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"El saber de mis hijos hará mi grandeza"

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Content

Socio-Ethnographic experiences: Dwelling and imaginaries in Ciudad Juárez

Experiencias socio etnográficas: el habitar y los imaginarios en Ciudad Juárez

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Abstract

Dwelling and living along Mexico's northern border encompasses a wide range of experiences and life trajectories that residents adopt upon arriving or remaining in the area. These conditions are reflected in their everyday lives, where feelings, emotions, and ways of perceiving their neighborhood or residential complex correspond to the social, cultural, and urban worlds constructed in every corner of city life.

History, society, territory, and the physical environment are among the elements that intertwine when analyzing the act of dwelling and its relationship to imaginaries, architecture, and social relations. These connections make it possible to link residents' experiences not only with living in the city, but also with the ways in which they conceptualize it. Other factors such as population, age groups, length of residence, and housingare also considered in studying the social and ethnographic experiences that take place in a border locality like Ciudad Juárez.

In this context, the everyday perspectives of this northern Chihuahua city's residents shed light on their frameworks of action and the spaces where those actions unfold. The place itself acquires symbolic and emblematic value, representing the transfer of thought patterns and specific tasks that emerge from both the act of dwelling and the imaginaries tied to the daily lives of its inhabitants.

The methodological strategy of this study is based on a phenomenological approach that considers residents as actors who live in, occupy, and think about the territory they inhabit. This approach aims to recognize how they visualize their immediate surroundings, representing them through interviews, indirect observation during field visits, spatial mapping (cartography), and visual portrayals of their environment (photography). These methods allow us to describe, explain, and interpret the main social, ethnographic, and urban elements associated with the imaginaries of place.

Keywords: Border, ethnography, society, dwelling, imaginaries

JEL Codes: R, R5, R50

Resumen

Habitar y vivir en la frontera norte de México, representa todo un cúmulo de experiencias y trayectorias que los residentes asumen al llegar o permanecer en ella, condiciones que de alguna manera se retoman en su cotidianidad, donde los sentimientos, emociones, formas de ver su colonia o fraccionamiento corresponde a los mundos sociales, culturales y urbanos que se construyen en cada rincón de la vida citadina.

Historia, sociedad, territorio, medio físico son algunos de los elementos que se entrelazan cuando se analiza el habitar, y su relación con los

imaginarios, arquitectura, relaciones sociales, los cuales permiten vincular sus experiencias no solo de vivir en la ciudad, sino aquellas que se relacionan con los mecanismos de pensarla, población, grupos de edad, permanencia, vivienda son otros factores que se consideran en el estudio de las experiencias sociales y etnográficas que recurren en una localidad fronteriza como lo representa Ciudad Juárez.

En este contexto, las visiones que se tienen en la cotidianas de los residentes de esta ciudad del norte de Chihuahua, permiten ver los marcos de acción y el espacio donde se realiza la misma, el lugar adquiere un elemento de simbolismo y emblemático representativo en el traslado de formas de pensamiento y tareas específicas que se derivan dentro de su habitar y el imaginario que se desprende en las tareas cotidianas de sus pobladores.

La estrategia metodológica que se utiliza en este estudio parte de un enfoque fenomenológico de considerar al residente como un actor que vive, ocupa y piensa el territorio donde se asienta para reconocer sus principales formas de visualizar su entorno inmediato y próximo, para poder representarlo por medio de sus conversaciones vía entrevista, así como la observación no directa por medio de recorridos de campo, la ubicación de su espacio (cartografía) y el retrato del lugar donde se desarrolla (fotografía) los cual nos permite describir, explicar e interpretar los principales hechos de carácter social, etnográfico y urbanístico relacionados con el imaginario del lugar.

Palabras claves: Frontera, etnografía, sociedad, habitar, imaginarios.

Código JEL: R, R5, R50

Introduction

Dwelling, living, occupying, and thinking the city leads us to understand the processes that take place within it, where residents assume a range of situations that manifest in different moments of their interaction with the urban territory expressing ideas, thoughts, interactions, and diverse ways of narrating their life trajectories in the place they chose to settle.

Faced with these dynamics, the urban territory becomes a medium through which its inhabitants navigate various times and processes mechanisms of adaptation and socialization developed as part of inhabiting the city they selected, whether temporarily or permanently.

Perspectives on growth, integration, and adaptation are largely shaped by the intentions and objectives individuals had when choosing a particular urban area. The physical and social environment they expected to find has revealed different visions of the place they selected, individually or collectively, molded according to their needs.

The city as a geographic space that shapes actions and ways of being offers residents a mosaic of possibilities to pursue their goals, to interact (or not) with neighbors, and to form both subjective and objective ideas. These are some of the elements that drive the interest in exploring the experiences of city dwellers: children, adults, youth, men, and women, whose individual and collective stories reveal diverse perspectives on urban life. These stories also highlight the opportunities or lack thereof for defining, living in, or occupying the city, in light of economic, social, urban, ideological, political, and legal conditions, all of which contribute to shaping the cultural environment where they reside.

Thus, understanding the processes of adaptation and integration into the environment where people settle opens up possibilities for exploring the trajectories and experiences involved in inhabiting a neighborhood, community, or housing development, and for identifying people, places, and mechanisms that allow for the construction of various personal or collective definitions of the places they choose to live in. These conditions are deeply shaped by the physical and social elements that are built through daily life. From this standpoint, exploring the city's corners, interactions, and narratives allows us to examine the boundaries between individuals' actions and their thoughts each symbol, meaning, or testimony becomes part of the structure that emerges in the places where subjects live, experience life, and build meaning in relation to the urban space where they sleep and dwell each day.

Everyday urban life is a key element in this study. It serves to describe the relationships forged within the urban territory, where elements of architecture, urban planning, and society play central roles in understanding mechanisms of interaction

with neighbors, with "the other," and with the intersubjective boundaries that arise through human action.

These reflections on the city, space, and the relationships that residents establish daily guide us toward a theoretical connection between urban territory and ethnography, helping us describe the significant events that emerge in the corners of urban life. These may be neighborhoods established by long-term residents or housing developments occupied by groups with varying economic, ideological, and urban backgrounds, and most importantly, by the unique ways they live their experiences.

The narratives collected through interviews at different moments transport us into the situations residents live and interpret daily across their personal, family, or social timelines. In those places they have settled, they shape their own discourses another key component of this study, which stems from exploring and walking the city, encountering its elements, and uncovering the experiences of those who were born, raised, or have grown within it.

An essential element of this research is the exploration of a border city adjacent to the United States. This allows for an understanding of not only social and cultural realities and dynamics but also spatial, urban, and architectural aspects, among other dimensions. The concept of the border becomes a dynamic force in this study, drawing on a range of contributions and discussions developed over time to define a region whose geographic conditions allow for the emergence of unique, adaptive experiences.

Ciudad Juárez has been chosen, in the northern state of Chihuahua, because it is a city currently being lived in, and one in which we can identify various processes not only economic in nature, but also spatial, social, architectural, and urban which reflect the particularities of inhabiting this Mexican borderland. These processes allow us to observe how imaginaries are constructed and how specific experiences take shape among its residents.

The main objective of this paper is to explain the socio-ethnographic experiences in this Mexican border city, which help identify specific meanings and symbols at the socio-spatial level. These reveal a dynamic and ever-changing reality, as well as the city's constants and territorial expressions, describing the everyday realities of this Chihuahuan locality, where contrasting moments have shaped its urban history.

The methodological strategy is based on a mixed perspective, primarily phenomenological in nature, drawing on the narratives of 26 young and adult residents of Ciudad Juárez to identify their experiences of dwelling in, occupying, and imagining the city. The methodology combines testimonies collected through field visits in neighborhoods and housing developments. Participant selection followed a non-conventional sampling approach, where randomness was a key criterion for choosing the individuals who would represent the focus of this study. A brief questionnaire was applied to these residents to explore variables such as their place of residence, their definition of the city as a lived space, and the symbolic elements that shape their imaginaries. In addition, photography and cartography were used as foundational tools to enrich the urban ethnographic account.

This study is organized around two analytical levels. The first is a theoretical stance, and the second explores the symbolic scenarios of Ciudad Juárez as central elements in the interpretation of its urban ethnography.

First level of analysis: territory, dwelling and imaginaries.

Starting from the notion that the city is a geographic space where its inhabitants carry out various activities concentrated in a specific territory, this section explores modes of mobility, interaction, and coexistence, as well as the trajectories traced by the city's residents. These concepts bring us closer to the everyday realities constructed by individuals, where the connections become dynamic through individual or collective processes that give meaning to their actions.

