design of manga characters lies in the discrimination of the superficial elements; in not representing all the elements of the human body giving them equal importance, but in privileging those facets or characteristics that contribute to defining the character, to the detriment of other unnecessary features for the understanding of the character. The character has a synthetic design, but at the same time is very descriptive, which gives unity to the whole (p. 149).

Another feature we observed in *Hermanas*, which is characteristic of manga and coincides with the Mexican visual tradition of comics, is the black and white printing, which although mostly determined for commercial reasons, “has become by tradition and technique a characteristic formal resource” (*Ibidem*, 2013, p. 132); in this case, we studied a very simple author’s edition, in which the only color space is the cover, surely with commercial issues as well.

A third key feature of manga, which we observe in *Hermanas*, is the predominance of image over text, since, in this type of graphics, “text and dialogue are much less important than in Western comics” (*Ibidem*, 2013, p. 145); this feature of manga implies several things: reduction of the written text in benefit of the image, the use of a reduced number of vignettes, the use of emptiness for expressive purposes, and the use of the whole page as a totality.

An image that shows the formal construction of this cartoon can be found on page 10 (Figure 1). The rectangular vignette occupies more than half of the page, approximately 12.5x13.4 centimeters; in it we can see the sister who symbolizes life, in the foreground, sitting, crying, holding a bunny in her arms. In the background, we can see the onomatopoeia of crying: Buaaaaa!!!! In the background is the emptiness, marked by a grid of dark lines that are thicker at the top of the image, and get thinner as they descend. In the balloons, Life says:

Figure 1 Comic book’s formal construction



(Ramos González, 2021, p. 10)

“I can’t... I can’t stand it, I can’t do anything sister!” (Ramos González, 2021, p. 10). The vignette is complemented by two cartridges placed at the bottom where the narrator explains, “For the sister of destruction, death was natural. Nevertheless for the sister of life, it was something she could not bear” (*Ibidem*, 2021, p. 10).

In this vignette, she uses several expressive resources taken from the manga and designed to increase the expressiveness of the scene: the written text is reduced and the vignette occupies most of the page, trimming the edges; this gives more weight to the scene and occupies a good part of the page, which is taken as a whole; this is because it usually has more weight than the isolated vignette, since “The setting on the page has always been and continues to be more important than the vignette considered in isolation since it must communicate the impression of a flow of images” (Santiago Iglesias, 2013, p. 140).

On the other hand, emptiness is presented to accentuate the expressiveness of Life’s emotions, so the scenery of the burning forest disappears to give way to emptiness, which is a characteristic not only of manga but moreover of Japanese art,

Japanese art has found diverse ways to express this duality [...] The fusion of a vibrant flow with immutability in a vertiginous sensation of intricate states, the transformations and distortions of a counter perspective, the material recording of memories, the special interest in emptiness and negative space, the simultaneous vision of past and present, the interaction of reality and fantasy (Ibídem, 2013, p. 502).

A last characteristic element of manga, which we observe in *Sisters*, is the childlike representation of the characters, the so-called neoteny, which refers to

[...] the persistence of larval or juvenile characters after the adult state has been reached. In the case of comic and animation characters, this would be reflected in the superior head size, as well as large eyes and dilated pupils (Ibídem, 2013, p. 154).

About this cartoon, both characters present extremely large heads, a feature evidenced by the small size of their bodies, which barely reach four and a half heads. Both characters present childish features, particularly the sister who attracts Death (Yin); in the case of Life (Yang), she presents a slight development of breasts, although the drawing does not detail body features such as hair or nipples.

In addition to the formal elements that have influenced and enriched Ramos’ work, we have the philosophical aspects of Taoism present in many of the stories of the Eastern mass media, where the duality of life-death and light-darkness are intertwined, giving the protagonists of their stories complex lessons. In *Hermanas*, the conceptual axis of the story is, precisely, this idea of complementary opposites, which also takes elements from the Taoist Yin and Yang that entered Japan via China, and which was adopted in its worldview and philosophical-religious practices. Paulina Rivero Weber (2016), distinguishes between religious Taoism, whose practices seek immortality, and philosophical Taoism, centered on the duality of yin yang and its eternal becoming: “Man can only describe the inexpressible, the permanent dao that is absolute [...], through his subjective experience, by resorting to the relative, to the yin yang duality: nothingness-being, dark-light, death-life, feminine-masculine, and so on” (Suárez Girard, 2016, p. 41).

The entire story and graphics of *Hermanas* revolve around that concept, a significant example in which Paulina Ramos managed to graphically balance the idea of complementary opposites is the cover, in which the sister who attracts death (yin) appears in the foreground, seated with her arms supporting her legs, while the other sister (yang) is standing behind her, holding a skull with both hands. The whole illustration is surrounded by symbols referring to the life-death cycle: there are two bird skeletons near Death, a small one perched on her finger, and a larger one fluttering near her. On the side of Life the skull she holds is filled with new plant buds; while her hair is covered with flowers and several live birds perch on her antlers (Figure 2).

Figure 2 The Yin-yang in *Hermanas*



(Ramos González, 2021)

This image shows the complementarity of both manifestations because their symbols are intertwined without being assigned opposite or separate places; as we observe in the image, the story itself consists of the acquisition of the consciousness of these two entities that are represented anthropomorphically in the story: the consciousness of their function in the world, by making it pass from emptiness and being, and its consequent journey through space and time, thus activating the historical becoming.

As such, the narrative presents the yin-yang cycle: “‘Nothingness’ refers to the phase before the first determination, the first duality that is the (here called “heaven and earth”), the phase in which everything is in potency” (*Ibidem*, 2016, p. 41). This first phase of nothingness can be observed in the initial moments in which both sisters share their life in the forest; although in this comic, the forest is full of beings that in the original philosophical conception would not yet exist in the “nothingness”; in our story, the nothingness is the one that the two protagonists have in their consciences, because they are not able to understand their gifts, as expressed on page 6, in the dialogue that states: “The sisters loved each other very much but neither of them understood the power they had been given” (Ramos González, 2021, p. 6). It is until both sisters manage to understand their function in the world, that the phase of being is activated, then they start their life-death journey around all the entities that emerge and are integrated into this principle; “being refers to the phase in which, from that first duality all determinations (‘all things’) begin to appear: animate and inanimate beings, physical or immaterial phenomena” (Suárez Girard, 2016, p. 41).

It is a paradoxical beginning of this process of becoming the Dao that is illustrated in this comic, paradoxical because to illustrate itself, it is done through entities that take anthropomorphic form and surround themselves with things and beings that should not exist in the nothingness, but that in the story, fulfill a function.

The origin of these dualities (including that of nothingness and being), the infinite sum of these, and all their possible evolutions is the Dao. "Thus/In permanent nothingness its mystery will be glimpsed/Permanent being its limit will be glimpsed/Both spring from the same, though they have different names/Together they mean darkness/Darkness of darkness,/Gate of all mysteries (Ibidem, 2016, pp. 41-42).

In *Hermanas*, the cycle of the eternal becoming of complementary opposites is perfectly represented.

***Hermanas* and its iconographic referents**

In this section, we start from the argument that in the analyzed source, the visual representations of Life and Death (Yin Yang), resort to Western media and contemporary references such as the image of skeletal death, and the character carrying a goat skull on his head, which alludes to the religious reference of the scapegoat. The yang takes up the extended myth between cultures of the renovating symbolism of the deer. The interaction between both characters alludes to the imagery of the vegetable tomb.

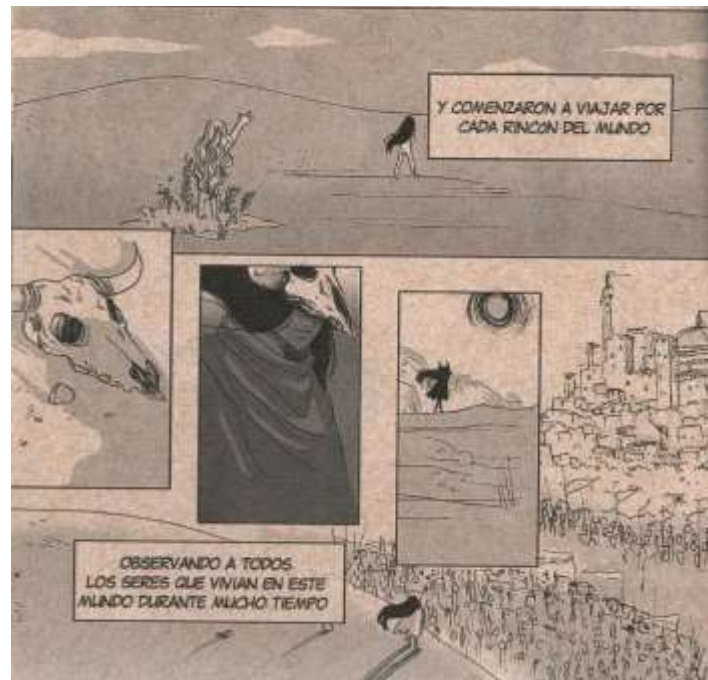
In the desire for anthropomorphic representation of the abstract entities embodied by the characters, a series of references whose diffusion and construction have been historical and/or media are used, as is the case of the representation of the sister who attracts death (Yin) as a skeleton, and the iconographic use of the goat's head placed as a helmet on the head of one of the characters. In this character, who philosophically embodies Yin, we can identify two main references: a part of the skeletal representation of the death of the medieval western tradition is retaken by the author. Nevertheless, we do not see here the whole skeleton, but only the sternum and part of the ribs and neck on the anthropomorphic body of this character. Thus, from the western reference, only a fragment of the typical skeletal death is retaken,

The image of the skull as a symbol of death is medieval in origin, unknown in this sense in antiquity (Causey, 1993; Hind, 1963). As a reminder of the transience of life on the Earth, the image of the skull found its place in vanitas paintings (Hall, 1974). These representations are depicted in religious paintings in penitent scenes and secular paintings in still-lives and portraits, including allegorical portraits, group portraits, single portraits, and self-portraits (De Girolami Cheney, 2018, p. 267).

On the other hand, the second attribute that the author of this comic book links with the character of the sister who attracts death, has to do with the second sequence of the story, on page 14 when both characters separate, and Death crosses a huge desert of dunes where he finds a goat skull, which he later places on his head, like a helmet. The scene is composed of five vignettes that occupy the lower part of the page: the first vignette is located right in the center of the page, measures approximately 4x12 centimeters, and in it we observe the two sisters saying goodbye; the sister who embodies Death and Yin goes forward in the middle of the desert, while the other sister bids her farewell with her hand, from a distance. The dialogue of the cartouche says: “and they began to travel to every corner of the world” (Ramos González, 2021, p. 14). The second, third, and fourth vignettes are small and are superimposed on the fifth, which is larger. In the first small vignette, we see a close-up of the goat skull in the middle of the sand; in the second we see a medium close-up of this character, already carrying the skull on his head and with his cape covering his shoulders and chest. The third vignette shows her walking in the middle of the desert sun.

The fifth vignette is located at the bottom of the page, below the three small ones we have described in the previous lines; it measures approximately 14x7 centimeters, and it shows the sister who embodies the yin, standing on a hill; she is already wearing a goat skull as a helmet and a kind of ragged cloak around her shoulders, she observes in the distance a kingdom and its inhabitants at war. Above this vignette, we are presented with three more, which narrate the events that lead this sister to stand in front of the village at war. The cartouche that accompanies these four vignettes reads: “observing all the beings that lived in this world for a long time” (*Ibidem*, 2021, p. 14) (Figure 3).

Figure 3 The attributes of Death in *Hermanas*



(Ramos González, 2021)

The referent of the goat skull placed as a helmet on the head of a character is difficult to trace since it is not something that is specifically linked to death; it does not seem to have a direct historical reference and usually appears in comic characters of varied character, as in the case of Judge Mortis of the English comics of 2000 AD and the saga of Judge Dredd,²⁶ or even the work of Mexican Edgard Clément, who places what looks like a goat's head as the helmet of the archangel Uriel.²⁷ In the case of *Hermanas*, the skull, having been found in the desert by the sister who attracts death, serves as a symbolic element that relates this space to death and desolation.

Historically, we could only trace the reference of a goat in the desert in the Bible, in Leviticus 16:

The Lord spoke to Moses after the death of the two sons of Aaron who died when they approached the Lord. 2 The Lord said to Moses: "Tell your brother Aaron that he is not to come whenever he chooses into the Most Holy Place behind the curtain in front of the atonement cover on the ark, or else he will die. For I will appear in the cloud over the atonement cover". 3 "This is how Aaron is to enter the Most Holy Place: He must first bring a young bull for a sin offering and a ram for a burnt offering". 4 He is to put on the sacred linen tunic, with linen undergarments next to his body; he is to tie the linen sash around him and put on the linen turban. These are sacred garments; so he must bathe himself with water before he puts them on. 5 From the Israelite community he is to take two male goats for a sin offering and a ram for a burnt offering. 6 "Aaron is to offer the bull for his sin offering to make atonement for himself and his household". 7 Then he is to take the two goats and present them before the Lord at the entrance to the tent of meeting. 8 He is to cast lots for the two goats—one lot for the Lord and the other for the scapegoat. 9 Aaron shall bring the goat whose lot falls to the Lord and sacrifice it for a sin offering. 10 But the goat chosen by lot as the scapegoat shall be presented alive before the Lord to be used for making atonement by sending it into the wilderness as a scapegoat.

This relationship is established because, in this comic, we observe the representation of the desert according to the imagery of desolation and death. We will go deeper into this topic later on, because right now, the important thing is to highlight the negative relationship established with the desert and its link with death.

²⁶<https://www.sddistribuciones.com/JUEZ-MORTIS-JUDGE-MORTIS-FIGURA-1676-CM-JUDGE-DREDD-3A-2000-AD-Isbn-4897056213593-Codigo-3AT,3A 1603JM>

²⁷ https://twitter.com/edgar_clement/status/606162908746113024?lang=ca

In the case of the Bible, the link is established from the interpretative tradition in which Azazel (the scapegoat), is related to a demon that inhabited the desert, “this myth would further settle the connection of Azazel with the word מִירְיָעַש [..] It seems that this idea persisted until the 15th century since the emissary goat was supposed to be thrown into an abyss where Azazel resided, which was described as a demon goat” (Asmat, 2015, p. 11). According this researcher, the word Azazel is associated with the terms “desert” and “uninhabited land”, it is in this uninhabited land where the entity that attracts death, meets not with the Christian demon, but with the remains of what she justly represents, and it is the moment when the skull is placed on the head as a helmet.

In the case of the sister, whose representation is related to life and yang, let us remember that her attributes and characterization allude to the extended myth between cultures of the renovating symbolism of the deer. In this sense, as with the sister linked to death, life does not have classical Western attributes²⁸ either, but rather resorts to botanical symbols from the nocturnal regime of the imaginary, which would be closer to the symbolism of the Taoist Yin Yang, although not precisely of its circular visual representation.²⁹

The sister who brings her to life, and who alludes to Yang, is represented as a very young character, almost in the middle of puberty, and on whose head protrude two antlers that look like elk or deer, which are usually covered with flowers and vegetation; in this way, the iconography of this character is directly linked to the deer and

its symbolic meaning is linked to that of the tree of life, due to the resemblance of its antlers to tree branches. It is also a symbol of renewal and cyclical growth, as observed by Henri-Charles Puech. In various Asian cultures and pre-Columbian America, the deer is a symbol [...] the deer is related to the sky and light, while the snake depends on the night and subway life. Therefore, on both sides of the bridge of death and resurrection (Milky Way), eagles, deer, and horses appear as mediators between heaven and the earth of renewal, because of the buds of their horns (Cirlot, 1992, pp. 129-129).