According to Rossi (2004:70), "the architecture of the city can be understood in two ways: in the first, the city resembles a great manufacture a work of engineering and architecture, more or less large and more or less complex, that evolves over time; in the second, we refer to more limited parts of the city, to urban facts characterized by their own architecture and therefore, their own form." Based on this reflection, the city can be approached both in terms of its urban expansion and through

concrete spaces that characterize it such as everyday life in a neighborhood or residential development. Rossi's remarks help us focus our study on dwelling, imaginaries, and urban ethnography, particularly in a locality of the northern border.

Urban borders become dynamic precisely when residents begin to understand their own environment. As Lezama (2002:380) puts it, "the structuring of everyday life through a pattern of regionalized relationships enables systemic integration, which, in its simplest form, consists of establishing relationships not directly between individuals, but between groups or systems of relationships that intersect across society." From this perspective, analyzing urban phenomena allows us to observe actions not only at the individual level, but also as group dynamics, where experiences of inhabiting the city are systematically woven into the urban environment.

At this basic level of understanding urban dynamics, we find the interplay between residents' stories, testimonies, and trajectories how they live in and occupy the city. This is the domain of imaginaries, dwelling, and ethnography the portraits that bring us closer to what Rossi and Lezama described, the territorial fields where the urban resident acts.

In this context, Prieto (2011:80) contributes to linking the discourse on the city with the authors mentioned above, stating: "space is granted by places; it is a gift that arises from a kind of creative generosity. Places not only provide a reference they also 'radiate' meanings that unfold in relations between things that can be measured." This view highlights the need to distinguish between those who dwell and occupy the city and those who imagine and define their experience of it.

To this, we add Narváez's (2011:23) observation: "ethnography holds that knowledge depends on real conditions and on the human being as a transforming agent of the world: it assumes that knowledge is not only contingent on the object being known, but also on the subject who knows a subject with a history, education, and embedded in a specific time and place. In short, a cultural subject who not only knows, but acts upon reality and upon themselves."

This perspective is crucial in analyzing the experiences of urban residents, as they are the ones who create and assign meaning, symbols, and

socio-spatial expressions. These, in turn, allow us to identify significant aspects of their daily practices. The lived space becomes vital as it reflects the act of dwelling, already defined and elaborated by the authors cited. Its importance lies in observing and visualizing the trajectories through which urban realities are constructed realities that may seem fleeting, but are quite the opposite: dynamic, enveloping, and nurturing of the human being who dwells in and imagines the city. This brings us to the imaginary that which first takes shape in the mind of the person who dwells in and thinks about the city. This is the frontier we must cross to understand the social, urban, and spatial context in which the urban subject is embedded, as it is ultimately this subject who creates their own mechanisms for perceiving their immediate and near reality.

Silva (2014:49) asserts: "The relationship between the imaginary and the symbolic in the city is a fundamental principle of its perception: the imaginary uses the symbolic to manifest itself, and when urban fantasy materializes in concrete symbols through rumors, jokes, the names of objects, or the branding of a place as a territorial site then urban citizenship expresses itself as an image of a way of being." These contexts prompt us to think of dwelling as the foundational action performed daily in urban spaces spaces inhabited by individuals and groups—where social action emerges and forms part of the broader connection among the urban processes unfolding in a given locality. Within these processes, urban reality asserts itself across the different scenarios that shape it.

Thus, the relationship between dwelling, imaginaries, and ethnography stems from the connection with place the area inhabited, and the perceptions constructed around the environment where residents settle. In this regard, it is worth highlighting Moreno's assertion (2015:258): "Dwelling is a process developed by individuals in the places where they live: home, city, workplace. Different interactions, positions, and practices (habitus) intertwine to channel each subject's mechanisms in the urban settlement they inhabit and in the group that surrounds them."

A significant part of this study aims to understand the processes that emerge in a border locality in the state of Chihuahua, northern Mexico, known as Ciudad Juárez. This aligns with Peña's statement (2015:241): "Identifying trends in urban development

within a border society also involves understanding the lifestyle and identity elements of a population influenced by the parameters of U.S. cities."

The guiding research question emerging from these theoretical reflections is:

What are the spatial conditions that enable the connection between dwelling, imaginaries, and ethnography in Ciudad Juárez?

Second level of analysis: ethnography, dwelling and imaginaries in Ciudad Juarez

The history, demographic evolution, and urban growth of Ciudad Juárez have gone through various stages that make the city unique in how its human settlements have been constructed. These processes have fostered social and cultural dynamics that offer clear indicators for understanding its urban ethnography phenomena directly related to the concept of dwelling and, as Silva (2014) suggests, to imaginaries. These are shaped by perceptions of the environment, or as Méndez (2014:14) puts it: "Cities condense the traces of time, layering mark upon mark. Within them, place becomes a niche of distinct traces, different from other places. Then, the narrator recounts their experience of those places experiences that, once mentally and verbally processed, are reconstituted through imaginaries."

Ciudad Juárez falls within this line of reflection, where imaginaries are directly tied to the construction of urban space, which has been continuously reshaped across the territory it occupies. For example, Peña (2016:162) states that "the processes of modernity in this city were set in motion with the arrival of the railway in the late 19th century, which influenced its layout, as expressed in its buildings and access to consumer goods. Between 1885 and 1888, the border customs office was built, and in 1909, a modern building was remodeled to host the meeting between Presidents Porfirio Díaz of Mexico and William H. Taft of the United States." This reference highlights key aspects of how Ciudad Juárez's urban space has been formed, featuring emblematic symbols that have evolved through the uses and practices embedded in the city's foundational zones.

Moreno (2016:194) adds that "Dwelling is an expression of what humans do and think about their immediate environment. It allows us to visualize the relationships established with space and to understand the interactions generated in the urban setting where one lives interactions that give rise to basic meanings and interpretations of everyday life." These two reflections help situate

Ciudad Juárez as a northern Mexican border locality, marked by decades of challenges and shaped by diverse physical, social, and urban conditions. Its territory, embedded within a landscape of natural and geographical contrasts, forms part of the mosaic and scenery that has been built up over time. Figure 1 presents two photographs that capture both the most recent edge of the city's expansion and its starting point as seen from land-based approaches. These images portray a city located in the desert of the state of Chihuahua, whose earliest settlers established themselves in the northern part of what was originally known as Paso del Norte.

The society inhabiting Ciudad Juárez has asserted itself upon a rugged landscape flat in some areas, arid in others. The desert, along with the territorial meanings reflected in photos A and B of Figure 1, poses an ongoing challenge for its residents.

Figure 1. Physical space in Ciudad Juárez: where ethnography begins to reveal its element

Source: Ramón L. Moreno M. (2016) Aerial photographs in Fieldwork Archives.

The city's borders are also felt internally in the composition of its territory. In Juárez, the physical conditions of the environment have imposed new ways of making the city. Housing developments are located both on flatlands and on hillsides, giving the city a landscape reminiscent of others in the north or south of the country. However, the physical and territorial nature of this Chihuahuan locality is distinct: its climatic conditions define the indicators through which dwelling becomes visible in the different types of housing constructed within it.

"Nature is wise," goes a popular saying one that Ciudad Juárez might seem to contradict. Yet the physical elements of its geography have shaped particular lifestyles, as Peña (2015) has noted, and an identity that, together with the imaginaries

narrated by residents of these territories, reveals the conditions the city expresses to those born, raised, or newly arrived there. In this, Méndez (2014) and Moreno (2016) concur: place exerts influence, and territory organizes itself according to the events that unfold within it. Ciudad Juárez is no exception, as is evident in its urban images, presented in Figure 2. In Photo A, the territory imposes clear conditions on its residents, while in Photo B, the city's dispersion, expansion, and growth take on various geographical dimensions.

Figure 2 is part of an effort to observe the ongoing transformations in the city. The territory reflects demographic changes that have unfolded over time and through which the city has undergone substantive transformation. In each of its population centers, one can identify specific social, urban, economic, cultural, and architectural features, all shaped by lived experience. Recognizing and identifying these elements in Photos A and B reveals diverse and heterogeneous geographic mosaics, where the actions of the city's inhabitants generate distinctions that are expressed in the various ways of making the city in this border locality.

Figure 2. Territory and physical space in Ciudad Juarez

Source: Ramón L. Moreno M. (2016). Aerial Photographs in Fieldwork Archives.

Housing is another essential element of urban life in Ciudad Juárez. Its typology is expressed in varied forms, reflecting distinct lifestyles for the social groups that inhabit them. These range from self-built homes found in certain sectors of the population to residential developments whose architecture is immediately recognizable. The typologies are illustrated in Photos A, B, C, and D of Figure 3, which presents four types of housing associated with different social groups. In Photo A of this figure, we see working-class neighborhoods located in the northern part of the city, inhabited by low-income populations. Photo B shows housing for the working and middle class, consisting of multi-unit buildings duplexes or triplexes in some cases which resulted from government housing policies implemented during specific periods of urban growth, primarily in the 1970s and 1980s.