Iconographically, this character is represented with attributes of rebirth and fertility, as they are presented textually in the narrated story; in this sense, we understand that both representations of the sisters are close to what Durand (1981) knows as the nocturnal regime of imaginaries. This regime is composed of schemes, archetypes, and symbols characterized by what Durand identifies as “double negation”, which is a procedure that “resides essentially in the fact that using the negative the positive is reestablished, by a negation or negative act the effect of first negativity is destroyed. We could say that the source of the dialectical regression, can be found in this process of double negation lived on the plane of images before being codified by grammatical formalism” (*Ibidem*, 1981, p. 193). It is a set of imaginaries characterized by complementary opposition, wherefrom the nocturnal emerges the diurnal, and the diurnal gives way to the nocturnal. In this imaginary regime, the Taoist philosophy of yin and yang can be inserted, characterized precisely by this symbolic inversion, translated into complementary and interdependent opposition.

Within the diurnal regime, we can find a conglomerate of symbols that are embodied in the thematic and iconographic references of this comic, as is the case of the cyclical symbols, which have two types of symbolic supports: those of the moon, which we will not address in this text, and those of the botanical cycle, which are precisely those used by Paulina Ramos to represent the sister who is linked to life and rebirth, since in her we observe the vegetal fructification, not only seasonal but also linked to the cycle of life. These types of symbols are present in “The history of religions shows us with many examples of this collusion natural cycle and vegetable.

²⁸An example of this are the Vanitas, a type of baroque paintings in which attributes of life and death were usually represented together. This type of work exalted the transitory nature of life and of the vain objects of consumption, which were nothing, against the inexorable destiny of death to which every human being was condemned; the Vanitas were “a type of painting of high symbolic value, included in the still life category, in which a series of figures appear that serve to awaken in the spectator the idea that all the honors, pleasures and riches of the world are fleeting, passing, and that death -at the least expected moment- will put an end to them. The skull, or skeleton, together with a clock are ideal symbols to put before the eye the brevity and transience of life. Passing beauty, in various forms, is nothing other than the clearest manifestation of the deceptiveness of all that is worldly” (Labarga, 2012, p. 626).

²⁹ The yin yang symbol could be taken as a traditional way of representing life and death, although it alludes to broader concepts, as we have seen above.

It is what explains the so frequent confusion, in the word ‘Great-Mother’ of the earth of the moon by representing both directly the domain of germs and growth” (*Ibidem*, 1981, p. 282). It is these symbols that materialize in the representation of the sister linked to life, and which culminate, both narratively and Figureally, in the symbolism of the vegetable tomb, linked precisely to death and rebirth.

Finally, the vegetable symbol is often explicitly chosen as a model of metamorphosis. In folklore or mythology, a plant or a tree is often born from the sacrificed dead [...] A very close argument of multiple metamorphoses is the mythological motif of the vegetable tomb: The body of Osiris is enclosed in a wooden chest, enclosed in turn in a trunk of heather and which will serve to make the main beam of the royal palace. But a plant is always born from the death of the hero and announces his resurrection (Ibidem, 1981, pp. 283-284).

We find that in this comic: this symbolism of the vegetable tomb is illustrated at a conceptual level, when the sister who incarnates Death ends the life of the animals so that they do not suffer during the fire, and later gives way to her sister so that life can make its way again: from the tomb of the living beings sacrificed in the forest fire, life emerges; time and the fear of death are dominated,

All the symbols of the measuring and mastery of time will tend to progress according to the thread of time, to be mythical, and these myths will almost always be synthetic myths, which tend to reconcile the antinomy that time implies: the terror before the time that flees, the anguish before the absence, and the hope in the realization of time, the confidence in a victory over time (Ibidem, 1981, p. 268).

The story of *Hermanas* is precisely about this reconciliation of opposites, how the characters become aware of their function in the world (Figure 4), as can be seen in the following dialogue:

It was in these acts that she understood the power with which she was born. Her heart allowed her to give death with wisdom and justice without feeling anger or revenge as men did, and she exercised her gift with love and compassion to end the lives of old and sick people and marked the beginning and the end of a new cycle, even when she cannot stop the course of time and destiny, as in that fire; but where death lies, life always rises to continue the cycle, she destroys what should no longer continue and her sister restores beauty and life to what was. One is the origin, the other is the end and they always walk together because they are life and death (Ramos González, 2021, pp. 16-17).

This reconciliation of opposites, this complementarity proper to the nocturnal regime of the image, encompasses precisely the Taoist yin and yang, and the life-death structure described above, is nothing other than the Dao cycle:

[...] philosophical Taoism opposes this claim to immortality because it considers death as something natural and proper to live it considers it part of life. The life-death cycle is simply the cycle of Dao: birth and death, creation and destruction are facets of the same process [...] to be born and to die is part of the becoming of a cosmos whose way of being is that: to create and destroy, to always transform everything (Rivero Weber, 2016, p. 12).

Figure 4 Nocturne symbolism and Taoism in *Hermanas*



(Ramos González, 2021, pp. 16-17)

As we can see in this comic, the Dao cycle is presented as a conceptual reference that is even materialized in the Figures; in this case, the openly illustrated philosophical aspect is mediated by the author's reading and consumption of the stories told in the Japanese mass media, where the theme of the interrelation between life and death, and light and darkness are a constant; An example of this is the work of CLAMP, authors who inspired Paulina (Ramos González, 2022), who create complex stories where the dialectical relational factor is a constant; even their illustrations of light and darkness created for the Sakura Card Captor series could have served as Figure inspiration for the creation of the sisters in this comic.³⁰

Conflict and polarization of spaces in *Hermanas*

Up to this point, we have analyzed our primary source, both Figureally and conceptually, and we observe how it perfectly embodies the cycle of the vegetable tomb of the nocturnal imagery of the image, as well as the very becoming of the oriental Dao; nevertheless, in every process of hybridization there are conflicts, aspects or elements that fail to integrate between the elements of the cultures that are found, points of rupture, unresolved aspects; Therefore, in this section, we argue that the conflict inherent to the cultural hybridization of the referents is present in the representation of polarized and opposed spaces (life-death forest, death-war desert) typical of Western Christianity.

It is important to remember that we are working with a comic derived from a type of productive consumption by the author, where elements from the Japanese Figure tradition and philosophy are mixed with Paulina Ramos' Figure tradition and sociocultural processes. We will delve into how this process may have occurred in later pages, in this premise, we just want to remember that any process of cultural miscegenation, in addition to having similar aspects between cultures, allows the process of mixing and acculturation; moreover accounts for forms of conflict, aspects that do not coincide and do not end up integrating, tearing between the different elements that overlap; therefore, for García Canclini (2016) the "hybridization is not synonymous with fusion without contradictions, but can help to account for the particular forms of conflict generated in recent inter-culturalism" (*Ibidem*, 2016, p. II).

³⁰ [https://sakuracardcaptors.fandom.com/es/wiki/Oscuridad_\(The_Dark,_闇\);](https://sakuracardcaptors.fandom.com/es/wiki/Oscuridad_(The_Dark,_闇);)
[https://sakuracardcaptors.fandom.com/es/wiki/Luz_\(The_Light,_光\)](https://sakuracardcaptors.fandom.com/es/wiki/Luz_(The_Light,_光))

As we have seen in the pages above, this comic presents a Figure and a concept very integrated with the Taoist philosophy and the nocturnal regime of the imaginary. The concept narrated in the story is perfect and congruent; the tearing comes, however, at the Figure level from page 14, after both sisters had understood their role in the cycle of death and rebirth of the world, they leave the forest and in the cartouche, the narrator expresses the following: “and they began to travel through every corner of the world, observing all the beings that lived in this world for a long time” (Ramos Gonzalez, 2021, p. 14). While at the narrative level it is understood that both sisters travel together, because life and death always go hand in hand; there are a couple of scenes where it is Figureally followed that they separate: on that same page we see death departing towards the desert while her sister says goodbye; later, she looks, alone and from a distance, at a kingdom at war and enters among the combatants to give death. It is only at the end of these scenes that a reference is made again to the two sisters going together in a cycle. This pair of scenes shows a small process of tearing apart how the author introduced the Daoist philosophy, the verdict is given by the Figure representation of polarized and opposing spaces: while in the forest a very clear life-death cycle predominates, as it moves under botanical symbolism; the version we see of the desert is not that of a place where there is both life and death, but the vision of the desert as desolation, derived from the Judeo-Christian tradition that syndicates the desert “as a place where demons dwell” (Asmat, 2015, pp. 25-26), from which derives the idea of the desert as death.

According to Gilberto Giménez, geoFigureally, the term desert is “used to describe areas characterized fundamentally by aridity, that is, by the absence or scarcity of water, which implies a deficit water balance. Aridity in turn causes dryness, that is, the lack of atmospheric humidity that results in the formation of dry, stony or sandy soils” (Giménez & Héau, 2007, p. 9).

Accordingly, the desert landscape can be of two main types: the ergs, which correspond to the common imagery of the Great Plains, covered with sand and dunes; and the stony plains carved by the wind called regs. The type of desert represented in *Hermanas* represents the first type: we observe on page 14 that the sister of death travels across great sandy plains, a desolate space marked by the goat’s skull and the incandescent sun; it is a vision of a desert that is not only a desert, but also nourished by a whole religious imagery of the desert already carried by the Spanish colonized, familiar since their childhood with a profuse iconography of an anchorite and hermit saints. This imaginary, inherited in turn from the medieval West, emphasized solitude and the absence of human presence. Deserts were conceived as uninhabited or uncivilized zones, regardless of their climatic characteristics (*Ibidem*, 2007, p. 30).

A vision of desolation is sufficiently justified due to the extreme temperatures and the lack of water that make it difficult for human beings to survive in this environment. Both in the construction of the forest and the desert by Paulina Ramos, we observe the notion of fudo, proposed by Tetsuro Watsuji, which is “a collective term that encompasses the weather, meteorological phenomena, geology, landforms, and the landscape of a region (Watsuji, 2006); although the word refers to these elements, Watsuji posits that the fudo of a region is closely related to the spiritual foundation and history of the region’s people” (Matsui, 2014, p. 18). Watsuji establishes three types of relationships between people and the fudo: the monsoon zone, the desert, and the pasture. We will focus on the first two because they are the ones present in our primary source.

For Watsuji, the monsoon zone is characterized by heat and humidity, so he argues that in this region, the people who live there are passive to nature, because nature nurtures them and provides them with everything they need, “The world of man becomes a lush place, full of plant and animal life. Nature is not death, but life. Death is rather on man’s side” (*Ibidem*, 2006, p. 46). In contrast, the desert zone corresponding to the areas of Arabia, Africa, and Mongolia is a barren and desolated area,

The people in this second zone were united vunder the absolute authority of tribal chiefs and constantly struggled against both nature and other tribes. These conditions engendered the development of the notion of an absolute personal God who transcended human strength. Judaism, Christianity, and Islam are part of monotheistic, desert-created religions that share a belief in one God who is linked to humans through testaments (Matsui, 2014, 18).

In this proposal, the relationship between climatic characteristics and the predominant type of religious thought is highlighted. What we see in *Sisters* are precisely these first two types: the monsoon zone that gives ample forests, where cyclical thinking is a constant, as we can observe in the forest where the protagonists are born and grow. In the second sequence, Death, as a foreigner accustomed to the abundance of the forest, sees the desert as desolation, where linear thinking makes sense because the choice of the wrong path can cost the living being its subsistence.

However, forest people, such as those of ancient India, developed the idea of samsara (cycle of rebirth). According to Suzuki, the desert people had to determine whether a path led to water. The decision was important as a wrong choice could lead to death from thirst (Ibídem, 2014, pp.18-19).

Therefore, the only point of conflict and tearing that we observe in the processes of cultural mixing in this comic book is integrated by these two scenes, where the Figure of the comic book gives an account of aspects introjected into the unconscious of the author, typical of her Christian culture manifestations.

4. Results

In the previous section, we examined a good part of the formal, narrative, and thematic characteristics of the comic strip *Hermanas*; in this section, we will give an account of how this Figure product derived from a type of consumption that mixed Figure and philosophical traditions coming from different contexts. In this section, we argue that in *Hermanas*, the Figure and thematic elements are mixed from the contact of the accentuation of the rapprochement between cultures, from which, the author made a productive consumption in which she assimilated elements from sympathies between her culture, which is not exempt from processes of conflict and tearing.

Paulina Ramos Gonzalez is a 30-year-old Mexican young woman from Mexico State; since she was a child, she came into contact with Latin American comics and American comics, when her father bought her copies of series such as *The Pink Panther*, *Popeye*, *the Woody Woodpecker*, *Condorito*; since she was a child, she began to draw characters from the cartoon series she saw on television, but it was the series *Card Captor Sakura*, from CLAMP, which marked her creative process:

[...] but one day the manga of Sakura Card Captor arrived to Mexico by Toukan publishing house, there I got to know the manga as such and I fell in love with the style, the stories, and the characters, it seemed incredible to me that a story from Japan could have the scope for someone to read it on the other side of the world and also that these were shown on television. Over time, I began to know the world of anime and manga and well... here I am, working and living from this (Ramos Gonzalez, 2022).

It was within the framework of the introduction and implementation of the neoliberal system in Mexico, that the opening to foreign markets took place, “This opening was based on the reduction of tariffs, this re-articulation of the national economic space had the result of improving the possibilities of exchange between Mexico and the countries with which it signed these treaties, and led to a notable intensification of commercial traffic with those countries” (Zapata, 2005, p. 21). This opening was most clearly observed when, in 1986, Mexico joined the General Agreement on Tariffs and Trade (GATT); later, in 1994, the North American Free Trade Agreement (NAFTA) came into force.

To these economic processes, which introduced a large number of previously unknown cultural products to the country, we must add the technological changes and transformations that changed not only the way of producing, communicating, and working, but also of consuming, “the social emergence of technological innovations, a product of digitalization, coincides with neoliberal policies because these are the ones that orient their exploitation and exploitation towards the private sector” (Crovi Druetta, 2013, p. 15).

In this context, several anime series that had been censored since the seventies entered Mexico, and in the mid-nineties, the first manga of Japanese origin entered the country, from publishers such as Vid and Toukan. This entry of foreign products generated changes in cultural consumption and with it in Figure production due to the contact of Figure traditions of different origins.

Concerning Paulina Ramos, we have an author who produced a type of consumption that Calabrese calls *cult*, which is a type of productive repetitive consumption, since the one who consumes “adds something of her own in the same modality of consumption” (Calabrese, 1999, p. 51). Paulina got to know different ways of drawing and telling stories, from the traditional comics mentioned above (The Pink Panther, Popeye, the Crazy Bird), to her contact with Mexican authors of different generations, some of whom had a long tradition in Mexico, and others were beginning to make themselves known with works that also took up Japanese Figures, such as the case of authors like Larenn Syanne, Sareki, Alberto León, Tozani and Ivonne Cruz.

For Alfred Kroeber (1963), culture can be defined as “all the activities and non-physiological products of human personalities that are not automatically reflex or instinctive” (p. 61); this leaves a very wide margin for all kinds of cultural manifestations; this culture is unlimitedly receptive and is always going through patterns of stabilization and change,

By processes of culture, we mean those factors which operate either toward the stabilization and preservation of cultures and their parts or toward growth and change. Changes, in turn, may consist either of increments, such as new developments, inventions, and learned traits acquired from outside, or of losses and displacements (Ibidem, 1963, p. 152).

The processes of change can be of two types, diffusion, and tradition, and are carried out utilizing cultural transmission, as we observe in this case, in which both the economic and technological systems accentuate cultural contact and exchange and the production of new elements within a society, with which we have more intense and prolonged contacts with various foreign cultural elements, as is the case of Asian mass media in general, and manga and anime in particular,

In other words, a new culture is transmitted geographically as well as chronologically, in space as well as in time, by contagion as well as repetition. The spread in the area is generally called diffusion, as the internal handing on through time is called tradition (Ibidem, 1963, p. 219).

The type of cultural transmission and change, which gave way to the hybrid processes that generated this Mexican comic strip, is precisely diffusion, which encompasses the contact between cultural elements coming from different areas, and which is a much larger scale extension in which an invention, innovation or cultural product is dispersed from the society in which it originated to new societies and becomes established in their cultures (Kroeber, 1963).

To talk about the processes through which diffusion generates cultural changes in the face of constant exchanges between societies, we take up two concepts that are related to each other: the notion of cultural hybridization, which García Canclini (2016) takes from biology and adapts to culture, and the notion of acculturation by Kroeber (1963); since both speak of this enrichment, adaptation, and modification of cultural elements, derived from contact between cultures. For García Canclini (2016), hybridization is understood as “sociocultural processes in which discrete structures or practices, which existed separately, combine to generate new structures, objects or practices” (Ibidem, 2016, p. III). On the other hand, Kroeber’s notion of acculturation (1963), also presents us with this notion of contact, of approximation between cultures, of fusion with contradictions, including the issue of power, employing which, one culture takes greater strength or dominion over the other; thus, acculturation implies “changes produced in a culture by the influence of another culture which result in an increased similarity of the two [...] Practically all the diffusion we have been considering either contributes to acculturation; and conversely, all acculturation in full of diffusion” (Ibidem, 1963, p. 233). This acculturation is more or less reciprocal, but for Kroeber, it is incomplete.

This notion of contact, exchanges, adaptation, transformation, and cultural reproduction, regardless of the degree of loss recognized by each definition, implies the following:

1. Contact between diverse cultures, which exchange and spread their cultural elements.
2. Common aspects that allow the linking and overlapping of an element within another culture, an attractor, a sympathy between cultures, which, in Gruzinski’s words, “selects one or another connection, reorients one or another link, or suggests one or another association between beings and things. It intervenes as if endowed with an energy of its own” (Gruzinski, 2007, p. 237).
3. The existence of a conclusion and aspects that do not end up being integrated.

In *Hermanas*, the attractor is marked by two fundamental aspects: the existence of opposites, both in Christianity and in Eastern philosophy and religion, and the existence of a strong Figure tradition of comics in both Mexico and Japan.

Concerning the former, both in Christianity and in Eastern Taoist philosophy, we find a magical world constituted by two forces whose characteristics are opposites: good and evil, light and darkness, day and night, above and below, everything and nothingness, etc. The difference, nevertheless, lies in the fact that both have a different logic, while Christianity moves with “a bivalent logic that underlies the definition of reality from the classic metaphysical principles that arise from it: the principle of identity [$A \leftrightarrow A$]; the principle of non-contradiction [$\neg(A \wedge \neg A)$]; and the principle of excluded third [$A \vee \neg A$]” (Lázaro Pulido, 2010, p. 98). Thus, we are witnessing different logical ways of understanding this bivalent thought:

The difference is thus expressed in logic. That of contradiction (which makes being and its negation impossible in the same time and sense) governs the origin (non-dualistic) of thinking established in Greece; that based on the overcome contrariety (which makes one thing possible and its opposite as another) is established when explaining the origin (non-dualistic) in the East (Ibíd., 2010, p. 99).

In *Hermanas*, the logic that dominates is the second one, the one that admits contradiction and is not dualistic; however, in the desert scenes, the author returns, at least in the Figures, to the contradictory dualistic logic.

The other element that acts as an attractor and makes the creation of a comic strip like *Hermanas* possible is the fact that both Japan and Mexico have a strong tradition of comic strip production. In Mexico, the origins of this tradition come from the periodicals and illustrated publications at the end of the 19th century, in contact with French caricature and American comic strips.

The irregularity in the delivery of these American products led to the publication in Mexico of local creations that later became independent in miscellaneous and specialized comic magazines, such as Paquín and Pepín. The golden age of Mexican comic strips lasted from 1934 to 1950, and was characterized by humorous and melodramatic publications, aimed at all types of audiences; the stories maintained continuity over several issues and were usually printed in sepia. The silver era lasted from the 1950s to the 1980s; during this period, many of the classics of the golden era were reprinted, the format became novelized and the print run was reduced, although sales continued to be in the thousands of copies (Hinds & Tatum, 2000). The eighties brought the decadence of the worn-out formulas of the Mexican industrial comic strip, while the author’s comic strip, enriched by the contact with European and Latin American comic strips, emerged and rose.

Manga also arose from the contact between the Japanese Figure tradition and the European caricatures that entered Japan at the end of the 19th century; by the 1950s, Osamu Tezuka revolutionized manga with his narrative and Figure style and the different genres he created. In the sixties, alternative magazines to Tezuka’s proposal appeared, such as the countercultural magazine *Garo*, where artists such as Yoshiharu Tsuge collaborated. In the seventies, manga diversified with the emergence of genres such as yaoi with homosexual themes, and yuri with lesbian themes (Santiago Iglesias, 2013). For the eighties and nineties, there was a boom in manga due to the intensification of trade with foreign countries, due to the implementation of neoliberalism.

This makes it clear how this sympathy, this attractor, could arise between the cultural elements of such distant societies: the coincidence in this bivalent thinking, the convergence between the tradition of comic production, which although it took different directions in the early eighties of the last century, continues to be an excellent link that allowed the transposition and mixing of Japanese manga and Mexican comics. Finally, we must not forget that every process of hybridization has conflicts, remember that in previous pages we analyzed how the Figures of the desert scenes, visually breaks with the perfectly grounded idea of complementary opposites, in these scenes what predominates is a polarization of spaces, where the forest represents life and rebirth, while the desert represents death and loneliness; This rupture is not very visible since it does not occur at a narrative level, but at a visual level, and comes from a process of cultural introjection of the author, who grows and develops in a country highly marked by western Christian polarization.

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6. Conclusions

In this article, we started from the argument that the comic book *Hermanas*, created by the designer Paulina Ramos González in 2021, is the result of a productive consumption that assimilates oriental elements of Japanese manga: ways of doing, philosophy, and imagery, which derives in a hybrid product that transposes referents and imaginary from similarity and conflict. Our argument is based on a methodological proposal based on the paradigm of indexical inferences proposed from the microhistory by Carlo Ginzburg and Giovanni Levi, from which we analyze the details present in the Figures and narrative of the comic, to make interpretative inferences about the context of creation, and the socio-cultural and historical processes present in the visual culture of the author.

Throughout the analysis, we find that the open oriental influence of the Japanese mass products, not only in the philosophical aspects of the comic but in its Figures and narrative; besides enriching the conceptual reading, not only with the similarity of the story with the Taoist philosophy of yin and yang but with the nocturnal regime of the imaginary, proposed by Gilbert Durand, in which the Daoist philosophy itself can be inserted.

We identified that *Hermanas*, is a cultural product derived from constant exchanges extended in a relatively short time, between cultures, specifically the Mexican culture and its contact with the Japanese mass media; this contact nurtured the Mexican Figure tradition with narrative, Figure and thematic forms, which were uncommon in our country; the process of cultural hybridization that allowed the emergence of this work was the cultural diffusion, which allowed the identification of coincidences, sympathies, points of convergence and overlapping between different elements that are generating not only a comic strip in an isolated way, but are giving way to a whole generation of creatives that mix and reinterpret these new creative forms; the products that are generated are of all kinds: comics, illustration, clothing, merchandising, and even videogames.

Thus, in *Hermanas* we observe that the attractor is the religious-philosophical convergences and the Figure tradition of both countries, while the point of conflict visible in the comic, is observed as a slip perhaps unconscious of the culture of the author, who at some point in the story presents the Figure polarization of the spaces in which the characters move, which brings a conceptual and symbolic polarization, which generates some ambiguity in the notion of complementary opposites that dominates the comic.

Finally, we can say that one of the main contributions of this work is this first attempt to integrate an analysis where both the micro aspects of the source, translated into its Figures, narrative, and philosophical concept, are interpreted and understood in a broader macro-structural framework, marked by the idea of analyzing and describing how this process of contact, exchange, overlapping and cultural hybridization with its convergences and conflicts could have been carried out; dialectical integration that until now had not been done, or had been attempted and achieved in a very superficial way.

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Chapter 7 Study of socioemotional disorders in university students during the COVID-19 pandemic

Capítulo 7 Estudio de padecimientos socioemocionales en estudiantes universitarios durante la pandemia de COVID-19

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Abstract

Since the COVID-19 pandemic, changes have been reported in different psychosocial aspects that affect the family, work and social spheres in society around the world. In certain family groups, confinement during the pandemic brought family members closer together, in other homes the lack of work, stress, anxiety, and the loss of family members, among other things channeled changes in the levels of different psychosocial aspects. Therefore, it is necessary to have tools that allow these changes to be assessed, for this a study was designed and carried out with students from the Universidad Tecnológica de Torreón to elucidate the differences in psychosocial conditions and their impact, and at the same time provide suggestions to the different departments involved in their emotional and educational well-being.

COVID-19, Psychosocial conditions, Stages of the pandemic

Introduction

As a result of the COVID-19 pandemic in 2020, there were a large number of deaths in all countries worldwide, including Brazil, Mexico, Peru and Colombia, which were the epicenter of the pandemic [1]. Facing with this situation, some families were forced to live together involuntarily, just as in certain environments that caused economic and psycho-emotional problems.

Drastic changes in teaching were reflected in the education sector, from traditional classes in classrooms to classes at home and online, forcing those involved to adapt to these new modalities, primarily ensuring the health of students and teachers. From this modality, families had to adapt the spaces of the students, in addition to acquiring the necessary technology for distance education.

The changes in the teaching-learning process caused the mood of students and teachers to be affected, along with the previously acquired disorders such as anxiety and stress, as well as the increase in the rate of depression according to the studies carried out. In some countries such as the United States, Spain and China [2, 3]. The virtual modality demands from the student some aspects such as motivation, time, ability to learn to learn and therefore requires a high intrinsic motivation, since it is the student's desire to learn that keeps him or her willing to engage in educational activities, beyond the evaluations or exams that are made regarding extrinsic motivation. According to the Self-Determination Theory (SDT) [4], when executing tasks, human beings are motivated by intrinsic and/or extrinsic components to keep developing their goals and tasks in order to bring them to fruition. In the case of the school context, there are multiple factors that can facilitate the development of the task and the continuity of energy during the training process, as well as influence the total abandonment of them, among these is motivation. When changing from classrooms to homes and due to the previously mentioned changes, it is possible that the motivation could have gone from intrinsic to extrinsic and affected the levels of interest in learning or being tied to the demands of the new modalities that have been presented throughout the years. the COVID-19 pandemic, so it is important to know the factors that are affecting student behavior in order to guide them and at the same time look for alternatives that allow changes in attitudes and a boost in their intrinsic motivation in the school environment. Within the psychosocial field, the most relevant aspects are the following:

A) Depression

It is characterized by a state of profound sadness and a loss of interest or pleasure that lasts for at least two weeks and is present for most of the day [5]. The causes of depression include complex interactions of social, psychological, and biological factors. In low- and middle-income countries, care and treatment services for people with depression are often poor or non-existent. In these countries, it is estimated that between 76% and 85% of people with mental health disorders do not have access to the treatment they need [6]. Depression in adolescents presents affectations in the emotional, cognitive and physical aspects. In the former, symptoms include irritability, suicidal ideation, inappropriate guilt, lack of interest, lack of pleasure, despair, depressed mood, and anxiety. On the other hand, the symptomatology in the cognitive aspect would be the deterioration of the ability to think, poor concentration, difficulty in memorization and indecision. Finally, in the physical aspect there are headaches, stomach problems, psychomotor agitation, insomnia or hypersomnia, change in diet or weight, decreased libido, fatigue and pain [7].

It is estimated that 20% of the world's population will suffer from a disorder that requires medical care and treatment [8]. However, given the latest events related to the COVID-19 pandemic, the estimates changed. According to a study carried out in China in March 2020 with middle school students between the ages of 12 and 18 with a sample of more than 8,500 students, they have found a high prevalence of depressive and anxiety symptoms, the higher the degree of studies, the higher the prevalence, being the female gender with the highest percentage [9]. Therefore, it is possible to think that depression before and during the pandemic have undergone significant changes that may lead to finding the reasons for the development of students in classrooms with the new normal.

B) Eating disorders

Eating disorders (ED) are defined as specific and severe alterations in food intake, observed in people who present distorted patterns in the act of eating and that are characterized by either overeating or not doing so [10]. Eating disorders generally appear in adolescence and early adult life and can cause physical repercussions that affect the heart, digestive system, bones, teeth and mouth, and these in turn lead to other types of diseases. The symptoms of the disorders vary depending on the type of disorder suffered; These include anorexia nervosa, bulimia nervosa, compulsive eating disorder, rumination disorder, and food avoidance or restriction disorder, and although these usually occur more frequently in adolescents and women, also men can get them [11]. A recent study published by the American Academy of Pediatrics (AAA Publications) indicates that the COVID-19 pandemic and public health precautions have been associated with negative psychological effects among adults and adolescents and that, at the beginning of the pandemic, eating disorder experts hypothesized that these effects might be particularly profound among people who suffer from them. Initial data suggested that the pandemic has been associated with worsening symptoms, including increases in restraint, binge eating, and/or purging, in adults with these disorders, in addition to affecting adolescents as due to their development they may be vulnerable to the negative social consequences of the pandemic such as isolation and adolescents with these disorders may worsen symptoms [12].

C) Post-traumatic stress disorder

In post-traumatic stress disorder (PTSD) everything is focused on the psychic trauma; that is, the emotional impact of a certain event capable of provoking a series of physical and psychological manifestations [13, 14]. APA defines it as that psychologically stressful situation that exceeds the repertoire of normal life experiences, such as a simple bereavement, a chronic illness, an economic loss or a sentimental conflict, which will affect practically all people and will cause an intense fear, terror and hopelessness, with a serious threat to life or personal physical integrity or that of a third party [15]. As a result of the COVID-19 situation, studies and research have been carried out regarding mental conditions that can affect the population, among which is one carried out in Wuhan, China in which, of 2091 participants, 96 (4.6 %) reported a large number of PTSD symptoms and in health personal 4.4% were reported. The risk factors that were identified were female, having a history of exposure in Wuhan, being in high-risk groups for infection, and having poor sleep quality. People now residing in Hubei province, the most affected area, reported the highest levels of PTSD. This result is consistent with a study on the psychological impact of Severe Acute Respiratory Syndrome (SARS), which showed that residents of areas with high prevalences of SARS were more susceptible to developing PTSD [16].

D) Violence

Violence is defined as the physical intervention of an individual or group, against another individual or group or against himself [17] and according to the United Nations Organization (UN), violence against women and girls is one of the most widespread violations of human rights in the world, in addition to having increased as a result of the COVID-19 pandemic [18]. The UN also classifies violence into the following types: gender violence, economic violence, psychological violence, emotional violence, physical violence, sexual violence, and online or digital violence [19]. In a recent report, UN Women Mexico states that as a result of the pandemic, the isolation and movement restriction measures dictated are having repercussions such as higher levels of stress, economic and food insecurity, decreased income and unemployment, which can increase significantly. the levels of violence against women and girls in the domestic sphere and increase the barriers they experience to get out of circles of violence, leave their aggressors or activate support networks.