Photo C depicts a newer housing market intended for employees in the industrial sector, particularly those working in the maquiladora export industry. These are the so-called "social interest" homes included in federal programs offering credit to this type of workforce. Such housing developments were built in the southern, eastern, southeastern, and southwestern parts of the city. Photo D of Figure 3 highlights the spatial and social division among middle- and upper-income groups. It shows gated communities, which have contributed to the spatial and urban fragmentation of Ciudad Juárez since the 1970s.

As seen in Figure 3, housing is a key element for distinguishing the social groups and sectors of the population that have settled in Ciudad Juárez over time and across space. The modes of housing production are closely tied to the city's overall growth, with different population sectors establishing themselves throughout its territory. This has led to the construction of a social environment across this border locality, shaping the ways in which long-time residents and newcomers alike define various scenarios. In these, the perceptions, definitions, experiences, and meanings of inhabiting the city become significant.

To complement this concise overview of the ethnographic experiences of Ciudad Juárez's residents whose daily lives have been shaped by social, cultural, and economic events Figure 4 has been included. It represents emblematic aspects of life in various areas of the city, where factors

Figure 3. Urbanizable housing typology, spatial and social division

Source: Ramón L. Moreno M. (2016). Photographs from Field Visits.

such as violence, insecurity, and economic need reflect the constructed environment. These factors also shape opportunities for residents to generate additional income, particularly through informal markets or segundas, as they are commonly known in this border city. This activity has been growing in several neighborhoods and housing developments. The appropriation of nearby streets, parks, or plazas becomes part of the urban emblem of daily life and, therefore, of the imaginaries that emerge from these practices.

Figure 4 includes four photographs taken during various field visits in Ciudad Juárez between 2010 and 2016. From these, four images were selected for this study, each representing events situated within the symbolic and imaginary fields of the city.

For example, in this figure, Photo A depicts a figure from the Mexican Revolution: Francisco Villa, integrated into a mural alongside a border resident a young man from the cholo groups that

remained active during the 1970s and 1980s. The social dynamics established in the city during those decades allowed for such combinations in the neighborhoods, particularly in the area referenced in the image, Villas de Salvárcar, where various social and urban conflicts have left a mark on the urban history of Ciudad Juárez. Photos B and C relate to events connected to violence and insecurity in the southern and eastern parts of the city, where urban spaces were significantly transformed. First, in relation to the messages derived from these acts (Photo B), and second, regarding the memory of the leaders or figures who guided these youth groups in the daily life of the Ciudad Juárez border region (Photo C).

Photo D presents a different but equally important aspect of urban ethnographic life: the informal market activity. In this case, public spaces are used by residents to meet economic needs, increase their income, and improve their living conditions. In this

Figure 4. Representative Expressions of the Urban Imaginary in Ciudad Juárez

Source: Ramón L. Moreno M. (2016). Photographs from Field Visits.

image, the street, plaza, or sometimes the park serve as emblematic elements that help contextualize the everyday imaginary of inhabiting the city. This imaginary acquires different connotations when considering the subjective or objective representations of Ciudad Juárez residents.

Regarding this theme of the urban imaginary, field visits, interviews, and direct observation of everyday life in Ciudad Juárez have allowed us to identify five important zones. These were defined based on visits conducted at different times to neighborhoods and housing developments that characterize this border locality, incorporating narratives from residents primarily young people, adults, homemakers, and students of both genders. The result was a social, spatial, and urban organization of the city's territory into these five zones, which were defined according to the urban growth of the city.

Zones 1 and 2 correspond to the foundational stage and are marked as numbers 1 and 2 on Map 1. Geographically, they cover areas of the city center, west, and part of the south, where the earliest

economic, urban, and architectural processes reflect the city's initial life. Zones 3 and 4 represent urban imaginaries and representations related to lower- and middle-income sectors in the southern and eastern parts of the city. Zone 5 corresponds to the northern part of the city, where economic groups are middle- and upper-class, with gated communities and a phenomenon resulting from the violence experienced between 2008 and 2012: the appropriation by residents of their neighborhoods through street closures.

Who are our interview participants?

After analyzing and interpreting the material collected during field visits, including aerial and ground photography, the next section of this study focuses on identifying the participants with whom we spoke and from whom we gathered experiences of inhabiting the city and the imaginaries of living in this border locality. Table 1 presents their demographic characteristics. Regarding gender, 12 are female and 14 are male. Most participants are aged between 18 and 22, followed by the 23 to 27 age group. These categories indicate a tendency toward

Map 1. Dwelling and imaginaries in Ciudad Juarez
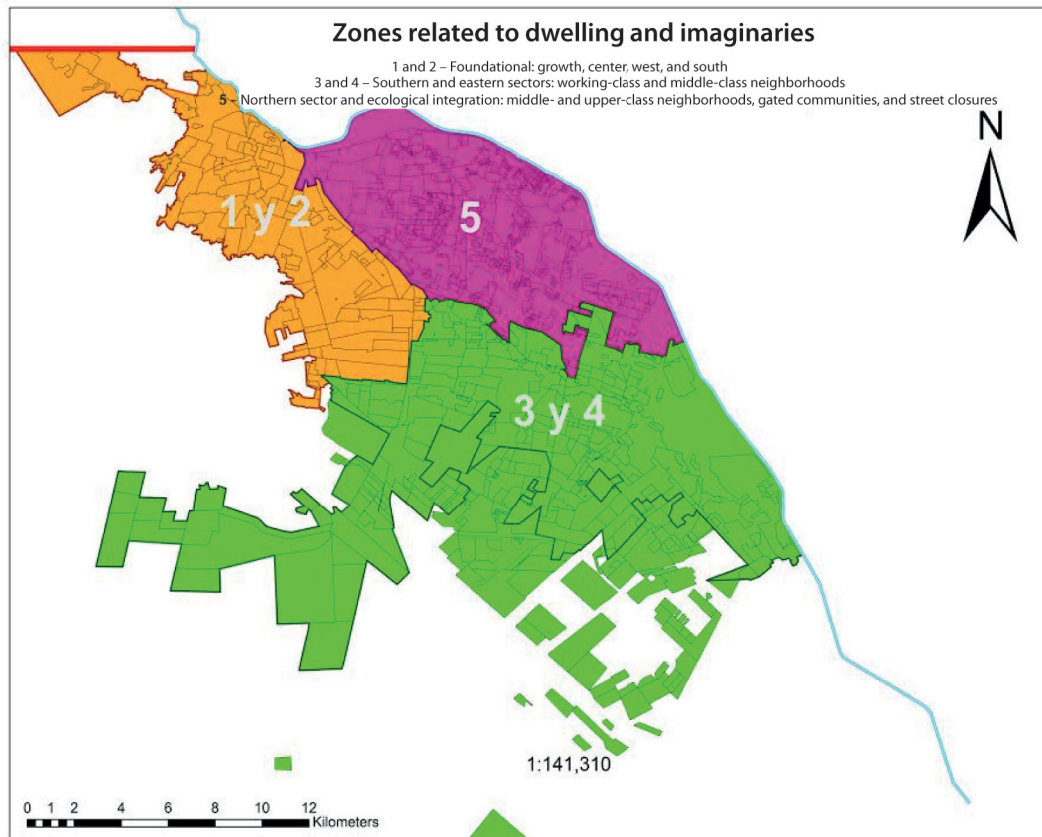
Source: Design and preparation by Jonathan Olguín and Manuel Iván Casillas based on Ramón L. Moreno M. (2015). Field Visits

Table 1. Demographic Composition of Interviewed Residents

Gender	Frequency	Age	Frequency	Education	Frequency
F	12	18-22	11	Technical (degree)	1
M	14	23-27	6	High school	5
	26	28-32	4	Bachelor's degree	20
		33-37	2	Graduate degree (postgraduate)	0
		38-42	1		26
		43-47	2		
			26		

Source: Ramón L. Moreno M. (2015-2016). Field Work Archives.

young adults and adults in the early stages of life, with 4 participants in the 33 to 37 and 43 to 47 age groups. This diversity allowed us to understand their lived experiences and perceptions of inhabiting and occupying Ciudad Juárez an element that, as noted by Méndez (2014), Moreno (2016), and Peña (2016), reflects a diversified population in Ciudad Juárez while also positioning these individuals as urban narrators. Their definitions and discourses reveal what living in Ciudad Juárez means to these age groups.

Regarding education, most participants are currently pursuing or have completed university-level professional studies, which is an important factor in the construction of imaginaries and ethnographic representations. According to some participants, their discourse tends to favor the place where they live.