It also ensures that there is an increase in violence against girls, greater exposure to sexual exploitation of women and young people in contexts of labor informality or precarious working conditions, increased violence against children and adolescents who may see their rights violated. rights to live in well-being conditions, to a healthy integral development, to a life free of violence and to personal integrity, among others [20]. It also reports that, in Mexico, during the confinement of more than 100 days due to the Covid-19 pandemic in Mexico, calls to 911 for violence against women increased by around 20% and attention in state and municipal instances grew. between 20% and 30% percent. According to the National Network of Shelters in Mexico, in the two months of quarantine, the care provided in cases of violence against women increased, which represents an increase of more than 70% compared to the same period in 2019 [21].

E) Anxiety

Generalized anxiety disorder (GAD) is characterized by excessive anxiety and worry about a series of events and activities that happen around the person who suffers from it, worry and anxiety are difficult to control and are associated with three of the following symptoms occurring most days and for at least 6 months: restlessness or impatience, easy fatigue, difficulty concentrating or going blank, irritability, muscle tension, and sleep disturbances (difficulty falling asleep or staying asleep). According to the APA, joint anxiety disorders are the most common type of psychiatric disorder. Many patients with anxiety experience physical symptoms related to anxiety and as a consequence go to primary care, unfortunately treatment is given for the physical symptoms and not for the underlying psychiatric disorder. Despite the high prevalence of this disorder, they are often underrecognized and undertreated [22]. In the first year of COVID-19, the global prevalence of anxiety and depression increased by 25%, according to a scientific report published today by the World Health Organization (WHO). The report also highlights who has been most affected and summarizes the effect of the pandemic on the availability of mental health services and how this has changed during the pandemic. Concerns about potential increases in mental health conditions had already led 90% of countries surveyed to include mental health and psychosocial support in their COVID-19 response plans, but significant gaps and concerns remain [23].

In the present investigation, these aspects were taken into account to evaluate socio-emotional conditions in higher level students in the time of COVID-19.

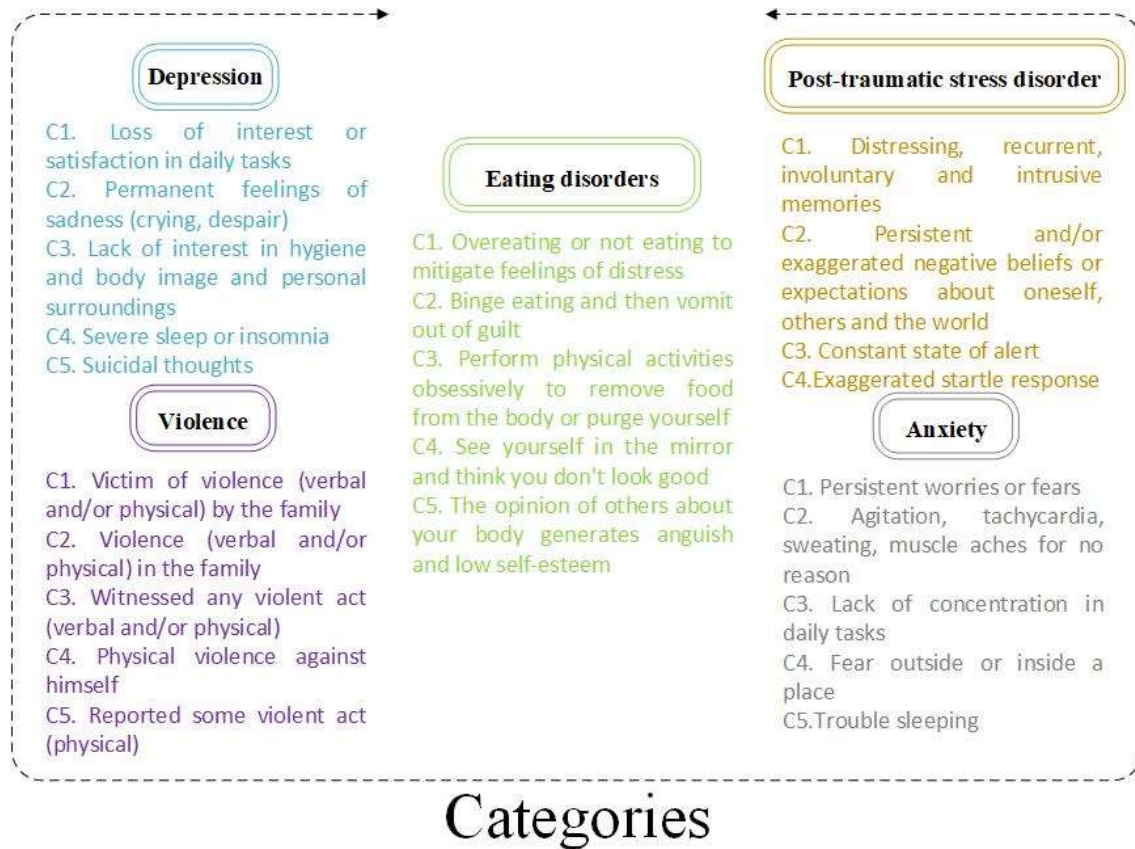
Methodology

Subjects of study

A stratified random sample of 509 students belonging to Universidad Tecnológica de Torreón was selected, from which 274 are students of the associate degree program (ADP), 60 women and 214 men. And 235 students of the engineering level (ENG), 80 women and 155 men. The students belong to the different programs of the university: Bachelor of Business and Project Administration (B&PM), Production technology Engineering (PT), Software Development and Management Engineering (SD&M), Metal Mechanics Engineering (MM), Mechatronics Engineering (MT) and Industrial Maintenance Engineering (IM).

Qualitative study design

The survey was designed and conducted in Google Forms. Where the conditions to be evaluated were divided into five categories with different criteria, each one as can be seen in Figure 1.

Figure 1 Evaluated psychosocial categories and their criteria

Consultation Source: Own Source

To carry out the study ethically in the first and second sections, an informed consent form was prepared where the volunteer is informed about the objective of the study, background and benefits, the procedure, the associated risks, clarifications and a space for the consent, in which the student must authorize to continue with the survey. This process is fundamental for the protection of the people who participate in the investigation.

Once the informed consent form has been signed, the third section continues, where some questions are asked to obtain general information about the student. This part of the survey acts as a clinical background file with the following data: family history, personal history and habits. In the fourth section, the volunteers were asked to fill in their general information and the educational program they are currently studying.

The fifth section determines what type of psychosocial conditions developed taking into account three stages of the COVID-19 pandemic: before COVID-19 (PreC19), during confinement due to COVID-19 (CC19) and the new normal (NNC19). In the sixth section, it was asked if the students tried or implemented solutions to their condition by consulting a specialist during the three stages of COVID-19.

The survey was validated by the expert in psychosocial disorders (Psychologist Delia Lizeth Tarango Enríquez ced. 6949518). This is available with the following QR code (Figure 2).

Figure 2. Survey QR code



Consultation Source: Own Source

Statistical tests

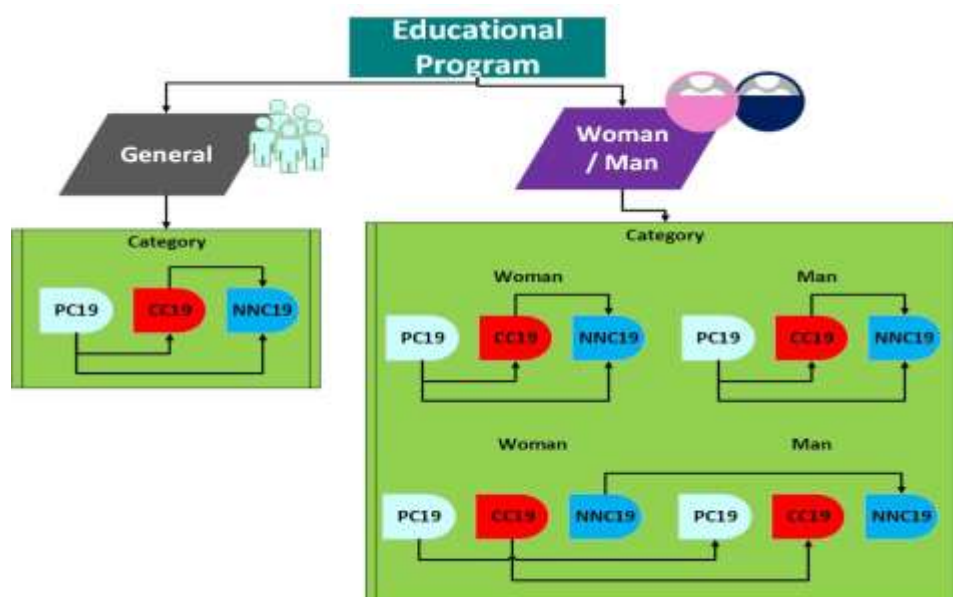
In statistics, the Mann-Whitney U test (also called Mann-Whitney-Wilcoxon, Wilcoxon rank-sum test, or Wilcoxon-Mann-Whitney test) is a nonparametric test applied to two independent samples. It is the non-parametric version of the usual Student's t-test. From this statistical method, changes in the behavior of a sample before and after a treatment can be contrasted [24]. To calculate the U statistic, each of the values of the two samples is assigned its range to construct

$$U_1 = n_1 n_2 + \frac{n_1(n_1+1)}{2} - R_1 \quad (1)$$

$$U_2 = n_1 n_2 + \frac{n_2(n_2+1)}{2} - R_2 \quad (2)$$

Where n_1 and n_2 are the respective sizes of each sample; R_1 and R_2 is the sum of the ranks (the sum of the relative position of each individual in the sample) of the observations of samples 1 and 2, respectively. The U statistic is defined as the minimum of U_1 and U_2 . A Wilcoxon rank sum test was performed with the data obtained from the surveys. To evaluate the changes in psychosocial conditions within the teaching experience in the three stages of COVID-19 (PreC19, CC19 and NNC19) according to the perception that students had in the three modalities. Statistical tests were performed according to Figure 3.

Figure 3 Order of statistical tests



Consultation Source: Own Source

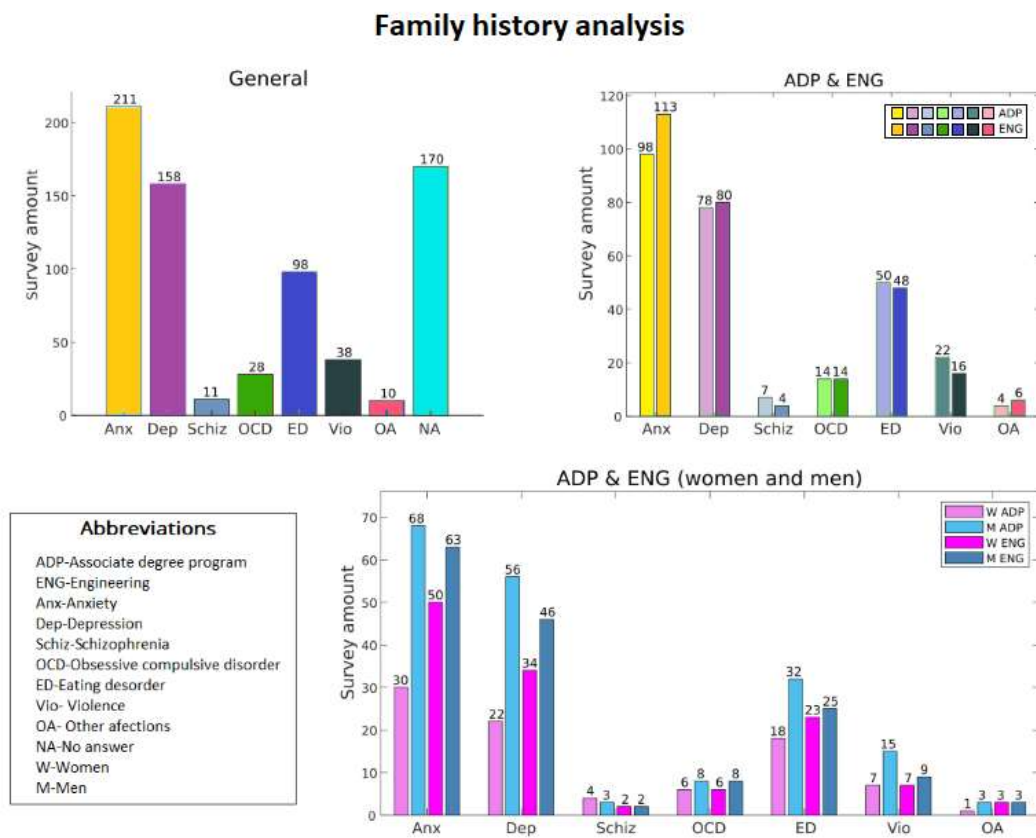
Results and Discussion

The analysis of the data is presented in three sections, where an observational analysis of what was found is carried out, and in the third section an analysis of the statistical tests carried out is added.

1) Family history

As seen in Figure 4, in the **general** part, it was found that in the family circles of the students who were part of the study, there was already a history of certain mental illnesses, with anxiety, depression and eating disorders taking the first places. followed by episodes of violence, obsessive compulsive disorders and schizophrenia. Other conditions such as diabetes, hypertension, etc. may appear as well. In the separation of the data in ADP and ENG, it was observed that those who tend to suffer with the greatest impact, even if it is for a small difference or in most of the categories, are the families belonging to the students of the engineering study level, and this can be due, perhaps, to the fact that in them there is a greater degree of pressure and responsibility, or because, in addition to working, some students on the night shift provide study to another member of their family, and therefore have more responsibilities than just studying. And finally, when separating the data in women and men, we elucidate that the relatives of the men, manifest feeling depressed or anxious, this is contrary to what the WHO reports [25], that is to say that this type of ailments (related to feelings and emotions), are manifested more frequently in women. However, it does not mean that men are not prone to them or do not suffer from them, but it is rare for them to express it, so perhaps we are facing a new precedent, where they (grandparents, parents, uncles, brothers, etc.) give themselves the opportunity not only to express their feelings and thoughts, but also to attend to each other in a professional way.