Table 2 shows two basic demographic variables: place of birth and intra-urban mobility generated

within these population groups. In the first case, 14 participants reported being non-native that is, not born in the city while the other 12 were born in Ciudad Juárez. This finding is important because it allows us to visualize two substantive ethnographic elements when understanding dwelling and the imaginaries derived from these qualitative variables. There is a similarity between natives and non-natives, which permits us to interpret that for those born in Juárez, their narratives are significant as they become natural observers of what happens in their city. Meanwhile, for non-natives, their discourse becomes attractive because it is their experience that guides the explanation and categorization of their own meanings.

The second variable included in Table 2 is intra-urban mobility, that is, the decision to change residence, neighborhood, or housing development. Of the 26 interviewees, 14 responded "Yes" to the question of whether they have lived in other areas of the city, while 12 responded "No." This somewhat balances the residential changes the interviewees have experienced in Ciudad Juárez, as at least 14 affirmative responses contain narratives

defining particular areas of the city such as the city center, neighborhoods like Campestre, or gated communities, which some identified as their priority for intra-urban mobility.

Table 2. Place of birth and itra-urban mobility

Place of birth	Frequency
Natives	12
Non-natives	14
	26
Intra-urban mobility	
Yes	14
No	12
	26

Source: Ramón L. Moreno M. (2015-2016). Field Work Archives.

The environment of our interviewees is important in describing dwelling and the imaginaries generated by living in Ciudad Juárez. This includes the narrative of occupying a place within their neighborhood or housing development and, additionally, the particular ability to connect this with the imaginary. Map 2 relates the places

Map 2. Dwelling, Imaginaries, and Place of Residence of Interviewees
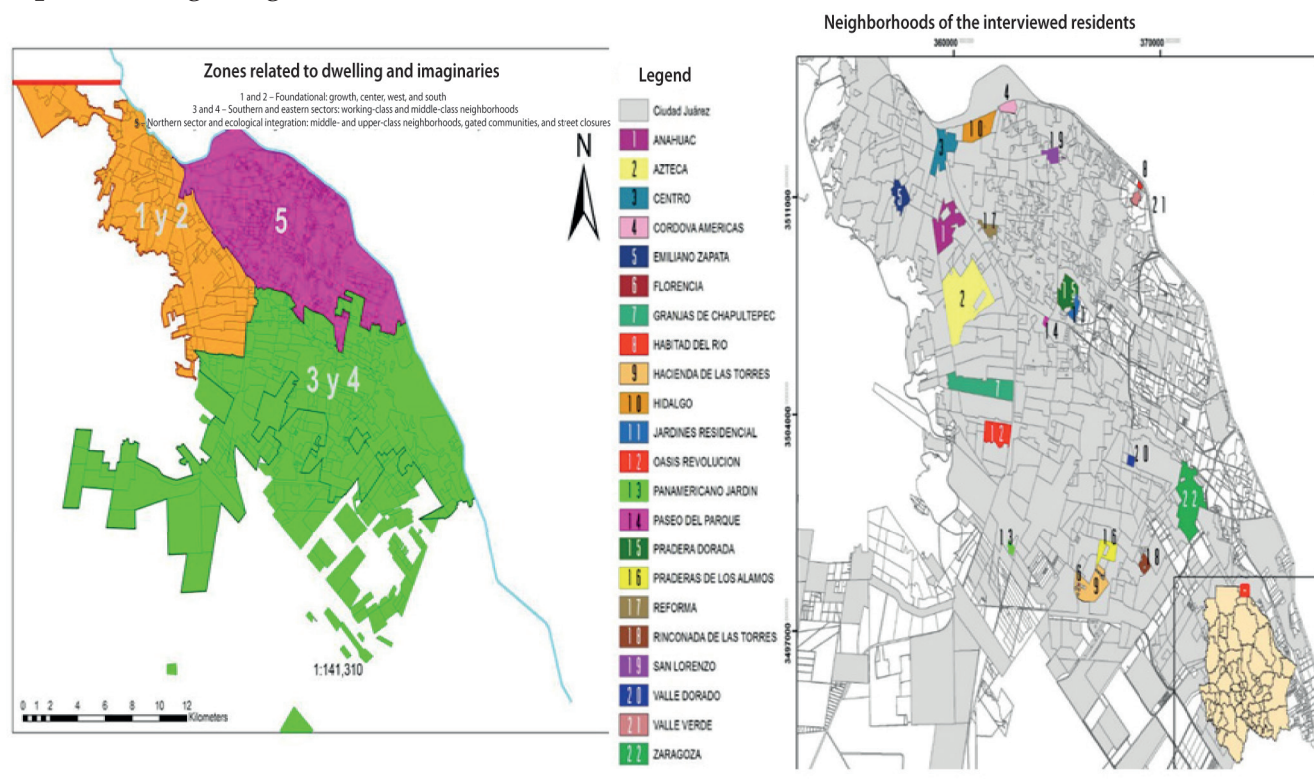
Source: Ramón L. Moreno M. (2015–2016) Field Work Archives.

where the interviewees live with the classification of Ciudad Juárez as an imagined site, or as Silva (2014:29) states, "imaginaries as a public space rely on the construction of symbols shared through a social commonality and are thus a regulating force of collective life by assuming adherence to a system of values that, in turn, motivate actions." For example, the description of the place where one lives is part of the existing relationship between dwelling and imaginaries. For the interviewees, this is an essential element in their daily life, as highlighted in their main narratives. Alternatively, as Méndez (2014:15) explains, "architecture is refigured when inhabited from the moment the act of dwelling is based on the reading of the building, which must respond to the occupant's needs and expectations."

Thus, environment and dwelling create meanings and process attitudes insofar as the resident explains the importance of the place where their daily life unfolds.

In the case of Map 2, the structure is evident given that the interviewees reside in 22 neighborhoods and housing developments in Ciudad Juárez. Of the 26 participants, 3 live in the same area Haciendas de las Torres (marked as number 9) which corresponds to zones 3 and 4 on the map of imaginaries and dwellings, zones with diverse land uses and territorial characteristics of Juárez.

Table 3 presents the statements gathered from the 26 interviewees, as well as the development of the corresponding categories related to place, dwelling,

Table 3. Speeches related to living, place and imaginaries

Interview	Narratives: Opinion about the place where they live	Categoríes related to dwelling, place and imaginaries.
1	It's a quiet place, but insecurity is hitting hard	Place
2	It seems a quiet place, not very unsafe, but the neighbors are not friendly	Place and dwelling
3	Me parece un lugar tranquilo, cómodo y seguro, cubre las necesidades	Place and imaginaries
4	It's quiet and pleasant place at the same time	Place and dwelling
5	It's a quiet neighborhood with people who've lived there a long time	Dwelling and place
6	Very quiet	Place
7	It's a quiet neighborhood but far from study centers	Place and dwelling
8	It's a place where you can do many activities	Place and dwelling
9	I like it	Imaginaries
10	Good place to live, I feel it could be better, there's tranquility	Imaginaries and place
11	It's a quiet area in terms of security, there's a police station	Dwelling and place
12	I like it a lot, one of the quietest places in the city	Place and dwelling
13	It's a very complete well-planned area, not very dense	Place and dwelling
14	Lacks social infrastructure	Place
15	Very quiet place	Place
16	It's a good place to live	Place
17	I consider it a quiet place, you can do desired activities	Place and dwelling
18	It's very pleasant, socially no issues, I don't interact with my neighbors	Place, dwelling and imaginaries
19	I don't like it, it's unsafe but that's where I live	Imaginaries and dwelling
20	I like the place because is not in a gated community	Place and imaginaries
21	It's fine, I like it	Imaginaries
22	I like it a lot	Imaginaries
23	Lacks more vegetation, pacing, space for bicycles	Dwelling and imaginaries
24	It's very livable, you can live well	Dwelling
25	It's a safe place	Dwelling and place
26	Needs more vegetation	Dwelling

Source: Ramón L. Moreno M. (2015-2016) Field Work Archives

and imaginaries.

Final reflections

Imaginaries are a substantial part that helps in understanding the experiences that the residents of Juárez have of their environment. The construction of meanings is part of those moments that aid in comprehending their relationship with the urban space, where daily actions unfold. The space is part of that intersection with inhabiting, where interactions are woven with neighbors, coworkers, friends, and other actors.

The urban ethnography described in this study allows us to visualize the conditions in which residents express their main ideas of city-making, how they inhabit it, and how they construct images and discourses shaped by the realities imposed upon them in the territory they settle in. The social construction they establish with the city consists of living and dynamic elements shaped by their neighborhood or residential area places where interactions take place. Therefore, the environment gains relevance in their immediate reality, where definitions, perceptions, and visions of the place are formed as part of those urban narratives produced both inside and outside of Ciudad Juárez.

Inhabiting is part of this framework of urban narratives. The discourses are grounded in a nearby reality in which a variety of elements are combined, mainly related to experiences and definitions of coexisting with neighbors, relatives, or friends. The environment envelops them in this magical way of crafting social and cultural actions and interactions. The meanings emerge as part of the expression of adaptation to the environment, in which individual and collective mechanisms are integrated.

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Environmental deterioration: An investigation on the excessive consumption of single-use containers (expanded polystyrene) at Universidad de Sonora

Deterioro ambiental: una investigación sobre el consumo excesivo de recipientes de un solo uso (unicel) en la Universidad de Sonora

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Abstract

According to the World Bank Report, What a Waste 2.0 (2018b), 2010 million tons of solid waste are generated annually in the world and of these, at least 33% will not be treated. This waste is expected to increase in the next few years, which could mean that by 2050 3.4 billion tons will be generated. It is urgent to pay attention to the above and act accordingly.

The alert has reached Governments, Institutions and Organizations at the international and national level. The University of Sonora, responding to this call, began a Program for the treatment of garbage on the Campus of the City of Hermosillo, seeking the reduction and recycling of materials such as cardboard, paper, metal, plastic and others.

Among these materials is Expanded Polystyrene or Unicel, frequently used for packaging and safeguarding food and beverages, with an approximate time of 500 years for its degradation (UNAM, 2018). Hence the importance of reducing its use and, if possible, its elimination as packaging material for food consumed by the population.

The Division of Economic-Administrative Sciences of the University of Sonora, served as a focus of attention to observe the behavior assumed by students and teachers around the subject at hand.

Resumen

Según el Informe del Banco Mundial, What a Waste 2.0 (2018b), se generan 2010 millones de toneladas anuales de desechos sólidos en el mundo y, de ellos, al menos 33% no serán tratados. Se espera que esos residuos aumenten en los próximos años, lo que podría significar que para 2050 se estén generando 3400 millones de toneladas.

Es urgente prestar atención a lo anterior y actuar en consecuencia; la alerta ha llegado a Gobiernos, Instituciones y Organizaciones a nivel internacional y nacional. La Universidad de Sonora, atendiendo ese llamado comenzó un Programa para el tratamiento de la basura en el Campus de la Ciudad de Hermosillo, buscando la reducción y el reciclaje de materiales como cartón, papel, metal, plástico y otros.

Entre estos materiales se encuentra el Poliestireno expandido o Unicel, frecuentemente utilizado para empaque y resguardo de alimentos y bebidas, con un tiempo aproximado de 500 años para su degradación. De ahí la importancia de reducir su uso y, de ser posible, su eliminación como material de empaque de alimentos consumidos por la población.

La División de Ciencias Económico-Administrativas de la Universidad de Sonora, sirvió como foco de atención para observar la conducta que asumen los estudiantes y docentes en torno al tema que nos ocupa.

Palabras clave: Deterioro ambiental; Residuos Sólidos; Unicel. Universidad de Sonora.

Código JEL: Q5 Q53

Introduction

When we speak of the environment, we generally think of the surroundings that condition life and include natural, social, economic, and cultural values that exist in a specific place and time. Our permanence on the planet depends on its care and protection.

According to the World Bank, 2,010 million tons of municipal solid waste are generated annually worldwide. Moreover, with rapid urbanization, population growth, and economic development, this waste is expected to increase by 70% over the next 30 years, which compels us to pay attention and adopt urgent measures in the generation, collection, and treatment of such solid waste (Banco Mundial, 2018a). In particular, the excessive us.

In particular, the excessive use of plastic today is alarming, as are its consequences for the environment. Therefore, as in the rest of the country and in some Latin American countries, Universidad de Sonora, responding to the alert issued by various organizations and institutions regarding the excessive generation of waste and its environmental impact, initiated a Program in 2013 for the treatment of waste generated on campus, seeking to reduce the use of non-hazardous solid waste such as cardboard, paper, metal, plastic, and other materials (Universidad de Sonora, 2018).

Based on the above, the main objective of this paper is to analyze, within the Faculty of Economic and Administrative Sciences (DCEA) of Universidad de Sonora, the disposal given to Unicel (expanded polystyrene), generally used as packaging for food and beverages. Considering that its degradation takes approximately 500 years, and its environmental effect is highly harmful, this paper aims to offer some alternatives to the use of this material by students, faculty, and staff of said Academic Division.

To understand and analyze behavioral habits related to environmental care and the generation of solid waste, such as the case of Unicel, some descriptive statistics tools were employed, and a survey was also administered to students and faculty of the Division. One important result was that 50% of the DCEA community uses single-use containers (Unicel), mainly due to lack of time; 20% use them for their practicality, and 15% because of their low cost. This information will be reviewed in detail later.

Finally, the paper is organized into three sections. The first studies the environmental problem from the perspective of environmental economics to incorporate some basic concepts and guidelines regarding the analyzed phenomenon. It briefly reviews the situation of our country concerning environmental issues and presents a theoretical overview of what expanded polystyrene, commonly known as Unicel, is.

The second section refers to the recent history of the Universidad de Sonora and how, over the years, it has incorporated sustainability into its plans and strategies. Likewise, it outlines the zero-waste program at the University and presents some results of its implementation.

This paper concludes with a brief description of the unit of analysis, the DCEA of Universidad de Sonora, while also detailing the information derived from the application of the methodological instrument, ending with the data analysis and the formulation of some conclusions and proposals.

1. The enviromental problem from an economic perspective

1.1 Environmental economy

Environmental economics is an applied social science that seeks to incorporate balance into the economic and social analysis of well-being through the economic valuation of environmental goods and services provided by ecosystems to society (Labandeira, León & Vázquez, 2007).

The rise of environmental economics in recent years has led to an expansion in the study of the environmental problem to include issues such as pollution, climate change, natural environment protection, and the conservation of scarce resources, through economic instruments—especially in those

areas where it is necessary to intelligently allocate the use of natural resources for the common good (Gilpin, 2003).

This discipline has existed for just over 50 years. However, it was not until the United Nations Summit in Rio de Janeiro in 1992 that it gained global recognition, largely due to the rise of ecological or environmental movements in more developed countries (ONU, 1992).

According to the World Economic Forum and Greenpeace (2018), among the most pressing environmental challenges we face today are the rapid loss of biodiversity, and the pollution of air, soil, and water—and most importantly, the failure to mitigate climate change. In the next 30 years, if the spiral of waste and garbage is not contained, 3.4 billion tons of waste will be generated annually worldwide (Banco Mundial, 2018c). According to the Global Risks Report published by the World Bank in 2018 (b), 33% of waste is dumped in open-air sites, and only about 19% is recovered through recycling and composting; 11% is incinerated, causing a vicious cycle of pollution.

Table 1 shows global waste generation by region, with East Asia and the Pacific being the largest generators with 23% of the total, followed by Europe and Central Asia with 20%.

Table 1. Waste generation by region

Region	Millions of tons per year	Percentage (%)
East Asia and the Pacific	468	23%
Europe and Central Asia	392	20%
South Asia	334	17%
North America	289	14%
Latin America and the Caribbean	231	11%
Sub-Saharan Africa	174	9%
Middle East and North Africa	129	6%

Source: Own elaboration based on figures from What a Waste 2.0. A Global Snapshot of Solid Waste Management to 2050. World Bank, 2018c.

As shown in the table above, the use of polluting materials and therefore the generation of waste is alarming, creating a problem that is reaching its limits. Its consequences are observed in the adverse effects on flora, fauna, water, air, and soil. Hence the urgent need to take measures to reduce its use—in this particular case, that of solid waste.

1.2 Expanded polystyrene (Unicel): Its impact on the environment and health

Expanded Polystyrene, EPS or Unicel "is a foamed plastic material derived from petroleum that is used in the construction sector as thermal and acoustic insulation and as packaging for different activity sectors" (Instituto para la Diversificación y Ahorro de la Energía (IDEA), 2007, p. 6). It is "a chemically inert, non-biodegradable material, meaning it does not decompose, disintegrate, or disappear in the environment, and is therefore considered an eternal material" (Martínez & Laines, 2013, p. 64). Some studies suggest that its life cycle could be around 1,000 years, although most agree on an average duration of 500 years.

One of its main problems, in addition to the evident environmental impact, is its relocation, since it is a material composed of 5% plastic (raw material) and 95% air. This means not everyone wants to (or can) recycle it due to the high logistical and recycling costs involved in recovering such a small portion (5%), especially considering that in our country, there is only one Unicel recycling plant, located in the State of Mexico (Acosta, 2011).