Figure 4 Analysis of family history



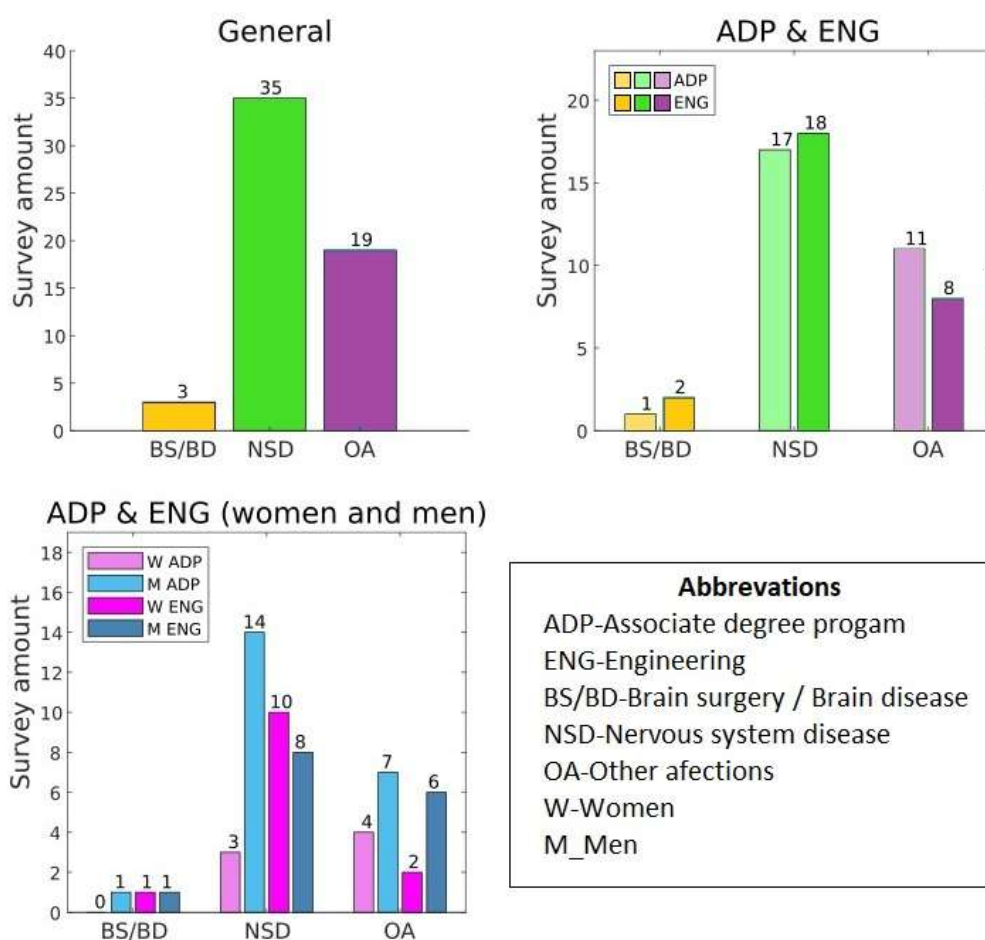
Reference Source: Own Source

2) Personal history

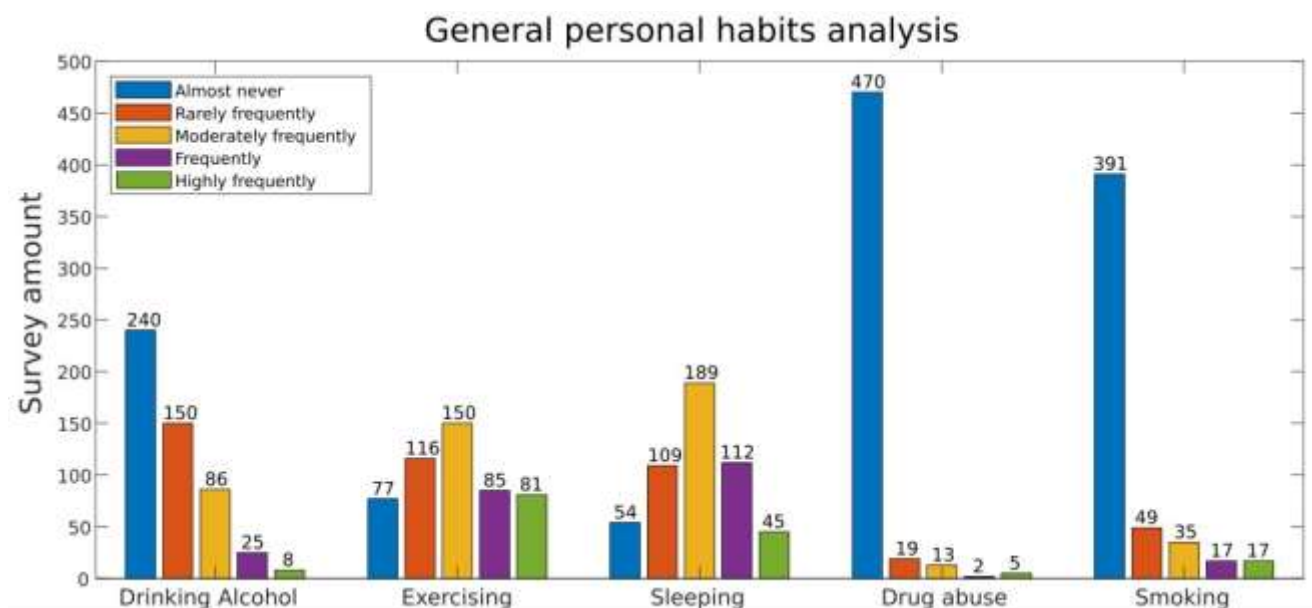
In Figure 5, as can be seen in the general part, 0.6% of the student report having had high-risk operations or medical treatments (chemotherapy, hemodialysis, rehabilitation, etc.), 7% express having suffered or suffering from diseases that they affect their nervous system (epilepsy, certain tumor formations or neuralgia, etc.) and 4% present other affections (stress, some allergies and even anxiety or depression already contemplated). Regarding the part of ADP and ENG, it was found that in both educational programs the figures are very similar, except for other conditions where they are higher in ADP. In the Woman-Man-ADP-ENG separation, it can be seen that it is the men belonging to the level of higher university technician who show that they suffer to a greater extent the ravages of some disease of the nervous system or intense stress; followed by women, however, these are made up of those who are at the engineering and undergraduate levels.

Regarding the habits in Figure 6, it can be seen that the most affected habits in the students who participated in the research were those related to sleep and exercise, having incidences of "Almost never", "Rarely frequently", "Moderately frequently", "Frequently" and "Highly frequently", leaving aside, according to their testimony, the consumption of tobacco, other substances or the intake of alcohol.

Figure 5 Analysis of personal history



Reference Source: Own Source

Figure 6 Analysis of personal habits

Reference Source: Own Source

3) Psychosocial conditions

The data in this section was analyzed in two ways, first as a percentage to find the trends in the categories and their criteria in each of the stages of COVID-19. In the first instance, the percentage of students who presented each of the category criteria was analyzed. In Table 1, percentages $\geq 25\%$ can be seen highlighted in blue.

Table 1. General percentage analysis of psychosocial conditions.

	Depression					Eating disorders					Post-Traumatic stress disorder			
	C1	C2	C3	C4	C5	C1	C2	C3	C4	C5	C1	C2	C3	C4
PC19	16.9	7.5	2.6	14.1	3.3	18.9	2.9	7.7	15.1	11.8	20.2	12.6	11.4	6.7
CC19	25.7	15.7	6.5	17.3	2.6	25.3	5.3	8.1	21	9.4	23	19.4	18.7	8.6
NNC19	20.4	10.6	0.4	22.2	2	21	3.1	5.3	16.7	12.4	21.4	13.8	14.9	7.1
	Violence					Anxiety								
	C1	C2	C3	C4	C5	C1	C2	C3	C4	C5				
	10.6	4.9	10	3.7	5.1	26.9	7.5	14.5	5.9	14.7	PC19			
	7.3	7.3	8.1	4.9	4.1	31.6	13.4	28.1	8.3	23	CC19			
	5.5	2.8	8.1	3.5	3.1	26.9	10.6	24.4	6.5	21.4	NNC19			

Reference Source: Own Source

The same analysis was carried out with a separation first in ADP and ING in general, then in women and men in general and finally by general program, women and men. Results are only mentioned if their percentages are $\geq 25\%$ between stages PC19 - CC19 - NNC19. The data found for ADP in the *Depression* category in C1 was 18.6% - 25.9% - 16.4%. In the category of *GAD* in C1 25.2% - 30.3% - 24.8% and in C3 14.6% - 26.3% - 26.3%. In the case of ENG in the *Depression* category in C1, 14.9% - 25.5% - 25.1%. In the category of *ED* in C1 21.3% - 29.4% - 24.3%. In the category of *PTSD* in C1, 23.4% - 27.2% - 24.3%. In the category of *GAD* in C1 28.9% - 33.2% - 29.4% and in C3 14.5% - 30.2% - 22.1%. As for women in the category of *ED* in C1 32.1% - 34.3% - 28.6% and in C4 16.4% - 28.6% - 21.4%. In the category of *PTSD* in C1 UN 28.6% - 34.3% - 27.1% and in C2 19.3% - 25.7% - 20.7%. In the category of *GAD* in C1 38.6% - 37.9% - 32.1%; in C3 19.3% - 35% - 27.9% and in C5 23.6% - 31.4% - 26.4%. On the other hand, in men in the *Depression* category in C1 17.3% - 26.8% - 20%. In the *GAD* category in C1 38.6% - 37.9% - 32.1%; in C3 19.3% - 35% - 27.9% and in C5 23.6% - 31.4% - 26.4%.

The percentage results per educational program are described below:

a) **B&PM**

In general, in the category of *ED*, 20% - 40.7% - 25% were observed in C2. In the category of *Violence* in C2 28% - 13.5% - 14.2%, while in C5 19.2% - 38.1% - 25%. As for women, in the *Depression* category, 31.8% - 43.7% - 40% were registered in C1; in C2 28.5% - 33.3% - 34.7%; in C3 33.3% - 18.1% - 0%; in C4 15% - 44.8% - 38.4% and in C5 33.3% - 20% - 50%. In the category of *ED* in C1 33.3% - 39.5% - 40%; in C2 22.2% - 72.7% - 37.5%; in C3 25% - 28.5% - 71.4%; in C4 21.7% - 35% - 43.3% and in C5 25% - 40% - 29.6%. In the category of *PTSD* in C1 32.5% - 37.5% - 36.8%; in C2 40.7% - 33.3% - 37.9%; in C3 25% - 37.5% - 43.4%; in C4 42.8% - 38.1% - 28.5%. In the category of *Violence* in C1 28% - 29.4% - 28.5%; in C2 46.1% - 26.3% - 50%; in C3 30% - 35.7% - 20%; in C4 30% - 36.3% - 20% and in C5 16.6% - 45.4% - 33.3%. In the *GAD* category in C1 35.2% - 39.6% - 42.2%; in C2, a range between 36.3% - 36.3% - 33.3% was maintained; in C3 33.3% - 32.6% - 38.4%; in C4 35.7% - 11.1% - 15.4% in NN19 and in C5 30.3% - 38.6% - 40.5%. As for men, only in the category of *Violence* in C5 was 21.4% - 30% - 20% reflected.

b) **PT**

In general, in the category of *Depression* in C3, 38.4% - 18.1% - 50% were registered in NN19; in C5 11.7% - 30.7% - 20%. In the category of *ED* in C2, 26.6% - 18.5% - 25%. As for women, in the *Depression* category, 31.8% - 28.1% - 26.6% appeared in C1; in C2 14.2% - 36.3% - 30.4%; in C3 50% - 27.2% - 0% and in C5 11.1% - 40% - 0%. In the category of *ED* in C2, 33.3% - 9% - 12.5%; in C3 33% - 21.4% - 14.2%; in C4 30.4% - 25% - 26.6% and in C5 28.5% - 20% - 25.9%. In the category of *PTSD* in C1, 27.5% - 25% - 21%. In the category of *Violence* in C1 32% - 23.5% - 14.3%; in C2 7.6% - 31.5% - 25%; in C3 20% - 14.3% - 30% and in C5 16.6% - 18.1% - 33.3%. In the category of *GAD* in C4 21.4% - 27.7% - 38.4%. As for men, in the *Depression* category in C3, 28.5% - 13.6% - 50% were noted and in C5 12.5% - 25% - 33.3%. In the category of *ED* in C2, 16.6% - 25% - 37.5%.

c) **SD&M**

In general, in the category of *Depression*, only in C3 was 15.3% - 15.1% - 50% manifested. In the category of *Violence* in C2 28% - 21.6% - 7.1%. In the category of *GAD* in C2 7.8% - 20.6% 26%. As for women, in the category of *Violence*, 23% - 26.3% - 0% were observed in C2. As for men, in the *Depression* category, in C3 a 28.5% - 22.7% - 50% was established. In the category of *ED* in C5 it started with 12.5% - 26% - 22.2%. In the category of *PTSD* in C3, 26.4% - 15.8% - 22.6%. In the category of *Violence* in C2, 33.3% - 16.6% - 10%. In the category of *GAD* in C2 18.7% - 28.6% - 36.3%; in C3 12.7% - 20.2% - 28.2% and in C5 14.3% - 21.9% - 27.7%.

d) **MM**

In general, in women and men no percentages were found => 25%.

e) **MT**

In general, in the category of *ED* in C3, 30.7% - 17% - 22.2% were reached and in C4 28.5% - 25.2% - 28.24%. In the category of *PTSD* in C2, 25% - 28.2% - 22.8%; in C3 15.5% - 18.9% - 26.3% and in C4 23.5% - 22.7% - 30.5%. In the category of *GAD* in C3 27% - 22.3% - 20.1% and in C4 30% - 26.1% - 24.2%. As for women, in the *Depression* category, only in C3, 16.6% - 27.2% - 0% was achieved. In the category of *PTSD* in C4, 14.3% - 28.5% - 35.7%. In the category of *Violence* in C1 8% - 11.7% - 28.5%; in C4 30% - 9% - 0% and in C5 33.3% - 9% - 16.6%. In the category of *GAD* in C2 27.7% - 12.1% - 23.8%; in C3 25.9% - 16.3% - 20.5%; in C4 21.4% - 33.3% - 23% and in C5 27.7% - 22.7% - 27%. As for men, in the category of *Depression* only in C3 was 26.9% - 15.2% - 22.9%. In the category of *ED* in C3, 33.3% - 22.3% - 30%; in C4 33.3% - 31.3% - 36.3% and in C5 25% - 30.4% - 27.7%. In the category of *PTSD* in C2, 29.7% - 31.7% - 24.3%; in C3 14.7% - 19% - 30.2%; in C4 30% - 17.4% - 27.2%. In the category of *Violence* only in C3 25.8% - 29.6% - 22.6%. In the category of *GAD* in C3 27.7% - 25.5% - 20% and in C4 37.5% - 20.8% - 25%.

f) IM

In general, in the *Depression* category in C1, 26.7% - 20.6% - 22.1% were noted; in C3 a 0% - 30.3% - 0% was registered and in C5 a 23.5% - 15.3% - 30% was registered. In the category of *ED* in C1, 21.9% - 25.6% - 21.5% manifest; in C2, 33.3% - 18.5% - 31.2% were registered; in C3 23% - 31.7% - 25.9% and in C4 27.3% - 22.4% - 18.8%. In the category of *PTSD* in C1 28.1% - 23% - 20.2% and in C3 17.2% - 26.3% - 22.4%. In the category of *Violence* in C1, 22.2% - 27% - 32.1%; in C2 16% - 29.7% - 35.7%; in C3 17.6% - 21.9% - 29.3% and in C4 15.8% - 36% - 27.8%. As for women, in the category of *Depression* in C3, 0% - 27.3% - 0% was reflected. In the category of *Violence* in C1 16% - 17.6% - 28.6%. As for men, in the *Depression* category in C1, 32.8% - 24.2% - 29.7% were registered; in C2 20.8 - 25.5% - 16.1%; in C3 0% - 31.8% - to 0%; in C4 25% - 32.2% - 28.7% and in C5 50% - 25% - 33.3%. In the category of *ED* in C1, 31.4% - 35.8% - 31.3%; in C2 66.7% - 25% - 37.5%; in C3 29.6% - 40.7% - 35%; in C4 31.5% - 29.8% - 25.4% and in C5 21.9% - 17.4% - 27.8%. In the category of *PTSD* in C1 39.7% - 34.8% - 28.2%; in C2 24.3% - 27% - 21.9%; in C3 it was reflected 20.6% - 33.3% - 26.4%; in C4 20% - 26% - 18.2%. In the category of *Violence* in C1, 27.6% - 35% - 33.3%; in C2 25% - 50% - 40%; in C3 26% - 30% - 35.4%; in C4 22.2% - 50% - 30.8% and in C5 28.6% - 40% - 30%. In the category of *GAD* in C2 31.3% - 22.9% - 18.2%; in C4 25% - 29.2% - 10% and in C5 31% - 20.6 - 25%.