Linked to its logistical limitations is the fact that one of the main requirements for recycling it is that the Unicel must be free of organic residues, given that it is mostly used for food consumption and transport (Hernández, 2018), which makes it practically impossible to keep it clean.

Since this plastic does not degrade, it is accumulative, and its disposal represents a major issue, especially regarding its containment and final destination. Generally, after its use, Unicel is discarded and ends up in landfills or incinerated, causing severe environmental problems.

There are also other reasons why Unicel is used for transportation, food product packaging, and more: it is a resistant, thermal insulating, lightweight, and very economical material; it adapts to different shapes and sizes, in addition to its unique characteristic of being white, a color generally associated with cleanliness.

In the case of Sonora, the situation is concerning, as this material is not recycled because there are no companies interested in transporting it to the central region of the country for recycling. The few companies recently joining this activity are only

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beginning to research how to reuse this raw material. In the meantime, thousands of tons of this product end up on the streets, in uncontrolled landfills, or burned, releasing toxic substances.

At Universidad de Sonora, despite environmental care programs, there is still a high degree of plastic waste use, and of this, 22% is Unicel (Universidad de Sonora, 2018). As mentioned earlier, this is a problem that requires urgent action.

1.3 Mexico: One of the leading countries in waste generation

According to the World Bank (2018a), Mexico currently faces a serious environmental problem as it ranks third in global waste generation and first among Latin American countries. According to this report, Mexico generates 1.16 kilograms of garbage per capita per day. Each day, more than 100,000 tons of household waste are produced, equivalent to 37 million tons of municipal solid waste annually, which end up in the country's sewers, drains, or landfills.

One of the most concerning solid wastes in our country is Unicel and, as previously mentioned, the transportation and cleaning of these products are the most complex parts of their recycling process. For this reason, very few companies are interested, as it is not profitable to move it, considering that 95% of its composition is air and only 5% is plastic (Sánchez, 2014), and therefore recoverable in a second potential use.

Sonora is the state with the lowest recycling rate, ranking last at the national level. According to INEGI, the state has 812,500 households producing around 2,500 tons of garbage daily. Of these, only 162,000 households recycle, representing approximately 20% of the total population (González, 2017).

According to data from the INEGI (2015) report on the generation, composition, and management of solid waste, Sonora ranks 15th in waste generation. Among the municipalities that produce the most waste are Hermosillo, which generates 750 tons of garbage per day; followed by Nogales, with 380, and Cajeme with 345 tons per day. These three municipalities produce more than half of Sonora's urban solid waste.

2. Sustainability: a key component of the educacional model at Universidad de Sonora

2.1 Some background

Available scientific evidence confirms the enormous risk posed by current production and consumption patterns to the planet's equilibrium and the development of future generations. The effects of species extinction, land and forest destruction, and the degradation of common goods (oceans, forests, polar caps, and the atmosphere) are already being intensely felt (CEPAL, 2017).

The Comisión Económica para América Latina (CEPAL) has stated that the environmental challenge may be the greatest opportunity for structural change and international cooperation for development in history. The technological revolution, the need for a new generation of policies for alternative energy sources, smart production processes, and environmental innovations open a potential horizon for expansion and growth that could have a low-carbon economic growth trajectory as its central axis (CEPAL, 2016).

In line with the above, the educational model of the Universidad de Sonora is a document that outlines the perspectives and orientation of the institution's development through the year 2030. It integrates philosophical values and principles to guide its path based on the most current international and local challenges (Universidad de Sonora, 2017).

Some of these challenges, established since 2009 at the World Conference on Higher Education, focus on food security, climate change, water management, intercultural dialogue, renewable energies, and public health:

> *In September 2015, more than 150 world leaders attended the United Nations Conference on Sustainable Development held in New York and approved what is now known as the Sustainable Development Agenda. (Universidad de Sonora, 2018, p. 5)*

Universidad de Sonora, responding to sustainability demands, adopted a Sustainable Development Plan (Universidad de Sonora, 2012), where it commits to promoting among all its community members a deep sense of social and environmental responsibility. Some objectives of this plan include:

> a. Promoting the efficient and sustainable use of physical facilities and their surroundings, water and energy resources, and the inputs used in our activities.

b. Improving the comprehensive management of non-hazardous solid waste.

c. Ensuring, in accordance with environmental regulations, the proper handling of materials, hazardous waste, and safety in university laboratories and workshops.

d. Promoting communication and dialogue between university students and the community around the challenges of Sustainable Development.

As can be read, special attention is paid to the comprehensive management of non-hazardous solid waste, with a proposal for sustainable management and responsible consumption, while also encouraging effective communication as a way to raise environmental awareness in terms of sustainability.

Based on these guidelines, Universidad de Sonora aims to promote the reduction, reuse, and recycling of non-hazardous materials and waste, materialized through the implementation of a Non-Hazardous Waste Management Program called Zero Waste (Basura Cero) at Universidad de Sonora.

The main objective of this program is to reduce the final disposal of solid waste in landfills through its comprehensive management. It speaks of an educational and cultural shift through awareness campaigns and waste management policies. Alongside integrated waste management, awareness campaigns are to be promoted to enable the program's sustainability goals and actions.

Starting in 2014, this program was implemented at the main Campus of the Institution: Unidad Centro in Hermosillo, where, according to data available up to 2018, in the Informe Sustentabilidad UNISON. Basura Cero: Programa para la gestión integral de residuos sólidos y de manejo especial (Universidad de Sonora, 2018), there are 410 recycling points at the University, with containers for separating recyclable waste (plastic, paper, cardboard, aluminum), in addition to the installation of containers for other types of non-reusable waste.

Graph 1 shows the amount of non-hazardous solid waste generated by the institution in 2018. The average was 92.25 tons per month (Universidad de Sonora, 2018).

One of the main problems highlighted in the report

Graph 1. Generation of non-hazardous waste at Universidad de Sonora
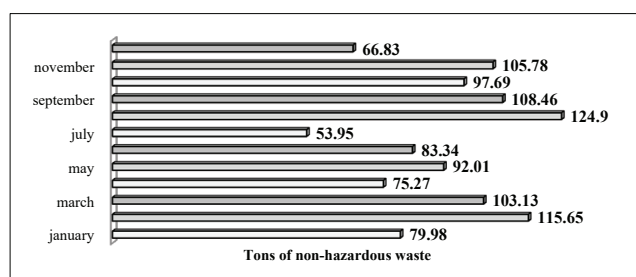
Source: Own elaboration based on data from the report Sustainability at UNISON.Basura cero: programa para la gestión integral de residuos sólidos y de manejo especial. Universidad de Sonora, September, 2018

is that the university community does not separate waste: recoverable elements such as plastic, paper, aluminum, etc., from non-reusable ones (organic waste, greasy paper, food, etc.). However, it is worth adding that the project places special emphasis on recoverable solid waste, addressing this through the installation of a series of exclusive containers to collect it. These containers are cage-type and are already functioning on the Unidad Centro campus. For example, for paper collection, there are containers specifically designated for that purpose.

As a parallel activity, recycling campaigns have been implemented, which, according to the report, take place at the beginning of each semester. As the report states, out of the average 92.25 tons of solid waste generated monthly, 37% is recoverable (Universidad de Sonora, 2018), which makes it possible to estimate that, if the waste were recycled, recovered, or reused, Universidad de Sonora could be receiving an approximate monthly income of 114,481.22 pesos. This is a significant amount, especially considering that it would contribute to environmental protection and care.

3. Discussion of the data and some results

3.1 Methodology and data collection

With the aim of understanding the habits and behaviors of the student and teaching population of the Faculty of Economic and Administrative Sciences of Universidad de Sonora (DCEA), regarding environmental care and, mainly, the generation of solid waste through the indiscriminate use of Styrofoam within university premises, information was collected, processed, and analyzed.

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To collect information from the DCEA, whose academic activity is organized around 7 undergraduate programs and 6 graduate programs, a 25-question questionnaire was designed, considering its application only to undergraduate students and their professors. The logic and validity of the instrument were evaluated by a panel of experts from the Universidad de Sonora, and a pilot test was conducted to correct possible deficiencies with 40 students from the International Trade and Business undergraduate program of the DCEA.

Subsequently, inferential statistics were used to establish some associations between the observed data and the topic at hand, in order to draw more general conclusions applicable to the university context and not only to the selected unit of analysis. The data collection instrument was applied between October and November 2019. The target population consisted of 3,802 individuals (3,518 students and 204 professors), resulting in a representative sample of 347 individuals.

The questionnaire was applied in the undergraduate programs of Administration, Accounting, Economics, Tourism, Finance, Marketing, and International Business and Trade, considering students and professors from all semesters and programs. Student participation was high, while professor participation was significantly lower.

Initially, participation was identified by sex: 57.6% male and 42.4% female. Of this total, 87% were between 17 and 23 years of age; 7% were between 24 and 30 years old, and the remaining 5% were over 30 years old. Of those surveyed, 95% were students and the remaining 5% were professors.

One consistent finding in the survey responses is that there is strong agreement (70%) that the Universidad de Sonora should remain free of Styrofoam and other plastics, as they are perceived to pollute the environment. 24% expressed agreement, and 5% maintained a more neutral stance (Graph 2).

On the other hand, within the DCEA, it is believed that the problem of the large amount of waste generated at the University is everyone's responsibility, since students, staff, and professors are the ones who consume on campus. Therefore, the solution must come from oneself, according to the respondents. The community's assessment regarding responsibility for the generation of solid

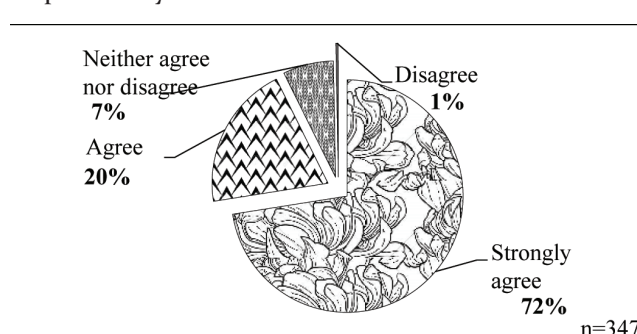**Graph 2.** Use or non-use of the Styrofoam and other plastics at Uni-Son.
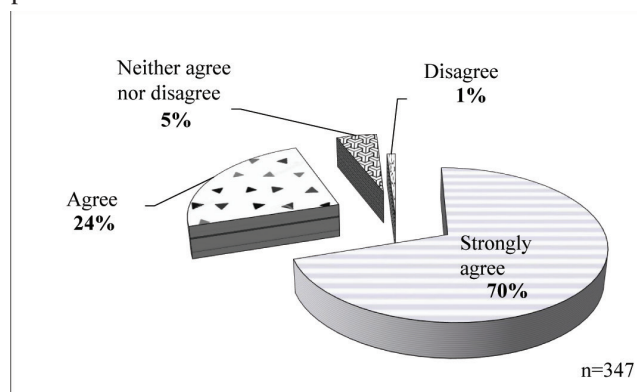
Source: Own elaboration based on the results obtained from the survey on the use of Sytrofoam applied in DCEA from October to November 2019.

waste—which they affirm is shared by all—was very high (92%), reflecting a university community that sees itself as part of the problem (Graph 3).

When asked about the responsibility of Universidad de Sonora regarding the use of single-use containers, 40% of the respondents did not take a stance, as

Graph 3. The prevention of waste generation is everyone's responsibility

Source: Own elaboration based on the results obtained from the survey on the use of Sytrofoam applied in DCEA from October to November 2019.

shown in Graph 4.

This places a significant proportion of students, faculty, and other members of the university community in this Faculty as examples of a low level of responsibility regarding the use of such containers, as 39% of respondents are seen shifting the responsibility to the Institution (22% strongly agree and 17% agree), in addition to those who did not express an opinion.

Another interesting finding from the recorded results shows that the majority has been informed

Graph 4. Universidad de Sonora as the main resposible party

n=347

about the separation of solid waste, as around 60% responded affirmatively to a direct question on the matter. The rest acknowledged that they have not been informed about waste separation, and this same percentage is reflected in those who answered incorrectly when asked which container is used for recyclable solid waste at Universidad de Sonora, stating that they do not know the color associated with recycling—for recyclable solid waste, the designated color is blue. In Graph 5, 42% of respondents report disposing of their solid waste in any available space or container, while 58% claim to be familiar with the designated recycling bins.

On another note, respondents were asked about

Graph 5. Where do you dispose of your waste?

n=34

their willingness to bring their own reusable containers for food or drink to the University, and the majority responded positively (Graph 6), with a negative response of 6%.

Furthermore, "if food vendors offered a discount

Graph 6. Own containers

n=347

for it, I would always carry it with me," commented 90% of the respondents.

The above reveals an indicator that the university community, at least within this Faculty, is willing to change habits and contribute their capacity and willingness to quickly adapt to new consumption patterns within the University.

The results would be even more favorable if discounts were proposed for consumption, revealing that an awareness campaign should be accompanied by incentives, especially for students, as they are the most vulnerable population. Favoring them in this regard could lead to better practices for the environment and its care.

The majority of respondents agreed that they would always use and bring their own utensils to the University if a discount were granted when ordering food and/or beverages under this modality. However, it should not be overlooked, according to Graph 7, that 37% of the community of the Faculty of Economic and Administrative Sciences uses single-use containers (unicel) due to their practicality, low cost, and convenience. Nevertheless, if we analyze the 56% response stating that they use them because that is what the establishment provides, the Institution faces a considerable challenge in implementing prevention measures or administrative policies that raise awareness among those who sell food and beverages on campus. This could be an excellent path to explore.

Finally, in an attempt to characterize the population of the DCEA regarding their education, culture, and environmental respect—especially in the use and reduction of unicel (Table 2)—respondents were asked how the community contributes in this regard, and the following answers were obtained:

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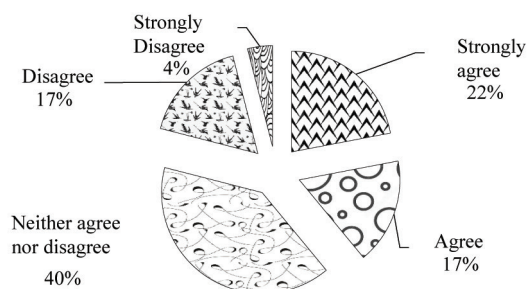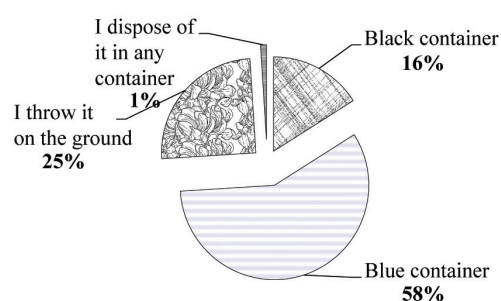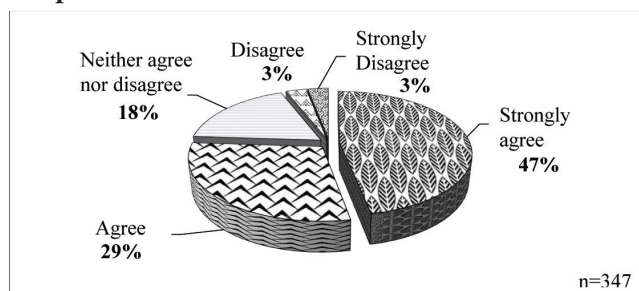
21

Graph 7. Why do you use unicel containers?
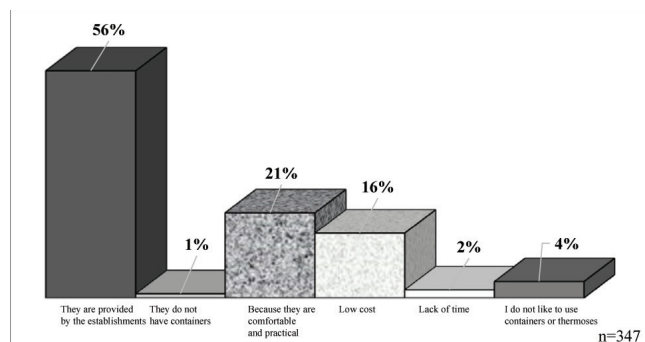
Source: Own elaboration based on the results obtained from the survey on the use of Sytrofoam applied in DCEA from October to November 2019.

Table 2. Ways of contributing to reduce the use of unicel

Activity/Action	Percentage (%)	Number of people
Use my thermos and containers	53%	184
Avoid consuming in unicel containers	19%	66
Raise awareness among my peers about environmental care	15%	52
Support activities in favor of the environment	13%	45
Total	100%	347

Source: Own elaboration based on the results obtained from the survey on the use of Sytrofoam applied in DCEA from October to November 2019.

3.2 Conclusions

Undoubtedly, reviewing the situation of the immediate environment—whether family, social, or work-related—and its relationship with the environment is of utmost importance today. The population is increasingly aware of the implications that the use or abuse of certain materials can have on nature and its sustainability. It is not surprising that interest in the topic continues to grow, as our continued presence on the planet depends on it, as mentioned earlier.

Higher education institutions, with their teaching styles and cultural dissemination, can be very effective pathways in building skills, strategies, and abilities for environmental care among students and professors. To the extent that this culture of learning becomes attractive and stimulating, results will undoubtedly become evident, manifesting in cleaner, greener spaces free from highly contaminating waste such as solid waste, especially unicel, the case study in this work.