The second analysis was statistical to find the significant differences as specified in Figure 3, for each of the categories. A summary of each of the categories in a general way is found in Table 2, where it is observed that the B&PM students showed a significant change (decrease) in the violence that was experienced or exercised in the family and with oneself (self-harm), in the CC19 stage, but above all in NNC19. This is perhaps due to the fact that, with the return to daily activities, and the freedom to go outside, both stress and pressure are channeled in healthier and more socially accepted ways.

Table 2 General analysis of psychosocial conditions.

	PC19- CC19	CC19- NNC19	PC19- NNC19	PC19- CC19	CC19- NNC19	PC19- NNC19	PC19- CC19	CC19- NNC19	PC19- NNC19
B&PM	0.595238	0.595238	0.896825	0.198413	0.420635	0.388889	0.342857	0.4	0.971429
PT	0.333333	0.84127	0.896825	0.84127	0.595238	0.888889	0.485714	0.571429	0.971429
SD&M	0.285714	0.738095	1	0.666667	0.801587	0.690476	0.228571	0.971429	0.4
MM	0.539683	0.380952	1	0.730159	0.896825	0.896825	0.771429	0.685714	0.628571
MT	0.809524	0.730159	0.801587	0.857143	0.84127	0.801587	0.085714	0.885714	0.228571
IM	0.547619	0.690476	0.880952	0.746032	0.809524	0.896825	0.628571	0.4	0.914286
	Depression			Eating disorders			Post-Traumatic Stress Disorder		
	PC19- CC19	CC19- NNC19	PC19- NNC19	PC19- CC19	CC19- NNC19	PC19- NNC19	PC19- CC19	CC19- NNC19	PC19- NNC19
	0.722222	0.015873	0.015873	0.539683	0.444444	0.984127			
	0.769841	0.904762	0.595238	0.293651	0.134921	0.801587			
	0.952381	0.063492	0.055556	0.079365	1	0.079365			
	1	0.833333	0.52381	0.809524	1	0.626984			
	0.412698	1	0.357143	0.309524	0.420635	0.746032			
	0.444444	0.301587	1	0.166667	0.460317	0.444444			
	Violence			Anxiety					

P Value

Reference Source: Own Source

Table 3 shows the statistical results of the *Depression* category. It can be elucidated that there was a significant difference ($p < 0.05$) in the SD&M program during CC19 between women and men, where in the latter a greater affectation was seen. Although depression can affect both men and women, men's willingness to talk about their feelings can be very different. For example, some men with depression hide their emotions and may appear angry, irritable, or aggressive, while many women appear sad or express sadness. Men with depression may feel very tired and lose interest in work, family or hobbies. They may also have more trouble sleeping than women who have depression. Sometimes your mental health symptoms appear to be physical problems. Many men are more likely to see their doctor about physical symptoms than emotional ones. Some men may turn to drugs or alcohol to try to cope with their emotional symptoms. Furthermore, while women with depression are more likely to attempt suicide, men are more likely to die by that cause, as they tend to use more lethal methods [25].

Table 3 Depression category analysis

		Depression category								
		Woman			Man			Woman - Man		
		PC19- CC19	CC19- NNC19	PC19- NNC19	PC19- CC19	CC19- NNC19	PC19- NNC19	PC19	CC19	NNC19
P Values	B&PM	0.5794	0.4524	0.5794	0.8254	0.7381	0.881	0.1429	0.2857	0.3016
	PT	0.3571	0.4524	0.9841	0.4444	0.8889	0.6587	1	0.8889	0.7302
	SD&M	0.881	0.9048	0.9524	0.3571	0.6032	0.873	0.246	0.0397	0.1667
	MM	1	1	1	0.381	0.381	0.8889	0.119	0.0794	0.4127
	MT	1	0.8254	0.6587	0.8413	0.6032	0.8651	0.3651	0.127	0.5159
	IM	0.8095	0.2619	0.6905	0.5476	0.7302	0.8095	0.119	0.0714	0.1587

Reference Source: Own Source

Table 4 shows the statistical results of the ED category. Significant differences ($p < 0.05$) between women and men in CC19 and NNC19 were recorded in the B&PM program, with an increase and prevalence in women, this can be reinforced by the study ED in adolescents, a comprehensive look, and in which it mentions that there are socio-environmental risk factors, both proximal and distal, that would play a role in the initiation and maintenance of eating disorders. Examples of the former are critical comments about appearance and diet by parents, and unresolved family conflicts. Among the latter, having been teased is found, in addition to the perceived pressure to be thin, the internalization of a "thin ideal" and the positive expectations associated with thinness, typical of Westernized cultures, which increase the risk of eating pathology especially in adolescent and young adult women. However, in recent decades its diagnosis in men has increased [26].

In the MM program there were significant differences ($p < 0.05$) between women and men in the CC19 stage. In this case, this affectation was more noticeable in men. The National Association of Eating Disorders of the United States that one in three people with a disorder of this type is a man, and almost all behaviors or attitudes that appear as fasting, purging or restrictions are common in all genres. Many studies suggest that the risk of dying is higher in men than in women because they receive treatment later because it is more difficult to seek help for a problem that has been characterized as female or gay. Plus, there are studies that show that men fall into these because they want to gain a lot of muscle and expose themselves more to dangerous eating patterns to achieve it. The main causes are:

- A misconception of body image that is believed should be thin and muscular.
- Sexual objectification and a muscular image spread by the media.
- The desire to increase muscle. 25% of normal weight men perceive themselves as underweight and 90% of adolescents exercise to increase volume.
- Muscle dysmorphia, which is a type of body shape disorder that leads them to obsess over being muscular enough.
- Failure to recognize the symptoms of eating disorders in men.
- Excessive caloric restriction that instead of making them gain volume makes them lose weight and affects their eating behavior. [28]

In the IM program there were significant differences ($p < 0.05$) between women and men in the three stages. This again was more noticeable in the male participants, the MNC. Nancy García, an academic from the Universidad del Valle de México, indicated that in the last three decades eating disorder problems have increased to 30% in men, that is, currently, out of every ten men, three have an eating problem. In the last two years, the incidence of binge eating disorder has increased, a consequence is the anxiety and depression caused by the pandemic [29].

Table 4 Analysis of Eating disorders

		Eating disorders category								
		Woman			Man			Woman - Man		
		PC19- CC19	CC19- NNC19	PC19- NNC19	PC19- CC19	CC19- NNC19	PC19- NNC19	PC19	CC19	NNC19
P Values	B&PM	0.2222	0.5952	0.4127	0.3571	0.2857	1	0.0635	0.0159	0.0238
	PT	1	0.6905	0.3651	1	0.5238	1	0.4603	0.9048	0.7143
	SD&M	1	0.6667	0.8333	0.5635	0.7937	0.7222	0.627	0.4127	0.5159
	MM	1	1	1	0.8571	0.8889	0.9841	0.127	0.0317	0.1349
	MT	0.8651	0.754	0.9365	0.8413	0.9841	0.7302	0.2302	0.246	0.1429
	IM	1	0.4762	0.4841	0.8333	0.7937	1	0.0238	0.0476	0.0159

Reference Source: Own Source

Table 5 shows the statistical results of the PTSD category. It can be seen that in the B&PM program there were significant differences ($p < 0.05$) between women and men in CC19 where, although there was an increase in both, it was more noticeable in women. People who are in quarantine are particularly vulnerable to neuropsychiatric complications because people gradually distance themselves from each other. In addition, quarantine reduces the availability of timely psychosocial intervention. The entire family of stress-related disorders should be given special consideration: from acute stress disorder to PTSD, which can occur in up to 30-40% of affected people, as has occurred in the context of other disasters. Evidence also tells us that women are more likely to experience PTSD symptoms [30].

In the MM program significant differences ($p < 0.05$) were found between women and men in PC19 and in the IM program significant differences ($p < 0.05$) between women and men in PC19 and NN19. In both educational programs this affectation was more noticeable in the male sex. The literature suggests that women are more likely to suffer from and express the symptoms of this disorder, but it does not rule out that men experience it in the same way. The difference is that while the female sex fits the most common established criteria for it, men are more likely to experience addictive or irritable behaviors; however, and as our study shows, we can appreciate that these are giving themselves the opportunity to express more what you feel and what you think, this perhaps as a result of all the affectations that were experienced by COVID-19, we can observe that they also begin to express. Women may experience PTSD differently than men. Women with PTSD may be more likely than men with PTSD to:

- Startle easily
- Have more difficulty feeling emotions or feeling paralyzed
- Avoid what reminds them of the trauma
- Feeling depressed and anxious

Women tend to have PTSD symptoms longer than men (on average, 4 years versus 1 year) before diagnosis and treatment [30]. Women with PTSD are less likely than men to use drugs or alcohol after trauma. Both women and men with PTSD can also develop physical health problems [32].

Table 5 Post-Traumatic stress disorder category analysis.

		Post-Traumatic Stress Disorder category								
		Woman			Man			Woman-Man		
		PC19- CC19	CC19- NNC19	PC19- NNC19	PC19- CC19	CC19- NNC19	PC19- NNC19	PC19	CC19	NNC19
P Values	B&PM	0.3714	0.4571	1	0.5714	0.6286	1	0.0857	0.0286	0.0571
	PT	0.9714	0.4857	0.8857	0.4571	0.6571	0.7143	1	0.8286	0.5429
	SD&M	0.5714	0.8	0.9714	0.2286	0.8857	0.4	0.4571	0.1143	0.1714
	MM	1	0.4	0.5714	1	0.9714	1	0.0286	0.0571	0.0571
	MT	0.1143	0.4	0.4571	0.3429	0.6286	0.6286	0.1429	0.3143	0.0857
	IM	0.7429	0.4	0.7714	0.6857	0.3429	0.8571	0.0571	0.0286	0.0286

Reference Source: Own Source

Table 6 shows the statistical results of the Violence category. Significant differences ($p < 0.01$ and $p < 0.05$) were obtained in the B&PM and SD&M program in women in CC19-NNC19 and PC19-NNC19. Contrary to what was expected and because of how it was reported in the media, there was a gradual decrease in violence between the evaluated stages, or at least this is what this part of the sample that responded to the instrument manifests, especially in relation to the female sex, and it is even more notable in the stage of the new normal because it seems that the return to school and work activities represents an opportunity to solve this problem [33].

In the B&PM program in women and men in CC19 there was a significant difference ($p < 0.01$), the part of violence is more marked in women prior to the beginning of the stages, but as mentioned previously there was a favorable decrease in this affectation. In the MM and IM program in women and men in the CC19 and NNC19 stages, a significant difference was seen ($p < 0.05$ and $p < 0.01$), with the men expressing greater involvement in their family environment.

Domestic violence is one of the expressions of aggression and mistreatment that most affects the formation and integral development of the personality of an individual, be it a child, adolescent or adult. According to Pavón and Santamaría, domestic violence is a problem that is within a social organization and inserted in a system of cultural beliefs that dominate the way of being and the relationship style. Similarly, according to Whaley, domestic violence is not only a social problem, but has now become a health problem for all members of the family system.

From a psychological perspective, Lorenz's theory of aggressiveness exposes, in regard to violent attitudes, whether of adults, adolescents, boys or girls, it can be shown that it is an innate behavior of the human being, therefore, the author affirms that aggression, like hunger, sexuality, etc., is not a response to environmental stimuli, but rather occurs spontaneously when instinctive aggressive energy accumulates and demands a discharge.

However, Lewis refutes this theory pointing out that there are no reasons to suppose that man is moved by instinctive impulses, but, on the contrary, the influence of the environment and the situational is much more relevant in the reasons for violence. On the other hand, the cycle of violence, proposed by Walker, explains that, to understand domestic violence in couple relationships, three phases must be taken into account: the first phase is the accumulation of tension, the second phase is the of the aggression itself and the third phase is known as reconciliation, in this phase the man gets scared, he feels that the woman is going to abandon him, so he will say or do anything to make her forgive him. The abuser thinks he will be able to control himself. Finally, it is considered that the context of confinement can generate new violent dynamics or an increase in them, within the family.

That is why it is of special interest, everything related to prevention and intervention of this type of situation [34]. Many families have experienced an increase in violence during the COVID-19 lockdown. This is shown by an investigation carried out by Olán, where 89.5% of the participants claimed to have been the victim of psychological violence by an angry family member, usually the spouse. Likewise, 94.4% of women and 91.6% of men have exercised, while angry, some type of psychological violence towards a family member during these more than 16 months of the pandemic.

This work, which included proposals for the creation of public policies that contribute to reducing the problem, revealed that during the pandemic one in five people has been the victim of physical violence by an angry family member, especially a partner. The research included a sample of 665 adults, and reveals that during the pandemic, 33.5% exercised physical violence against a family member, most of the time towards their partner, but also towards their children.

And he affirms that emotional management becomes essential to reduce these episodes of violence. According to the specialist and creator of the Anger Thoughts Scale recognized by the APA, although this is not a new problem, many families have suffered an increase in violence from a series of causes derived from confinement by COVID -19 [35].

Table 6 Violence category analysis.

		Violence category								
		Woman			Man			Woman - Man		
		PC19- CC19	CC19- NNC19	PC19- NNC19	PC19- CC19	CC19- NNC19	PC19- NNC19	PC19	CC19	NNC19
P Values	B&PM	0.6667	0.0079	0.0397	0.5635	0.6032	0.119	0.0556	0.0079	0.0873
	PT	1	0.2381	0.2381	0.1349	0.1349	1	1	0.1349	0.2381
	SD&M	1	0.0238	0.0476	0.8095	0.5238	0.2381	0.8095	1	0.0794
	MM	1	0.119	0.3651	0.8413	0.8095	1	0.0714	0.0476	0.0476
	MT	0.1032	1	0.0794	0.9841	0.9841	0.8095	0.9683	0.2381	0.0873
	IM	0.9206	0.4048	0.7222	0.373	0.4048	0.754	0.0556	0.0079	0.0079

Reference Source: Own Source

Table 7 shows the statistical results of the GAD category. Significant differences ($p < 0.05$) in PC19 between women and men were found in the B&PM program, where it was appreciated that there was a prevalence and increase in the female population. Women are at higher risk of their mental health worsening in the context of the pandemic, due to risk factors such as:

- Inequalities and discrimination in the professional field.
- Burden of family and care responsibilities: women are the ones who have had to combine teleworking the most with caring for their children, caring for them and helping them with their schoolwork, as well as with household chores.
- Violence against women: confinement implies in some cases having to live with the aggressor 24 hours a day, with the consequences that this has for the mental health of women.

A study indicates that, during the months of the pandemic, the prevalence of anxiety was 33% and that of depression, 28%, and one of the main risk factors for suffering from anxiety and depression was being a woman. Some of the professional groups most affected by the pandemic and confinement are mostly female. These groups include: the health field, such as nurses, doctors and other support professionals, the education field and the care of the elderly, both in retirement places and at home [36]. In the SD&M and MM program, significant differences ($p < 0.05$) were seen in NNC19 in women and men, the latter being the most affected. Men, unlike women, prefer to experience mental illness in silence rather than ask for help for fear of appearing weak, said Benjamín Guerrero López, from the Department of Psychiatry and Mental Health of the UNAM School of Medicine.

This type of disease does not make a gender difference, some are more frequent in them, such as stress and sleep disorders. In the case of men, schizophrenia, attention deficit, addictions and sexual paraphilias appear as the most recurrent. The expert explained: it is necessary to accept that there are mental problems in both, which have nothing to do with strength and weakness. The most serious thing is that they are not given the required importance and can be complicated if they are not given treatment, for example, leading to suicidal ideas from depression. "Those who are most at risk of committing suicide are men, they consume it." In addition, he commented that men, "to demonstrate their manhood", are strong and do not talk about their feelings, therefore, they do not receive adequate attention and, instead, take refuge in alcoholism or other addictions. For the specialist, it is essential to end the taboo that men have to be vigorous and not complain. He added that there are warning signs such as changes in attitude, isolation, lack of interest, etc. It must be accepted, he continued, that men and women can suffer from some mental illness and this is not a sign of weakness, since in most cases they are transitory illnesses, but if we do not attend to them, they can get complicated and become serious. Naming feelings and accepting them is essential to recognize when things are not going well and, above all, to seek specialized care [37].

In the IM program, significant differences ($p < 0.05$ and $p < 0.01$) were seen in PC19 and CC19 between women and men, where once again men expressed more affectation. Although the literature speaks that women are more likely to experience and express the difficulties that this condition causes them, this does not rule out that men suffer from it in the same way, and as our study shows, we can appreciate that they are giving themselves the opportunity to express more what you feel and what you think, this perhaps as a result of all the affectations that were experienced by COVID-19, we can observe that they also begin to express.

A survey of 8,444 adolescents and young people between the ages of 13 and 29 in nine countries and territories in Latin America and the Caribbean reports the feelings they faced in the first months of response to the pandemic and the situation in September. Among the participants, 27% reported feeling anxiety and 15% depression in the last seven days. For 30%, the main reason that influences their current emotions is the economic situation. The general situation in the countries and their localities has affected the day-to-day life of young people, since 46% report having less motivation to carry out activities that they normally enjoyed. 36% feel less motivated to carry out usual activities. Their perception of the future has also been negatively affected, particularly in the case of young women who have and are facing particular difficulties. 43% of women feel pessimistic about the future compared to 31% of participating men. A situation that generates great concern and is a call to the national health authorities, is that 73% have felt the need to ask for help in relation to their physical and mental well-being. Despite the above, 40% did not ask for help. This value increases to 43% in the case of women. Health centers and specialized hospitals (50%) followed by worship centers (26%) and online services (23%) are the main mechanisms where they would seek help if they needed it [38].

Table 7 Anxiety category analysis

		Anxiety category								
		Woman			Man			Woman-Man		
		PC19- CC19	CC19- NNC19	PC19- NNC19	PC19- CC19	CC19- NNC19	PC19- NNC19	PC19	CC19	NNC19
P Values	B&PM	0.4206	0.5794	0.8492	0.5159	0.2778	1	0.0159	0.0873	0.0635
	PT	0.4921	0.0794	0.4365	0.1905	0.873	0.1746	0.246	0.8333	0.2857
	SD&M	0.0794	0.2302	0.746	0.0873	0.5873	0.0556	0.1905	0.0714	0.0238
	MM	1	1	1	0.754	1	0.5556	0.0556	0.127	0.0397
	MT	0.9841	0.8889	1	0.381	0.5079	0.6905	0.5714	0.1587	0.2143
	IM	0.1746	0.2063	0.3889	0.3095	0.5159	0.4603	0.0238	0.0079	0.0873

Reference Source: Own Source

Conclusions

It was possible to conclude from the study, in each of the three sections different situations. In relation to the category of family history it is concluded in a general way that in the students' families there were already different affectations, in a percentage way 41.1% anxiety was observed, 31% depression, 2.1% schizophrenia, 5.5% OCD, 19.2% eating disorders, 7.4% violence, and 1.9% other conditions (blood pressure, diabetes, etc.). Regarding personal background, it was found that 0.6% of the students expressed having BS/BD, 6.8% nervous system conditions and 3.7% other conditions (blood pressure, diabetes, etc.). Reviewing the data separately in ADP and ENG in these two sections, the trend of conditions was more noticeable in ENG and in the male participants. From the results of the analysis of habits, it can be seen that the most accentuated ones are sleep and exercise in contrast to the consumption of tobacco and alcohol.

In the last section, in general, only a significant decrease ($p < 0.05$) was found in the category of violence. Analyzing each of the categories by educational programs, it is concluded that in all categories significant changes were observed in the comparison of women and men, this shows that in this study both lived and therefore expressed their conditions differently, this being a good reference given that men allowed themselves to be more expressive of their affectations experienced during the pandemic. Another issue to highlight is that in the category of Violence in women it was where a significant decrease was reported ($p < 0.05$ and $p < 0.01$) in CC19 as in NN19, contrary to what the literature mentions and also, in something that could become contradictory, the male population shows that they have been more likely to suffer from it or witness it.

Studies like this not only give us the opportunity to identify the needs of students, but also allow us to develop strategies that address them, encompassing them not only from the medical side (in the case of disorders), and including the psychosocial and comprehensive of the subject, who must be prepared to face other possible contingencies that life presents along his way, it is not just a matter of knowing and knowing how to do, but of knowing how to be a full human and in constant adaptation.

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Chapter 8 Public space and its heritage value, building the concept of place through collective memories in San Pedro Lagunillas, Nayarit

Capítulo 8 El espacio público y su valor patrimonial, construyendo el concepto de lugar a través de las memorias colectivas en San Pedro Lagunillas, Nayarit

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Abstract

In the public space, a significant number of manifestations of the Intangible Cultural Heritage are experienced, which is why the present investigation is carried out with the purpose of relating the sense of place that is denoted in public spaces from the Intangible Cultural Heritage practice, the above through the documentation of collective memories; which are transmitted by generations and remain in force through time. Such is the case of the town of San Pedro Lagunillas, Nayarit, where the collective memories protected by the community refer to the sense of place that is given to public space. For this, ethnographic techniques were used, applying various semi-structured interviews to the elderly residents; in addition, participant research was carried out. Managing to document manifestations of the Intangible Cultural Heritage that have remained in force in the collective imagination for generations.

Public space, Collective memories, Place, Heritage

Resumen

En el espacio público se viven un importante número de manifestaciones del Patrimonio Cultural Inmaterial (PCI), es por ello que, se realiza la presente investigación con el propósito de relacionar el sentido de lugar que se denota en los espacios públicos a partir de la práctica del PCI, lo anterior por medio de la documentación de memorias colectivas; las cuales se transmiten por generaciones y permanecen vigentes a través del tiempo. Tal es el caso de la localidad de San Pedro Lagunillas, Nayarit, en donde las memorias colectivas resguardadas por la comunidad remiten al sentido de lugar que se otorga al espacio público. Para ello se utilizaron técnicas etnográficas, aplicando diversas entrevistas semiestructuradas a los pobladores; además se realizó investigación participante. Logrando documentar manifestaciones del PCI que han permanecido vigentes en el imaginario colectivo por generaciones.

Espacio público, Memorias colectivas, Lugar, Patrimonio

Introduction

The study of space from the perspective of the users, of the inhabitants, as they live and perceive it, requires a hermeneutic analysis, in which, with the theoretical support of anthropology and the ethnographic method, work is done directly with the carriers. Public space from a socio-anthropological perspective is considered as a context of encounter, lived experiences and democratic expression. Therefore, its use and enjoyment cannot be limited to a few, but everyone, equally, will have access to it. In this sense, the manifestations of culture, mainly what refers to the immaterial, are present in these spaces, also generating a link between it and the users, from this, they generate the sense of place, that is to say, belonging and identity towards the public space; these premises are taken to the context of one of the 20 municipalities of the State of Nayarit: San Pedro Lagunillas, which is located in the southern part of the entity; It stands out, in addition to being one of the smallest territorial extension, as well as the smallest population, it is a municipality that is characterized by having an educated population, interested in cultural and artistic issues. Due to the above, in a community manner, they organize various activities that are considered as their Intangible Cultural Heritage, which are carried out during the year making use of the public spaces of the locality. This link between the residents and their public spaces, in addition to manifesting itself in their Intangible Cultural Heritage, is present in the collective memory, which were documented through semi-structured interviews; whose narratives present the results of this research. These provide the basis for the analysis of the notion of place generated by the settlers from two important traditions: the Judea and the Topaderas. Two festivities that stand out for the roots they have in the population and for the use of public space for their realization, highlighting in addition to the streets, the Plaza de los Terebintos and the Plaza de los Mártires; Both spaces are present in collective memories through myths, legends and stories that remain current in the collective imagination.

Public space, its appropriation and the notion of place

What do we mean when we talk about public space? Is it just the space between the buildings, or is it the area that allows mobility between private points? Beyond the urban morphology of the territory, there are other positions regarding public space, which define it from a vision oriented towards its function and socio-anthropological value. However, these various positions provide elements for the analysis and understanding of public space.

From urbanism there are three currents, mainly, the first oriented from operational urbanism and real estate speculation, defining public space as "what remains after building a private space, where its central functions are to link private spaces and create spaces for the recreation, exchange, information and production of historical landmarks". (Robles, 2008). While from the philosophical point of view, public space is defined as that space in which individuality is lost due to the generation of a collective situation.

Also from the urban perspective, government institutions define it. In Mexico, the Secretary of Social Development (SEDESOL) defines it as:

"the meeting place where any person has the right to circulate and is characterized by being an area open to and for the exercise of life in society. It represents the ideal place for the development of sports, recreational, artistic - cultural, leisure activities, and in general for the use and enjoyment of the community 24 hours a day" (SEDESOL, 2010).

At an international level, the definition offered by the Ministry of Urban Housing and Urbanism of Chile was identified, for whom, basically, public spaces are:

Urban squares and significant places, the streets, the urban parks and the buildings of the context; and its elements are: urban furniture, trees, pavements, water sources, vehicular circulation, public art, advertising and urban landscape, urban signs, children's games, stages, recreational and sports elements, the closures, cycle paths, infrastructure networks and pedestrian circulation. (Robles, 2008)

Beyond just the urban issue, public space from a sociological perspective represents a framework in which the inhabitants converge for the development of various activities through which they exercise rights and promote values and ideologies, such as civility, democracy, coexistence, in addition to questions of leisure and free time. In addition "It is where collective memory is built and multiple identities and fusions in process are manifested" (Borja, 2011 p 39)

"A public space is any place of public property or public use accessible and usable by all for free, or without profit. Public spaces are a key element of individual and social well-being, places of individual life and community expression of the diversity of their common cultural and natural heritage, and a foundation of their identity". (Garau et al, 2015)

The previous definitions maintain a common axis in the sense that mention is made of the social relations that are generated around these spaces. Because it is considered that users of public space are a fundamental element when carrying out research or intervention projects. In this sense, other areas of knowledge offer their vision regarding this concept; such is the case of the social sciences, which through particular approaches. In this sense, Fernando Carrión (2005) identifies four fundamental conditions that define public space: "symbolic, symbiotic, exchange and civility".

These spaces are appropriated by the users, and from this they are considered as a place, this sense of place understood as the subjective attachment that one has with it; same that is generated through a linguistic code, the denomination, the toponymy, the adjectives "the place is defined by nouns by the qualities of things and elements, by symbolic and historical values, it is environmental and is phenomenologically related to the human body" (Sola-Morales et al, 2000 p101). In this same sense, Paul Claval mentions "a discoverer wants to preserve the memory of the lands he discovered and make them known to all; to talk about places and environments, there is no other way than to proceed to the baptism of the earth and develop a vocabulary of its own to qualify the different aspects of space" (Claval, 2003 p121).

The recovery of the idea of place has also constituted a criticism of the way in which the contemporary city has been created, and the revaluation of the idea of place would be closely related to the beginning of the recovery of history and memory, values that the international style space rejected... (Montaner, 1997, pp. 36-37)

According to the above, it is concluded that each society lives its public space in such a way that it generates a relationship with it, based on the practice of its traditions and the presence of its memories, thus generating a sense of place.

Collective memories

The fundamental basis for this research are the collective memories that are present in the inhabitants of the locality. According to Lara (2007)

“memory is a door to the network of feelings, emotions, traditions and the culture of a society in which there is no written evidence. In their texts, the authors recreate the past through the memories of the interviewed characters, without qualifying whether what people say is true or not; In other words, oral testimonies offer the researcher a first-hand source of what the past was and how it is meant. (Idem, 2007, p. 11).

Collective memories are a fundamental element in social dynamics, they are a bridge between the past, present and future, they are a cohesive and identity element for communities. For their historiographic handling, the memories must be treated as a source, which requires that they be constructed from various elements that delineate their historical character: time, context, meaning, space, even myth; to the latter, understood as collective truths of a social group (Lara, 2007, p. 17). Thus, Hallwachs (1968) makes a difference between historical memory and collective memory:

“Historical memory: supposes the reconstruction of the data provided by the present of social life and projected on the reinvented past.

Collective memory: it is the one that magically recomposes the past, and whose memories refer to the experience that a community or a group can bequeath to an individual or groups of individuals”.

Within that magical recomposition of the past, the myth, memories and experiences lived and perceived by the members of a community are integrated. These, through oral tradition, transmit and perpetuate these memories, being a key piece for the knowledge and reconstruction of recent history.

Intangible Cultural Heritage

Regarding Intangible Cultural Heritage, its institutional definition proposed by UNESCO based on its Convention for the Safeguarding of Intangible Cultural Heritage:

“the uses, representations, expressions, knowledge and techniques - together with the instruments, objects, artifacts and cultural spaces that are inherent to them - that communities, groups and in some cases individuals recognize as an integral part of their cultural heritage. This intangible cultural heritage, which is passed down from generation to generation, is constantly recreated by communities and groups based on their environment, their interaction with nature and their history, instilling in them a sense of identity and continuity and thus helping to promote respect of cultural diversity and human creativity” (UNESCO, 2003).

Although this definition is widely disseminated through the ratification that the Member States make of the Convention, it is important to consider that the notion of cultural heritage is still unfinished and susceptible to constant analysis and reflection, mainly due to the ideological and cultural component that encompasses; Therefore, the definition of cultural heritage is "always open, negotiable, dialogical, transformative and reflective" (Santamarina, 2005, p. 48 in Fontal and Martínez, 2017). Considering also, the look of anthropology for the analysis of the concept of culture itself allows taking the concept towards a new orientation, in which two visions are presented, the one developed from the institutional, power, and the one engendered within culture itself. society, based on various social movements that have originated new identity values attributable to other types of cultural assets focused on the expressions and manifestations of a community, originating as a result of adaptation and interaction with the environment; mainly in the dimension of the immaterial, which flows from the social significance itself. Considering the contributions of Bordieu (2000)

“Symbols are the instruments par excellence of “social integration”: as instruments of knowledge and communication (cf. the Durkeimnian analysis of the festivity), they make consensus possible about the meaning of the social world, which fundamentally contributes to the reproduction of the social order: “logical” integration is the condition of moral integration”

For this reason, the definition of cultural heritage is "always open, negotiable, dialogical, transformative and reflective" (Idem, 2005, p. 48 in Fontal and Martínez 2017), in which different social operators participate, mainly with regard to the immaterial question, in which the bearers are the ones who replicate, inherit, even transform the manifestations that they develop as part of their daily lives. Therefore, it is necessary to recover the collective memories, because from them it is possible to identify what for the inhabitants represents their heritage since they are the bearers, who give it life and keep it current; but, above all, those who inherit it to the new generations.

Methodology

In accordance with the characteristics of the research, a non-experimental, cross-sectional research design was carried out, with a qualitative approach, with a hermeneutic-interpretative position, in coincidence with the principles of urban anthropology, based on the ethnographic method.

It is considered non-experimental since the already existing reality is observed, variables or situations are not constructed or manipulated; That is, the subjects are observed in their natural environment, in their reality.

It is transversal because the application of the instruments and the collection of data is done in a single moment; given that the field survey is carried out during the celebration of the traditional festivities of the Judea and the Topaderas, both carried out in the public spaces of San Pedro Lagunillas. The qualitative perspective is considered as the most appropriate for the implementation of the research, since it seeks to identify and document the appropriation that users make of the public space of San Pedro, since, from their perspective, and based on their experience, generating the meaning and use of spaces.

The objectives of qualitative research can be divided into five general groups; adopt an open attitude to learning, detect the procedures required at each moment, present a detailed vision, focus on the individual and understand the circumstances of the environment. Understanding and accepting these goals of qualitative research will enable the researcher to effectively use qualitative methods to explore natural social phenomena without losing sight of the context in which they occur. (Alvarez-Gayou et. al, 2014)

As far as the interpretive hermeneutic paradigm is concerned, it focuses on studying the meanings of human actions and social life. "It encompasses a set of interpretive humanistic currents, whose fundamental interest is directed to the meaning of human actions and social life." (Barrero et al, 2011). This does not seek generalizations, but rather focuses on the description and understanding of the unique and particular issues of the subject.

The research is developed based on the ethnographic method, since, through this, it is possible to study the social aspects from the approach to human reality; in these studies description and understanding are privileged. "The ethnographic method is based on two fundamental pillars: participant observation and directed interview, both combined and carried out on the ground in which the events to be studied take place" (Hammersley and Atkinson, 1983 in Ramajo, 2011)

Based on the above, to collect the memories of the residents of San Pedro, semi-structured interviews and participant observation were carried out, with registration in the field diary. For this, the key informants were identified, among them, the town chronicler, the members of the Neighborhood Council and the members of the group calling themselves "the dreamers"; who are residents of the town, of adult age, with great interest and experience in the cultural field, who, from their youth, develop activities in favor of local traditions and culture.

San Pedro Lagunillas

The state of Nayarit, located in western Mexico, is administratively divided into twenty municipalities, one of which is San Pedro Lagunillas, located in the south of the state. It is located 1,300 meters above sea level. Its surface is 524.8 square kilometers, which is equivalent to 1.9% of the state area. The total population of San Pedro Lagunillas was 7,683 inhabitants, being 49% women and 51% men. (INEGI, 2020). Its municipal capital, with the same name as the municipality, is located 53 kilometers from the capital of Nayarit. Its climate ranges from semi-warm humid, warm sub-humid and dry steppe, with a rainy regime during the months of June to August. Regarding its hydrography, the Ameca River that borders the municipality stands out, as well as its two lagoons: San Pedro and Tepetitlic. Regarding its orography, the foothills of the Volcanic Axis determine the existence of the uneven ground.

The municipality has a long history of which pre-Hispanic vestiges stand out, evidenced through the *Tumbas de Tiro* tradition, in addition to the chiefdom of Ximochoque, governed by Masmayo at the time of the arrival of the Spaniards. Also, from 1592 to 1604, the friar Bernardo de Balbuena was in charge of the religious administration of the mines of the Holy Spirit and San Pedro Lagunillas (Meyer, 1997); This character stands out since, according to the collective memory of the people of San Pedro, the origin of the traditional Judea celebration is attributed to him.

The Judea of San Pedro Lagunillas

It is one of the most deeply rooted traditions in San Pedro, it is a living expression of popular culture. This manifestation is attributed an origin of more than 200 years, when at the beginning of the 17th century Fray Bernardo de Balbuena, due to his religious vocation, took biblical texts as a basis to write the first script for its staging. However, it was not until the year 1776 that the settlers recovered the manuscript and decided to execute it.

According to the people of San Pedro, 241 stagings have been carried out uninterruptedly. This celebration takes place during Holy Week. On Palm Sunday in the morning the people of San Pedro represent the act of the Samaritan woman, in the afternoon of the same day there is mass and the branches are blessed. On Holy Thursday they represent the sacred dinner in the Plaza de los Mártires; Good Friday is the representation of the three falls of Jesus and then the crucifixion.

Figure 1 Judean scene



Source: Own Authorship, 2019

Whoever represents Jesus Christ takes a physical and mental preparation for two months to be able to bear the weight of the cross and the difficult journey through the streets of the town. The clothes of the people who participate in this act are made by the seamstresses of the town. The participation of children and young people who voluntarily join to personify the town stands out in this representation, and over the years, some of them come to represent the main characters.

The Topaderas

It consists of a popular celebration, organized by the residents of San Pedro, it takes place on September 17, 18 and 19, after the national holidays. It consists of parading through the streets of the town, while flour and eggs are thrown. The activities of each of the days are organized by a neighborhood; the community is divided into three neighborhoods: *barrio arriba*, *barrio abajo*, *barrio en medio*; it is a social division that the inhabitants themselves recognize and whose origin is mainly based on socioeconomic issues. The group of organizers is made up of inhabitants of the neighborhood to which it belongs. This festivity is the most important for the community, as it brings families together, social integration is promoted and during these days, migrants return to live with the family and the community.

Figure 2 The Topaderas



Source: Own Authorship, 2019

Each parade is accompanied by the inhabitants of the neighborhood, who present their *mojigangas*, their queen and share their traditional “rat tail” it is a drink that is prepared in advance. The parade runs through the streets of the town until it reaches the toril, where a great dance is performed. This party is held with the purpose of having fun and uniting each neighborhood; which reinforces the neighborhood identity. The collective memories of the town narrate that the *mojigangas* tradition begins as a kind of competition to see which neighborhood made the best *mojigangas*. The same happens with the drink called "rat tail"; each neighborhood strives to prepare the best. Previously, the neighborhoods used to sing "papakis" a series of verses that made reference to some event or character in the town, they sang them when they ran into someone from another neighborhood, hence the name Topaderas, when referring to the encounter. These celebrations are accompanied with music, each parade is accompanied by a wind band, who interpret *sones* and *cumbias*, mainly, so the residents parade while they dance. The parade ends at a point in the neighborhood, where the population congregates to continue with the festivities. Food, drinks are offered and the music continues until it is time to go to the toril where a *jaripeo* is held and the party continues. Once the *jaripeo* is over, the community gets ready to go to the dance that is organized in the square, where important musical groups from the region participate; This dance continues until dawn the next day.

The terebinth trees

The so-called terebinth tree is a species native to the Mediterranean Sea region; scientifically it is classified as *pistacia terebinthus*; According to the specialist Serafín Sánchez Ochoa (2005), these long-lived terebinths represent a botanical curiosity because, due to their age, they no longer have the capacity to reproduce. Its extremely hard wood is valued for marquetry work and its resin is used to make an oil, its bark has a pleasant smell, so incense is made with it.

Mr. Pedro Ávalos Ibarría, chronicler of San Pedro Lagunillas, spent more than 20 years investigating the origin of these trees, documenting the following: he was Don Bernardo de Balbuena, father of the Spanish poet of the same name and author of “Grandeza Mexicana”, and one of the founders of the city of Compostela, Nayarit, who brought to San Pedro Lagunillas the first terebinth transported from Spain in 1564, when Tepic was the capital of the kingdom of Nueva Galicia. Avalos Ibarría assures that the original terebinth was cared for by several generations of residents of the El Tigre neighborhood in the town of San Pedro Lagunillas. (Soriano, 2005).

Figure 3 Los Terebintos Square



Source: Own Authorship, 2019

Ávalos assures that this tree is unique in Mexico and America, refusing to reproduce in other parts of the world despite the efforts of distinguished botanists from many countries. During the cristero war the tree was neglected and its stem was losing vigor threatening to dry out, for which Mr. Joaquín Ibarra Anguiano took out four cubits, planted two in the corral of his house and one he gave to the Alba Llanos family. This land was later sold and is now the property of Mr. Doroteo Ramírez. The other elbow was donated to the Ibarra Aguirre family. (Gente de Nayarit, 2017). Mr. Ibarra died in 1935, while he was municipal president, and trees grew in his house. His son, Professor Rogelio Ibarra Ruiz, worried that too many people would come to see the tree and not be able to enter the property because of his work as a teacher in Milpillas Bajas, decided to layer and donate them to be planted in a small triangular garden that it is currently located a few meters from the municipal presidency. (Salas, 2009)

Results

Stories that refer to the appropriation of space were located in the collective imagination, they have been transmitted through time orally, generation after generation and are part of the collective memories of the people of San Pedro. Such is the case of the close link that gives a sense of place to the Plaza de los Terebintos, which is a space with a triangular floor plan located at the intersection of Zaragoza, Nicolás Bravo and José María Mercado streets. According to the stories referring to this space, it is mentioned as an outstanding element for all those who profess the Catholic religion, since the terebinth trees (*pistacia terebinthus*) are located in the square, a species from which the wood is said to have been carved with which the cross that Jesus carried on his back during his pilgrimage and on which he was crucified was made. The idea that these trees arrived in the town at the end of the year 1600, when Mr. Francisco de Balbuena Estrada, father of Fray Bernardo de Balbuena, brought them to San Pedro Lagunillas from Jerusalem, is rooted in the collective memory of the town.

Figure 4 Plaza Los Terebintos during the Judea



Source: Own Authorship, 2019

This public space, in addition to the strong symbolic load it represents for the community, is also a point of reference and concentration of the residents since it serves as a bus stop, which from the point of view of Kevin Lynch (2008) represents a node. But, in addition, it is the scene of some of the representations of the traditional Judea, for example the representation of the orchard of the olive trees, likewise, it is the point of concentration of the population to see the Topaderas parade; and, during the rest of the year, it is a meeting place for the community, who come to this square for leisure and free time. It highlights the idea that over generations has taken root regarding these trees, of which it is said that, although they have tried to reproduce in other parts of the world, this has only been done in San Pedro Lagunillas; therefore, they only grow in Jerusalem and here; this gives identity and cohesion to the community.

Another of the public spaces in which the notion of place is identified, based on the analysis of documented collective memories, is the Plaza de los Mártires; it is located in front of the temple of San Pedro Apóstol. It is called in this way as a commemoration of the people who died during the attack carried out by Manuel Lozada "El tigre de Álica", in the center of the square there is a column that remembers such an event. In addition, the elders of the town still narrate that this space used to be a cemetery; Also, elderly people keep in their memory a character called the *pepítillo*, whose legend has spread, they say that, during the Cristero war, this character had arrangements with both the government and the Cristeros. One day, he arrived determined to burn the town, but when he found out the criteria ambushed him, so he had to flee and hide in a house that was in a vacant lot together with his companion, a gunman who covered his back.

The abandoned house was connected to the river, where he tried to flee, however, when the gunman ran towards the river, the Cristeros riddled him, causing his death. The *pepítillo* took the body of the gunman to use it as a shield and try to get out, but he was wounded in the leg. The Cristeros launched a bomb, which went out, so they launched a second one with a longer fuse; the *pepítillo* covered it with his hands trying to put it out, however, he did not succeed, the bomb exploded and he died. The elders recount that when the body was transferred to the cemetery, it suddenly stood up for a few minutes and moved furiously. This spawned the idea of being possessed by the devil.

During the celebration of the Judea, the Plaza de los Martires is the place where various activities take place. Here a large stage is placed on which the acts of Holy Thursday and Holy Friday are presented; The representation of the passion of Christ takes place among the public that with great expectation seems to relive those moments. Both the San Pedro community and visitors to the region meet here, and of course return migrants, who take advantage of the vacation period to return to their land and enjoy their traditions. Once the acts in this square are concluded, the tour through the streets begins, that is, the traditional way of the cross takes place; until reaching a hill that is in front of the Laguna de San Pedro, there the last act is carried out, the crucifixion and the race of San Cornelio.

Conclusions

The present investigation was carried out with the purpose of relating the sense of place that is denoted in the public spaces of San Pedro Lagunillas from the different practices of the Intangible Cultural Heritage that are practiced in the municipal seat, the above through the documentation of collective memories; the use of the ethnographic method allowed carrying out participant observation, as well as the application of semi-structured interviews.

As a result of the investigation, two manifestations were documented: the Judea and the Topaderas, both of which take place in the public space of the locality, and are deeply rooted, generating among the inhabitants a sense of identity, which has been transmitted through generations. In the case of Judea, although it is a manifestation of a religious nature, its staging is not the responsibility of the Church, but rather, in the case of the town of San Pedro, those who carry out the organization are the inhabitants themselves, led by Doctor Rafael Saucedo who is part of the group of dreamers, which is made up of residents of San Pedro who since their youth have encouraged the strengthening of local traditions and culture.

As for the Topaderas, it is the residents of each of the three neighborhoods into which the town is socially divided, who carry out the organization of this event and participate by generating a healthy competition between them, to be the neighborhood that organized the best top. In both cases, part of the documentation consisted of collecting the testimonies of the bearers, who for generations have transmitted, with their practice and through their memories, these traditions. In this way, the sense of belonging to the public spaces of the locality is identified, which, in addition to being an important part of their daily life, also represent places, that is, that space with which a close relationship is generated, from the use and exploitation of it, but above all, from the meaning that they give to each one of them, either for reasons of faith, as is the case of the Plaza de los Terebintos or for reasons of a historical nature, as identified in the Plaza de los Mártires.

With this research, it is possible to establish a work methodology that will allow the study of other contexts, in order to identify and analyze the roots towards public spaces; these analyzes provide an overview of the roots that the population has towards its public spaces; This analysis makes it possible to influence the projects of intervention and preservation of these spaces, so that when considering their intervention, it is not carried out only from the point of view of the elites or power, but rather the inhabitants, who are bearers of the heritage and they maintain a close link with space, generating a sense of place.

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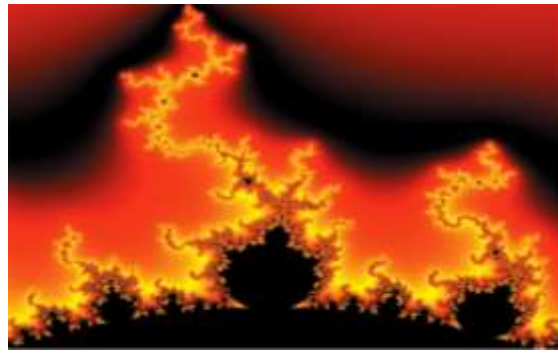
Table 1.1 Title

Variable	Descripción	Valor
V_V	Volumen de Venta	20000
P_V	Postura de venta	490.61
V_C	Volumen de Compra	20000
P_C	Postura de Compra	485.39
P^{Uh}	Precio último Hecho	491.61
V_o	Volumen Operado	1241979
P_u	Precio/Utilidad	0
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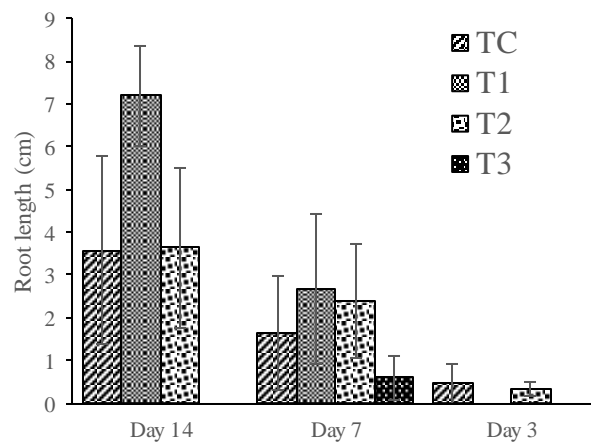
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