A constant premise observed in the data from the applied instrument is that Universidad de Sonora should remain free of unicel and other plastics because they pollute the environment. Approximately 94% of respondents hold this position. It can be inferred that university students (and others not so young) support proposals that repair the environment and, more importantly, are willing to collaborate in this regard.

However, it is interesting to note that despite the positive attitude the community of the Faculty of Economic and Administrative Sciences seems to show towards environmental issues, few translate that attitude into practice when it comes to recycling or reuse, since only 30.5% of respondents usually recycle paper or take it to a collection center. The rest are not interested in performing this activity.

A fundamental critical point to consider if one wishes to begin reducing unicel use in the DCEA and the University in general is the management of reusable containers. This could be put into practice, for example, in the academic or social events frequently held where the indiscriminate use of cups, especially, has become customary. It is imperative to implement measures to reduce this issue, since unicel is continually used when a good solution could be to invite the academic and student community to bring their own reusable containers.

This should be considered in the administrative policy, not only of the DCEA but also of Universidad de Sonora, to encourage the use of thermoses and other containers brought from home—an issue that is beginning to become routine. It is important to mention that the use of these containers is increasingly widespread, basically for the consumption of beverages such as coffee or water.

This makes sense when paying attention to the fact that the perception of the interviewed community tends to see sustainability as a matter that depends on the individual and their education. This is an opportunity that should not be missed to increase culture and awareness on environmental care and the improvement of consumption habits.

Moreover, an interesting and paradoxical fact should be considered: 47% of respondents at the DCEA (in addition to 15% who did not answer) are unaware of the "Basura Cero" program, promoted by Universidad de Sonora to raise awareness about solid waste generation on campus. This suggests that beyond the work the Institution may have done

on the topic, the university community obtains information through other means or sources, possibly family, social networks, friends, or other forms of communication.

Finally, to close this section, the student and faculty community presented suggestions and measures to help care for the environment and reduce the use of unicel. As the main proposal to the Institution, 27% of respondents suggested banning the use of unicel in food booths and especially in the university cafeteria; 25% suggested that the University provide a kit of containers and thermoses to students at the beginning of each school year while offering incentives (such as discounts on purchases) for their use.

Another participation suggestion that could be very effective is holding awareness talks for students and professors, along with greater promotion of the "Basura Cero" project as an essential strategy, given the still limited environmental education context. Finally, as a containment measure, they suggest trying to apply some sanctions—strictly necessary—for littering or polluting.

Given this mixture of expressions from the university community and their apparent interest in learning about and understanding the environmental impact caused by the excessive use of materials that could be recycled or eliminated from use, it is time for the Institution to heed their voices and develop further actions and efforts around this issue.

For the case of the DCEA, some proposals emerged:

• Implement an awareness program for new students and replicate it through workshops in the final semesters.

• Increase promotion of the Basura Cero program and emphasize waste separation.

• Promote recycling through various campaigns organized by students themselves, supported by faculty staff.

• Use the last Friday of each month to inform and raise awareness.

• Promote environmental care in middle and high schools through social service and/or professional practices.

Attention to these considerations could initiate a favorable change in the student and faculty community, especially in their culture and environmental education.

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Transforming Education in Sonora
Transformar la Educación en Sonora

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Abstract

The objectives of this article are twofold: to present a general and partial appreciation of education in Sonora, and to propose a set of ideas, also very broad, to guide the transformation of this education. Both objectives are set in relation to the next change of social representation and government in the state of Sonora. It is the responsibility of this representation and government to draw up programs and proposals to lead social directions and to agree with all citizens, in a democratic framework, the definition of social aspirations and the ways to achieve them. Education is central to this orientation: there is no social task more important than the formation and transformation of the members of society; in this the construction of the human, individual and social must be expressed, and around this, the other social processes must revolve to make it possible: the economic, the political, the cultural. The ideas presented here about education have the particularity of not referring only to school education and the so-called educational system; It is intended to cover the education that takes place in other institutions and social organizations, which we call social education. We will start with our appreciation of the school system.

Keywords: Social education, educational system, Human development, Sonora

JEL Codes: I2, I21

Resumen

Los objetivos de este artículo son dos: exponer una apreciación general y parcial de la educación en Sonora, y plantear un conjunto de ideas, también muy amplias, para guiar la transformación de esta educación. Ambos objetivos se plantan en relación con el próximo cambio de representación social y de gobierno en el estado de Sonora. Corresponde a esta representación y gobierno elaborar programas y propuestas para conducir los rumbos sociales y acordar con todos los ciudadanos, en un marco democrático, la definición de los anhelos sociales y las maneras de lograrlos. La educación es central en esta orientación: no hay tarea social más importante que la formación y trasformación de los integrantes de la sociedad; en esta se debe expresar la construcción de lo humano, individual y social, y en torno a ello, han de girar los demás procesos sociales para hacerla posible: lo económico, lo político, lo cultural. Las ideas aquí expuestas acerca de la educación tienen la particularidad de no referirse solo a la educación escolar y el llamado sistema educativo; se pretende abarcar a la educación acontecida en otras instituciones y organizaciones sociales, a la cual denominamos educación social. Iniciaremos con nuestra apreciación del sistema escolar.

Palabras clave: Educación social, sistema educativo, Desarrollo humano, Sonora

Código JEL: I2, I21

About the formal education system

In 2018, shortly before the elections that year, Casanova (2018) published the result of a reflective and propositional effort by a group of researchers regarding the formal education field, based on a forum held at UNAM the previous year. This work summarizes proposals from researchers for the national education agenda and presents chapters on the challenges facing the education system. Casanova identifies five crucial problems in education: quantitative deficit, recognition of quality, infrastructure and equipment, the link between education, politics, and the role of actors in educational processes in the construction of decisions within the field, and finally, the link between education and society regarding topics such as citizenship, democracy, and security. We adopt this author's perspective, although not strictly, to present our views on formal education in Sonora.

Quantitative deficit. Regarding the quantitative deficit, Mexico has undertaken actions in the last two decades to reform the education system at different school levels. First, in terms of coverage, preschool education was made mandatory in 2002, although in 2020 it only covered 72.3% of the respective population nationwide and 62.6% in Sonora (ranked 28th among the 32 federal entities). Primary education has a national coverage of 104.7%, with Sonora ranked 28th at 97.3%. Secondary education was made compulsory in 1993 and reached 96.1% nationwide and 92% in Sonora (rank 22) in 2020. Nearly ten years later, in 2012, upper secondary education was established as mandatory, aiming for universality, although in 2020 it reached only 78.9% nationally and 70.8% in Sonora, ranking 27th among the states. At the higher education level, excluding postgraduate studies and considering both formal and non-formal modalities, national coverage is 40.9%, with Sonora at 44.8%, ranked 6th (see Table 1).

Thus, different coverage levels can be observed in Sonora across the various educational levels: concerning at the basic level, acceptable at postgraduate, and good at higher education.

On the other hand, according to the indicators, student retention remains a concern, especially at the upper secondary and higher education levels. In 2020, the national dropout rates were 13% and 8.5%, and in Sonora, they were 14.1% and 14.3%, respectively (see table 2).

Some effects of changes in education in recent decades show achievements, such as the increase in mandatory basic schooling, from preschool to secondary school, which in the country reached

Table 1. Coverage indicators in Sonora, school year 2019-2020

Educational level and age range	Total enrollment	Population [1]	% National	% Sonora	Sonora rank	Traffic light
Basic (3 to 14 years old)	551 199	630 536	94.5	87.4	30	
Preschool (3 to 5 years old)	96 857	154 747	72.3	62.6	28	
Primary (6 to 11 years old)	306 958	315 600	104.7	97.3	28	
Secondary (12 to 14 years old)	147 384	160 189	96.1	92.0	22	
Upper Secondary (15 to 17 years old)	113 274	160 030	78.9	70.8	27	
Technical Professional (15 to 17 years old)	112	160 030	1.0	0.1	29	
High School (15 to 17 years old)	113 162	160 030	77.9	70.7	27	
Higher Education (Including Postgrad) (18 to 23)	116 220	314 201	31.0	37.0	04	
Higher Education (Excluding Postgrad) (18 to 22)	112 548	262 289	34.9	42.9	04	
Higher Education (Excluding Postgrad) (18 to 22) [2]	117 455	262 289	40.9	44.8	06	
Bachelor's degree (18 to 22 years old)	110 717	262 289	34.0	42.2	04	
Normal/ Teacher Training (18 to 22 years old)	1 831	262 289	0.9	0.7	24	
Postgraduate (23 years old)	3 672	51 912	11.2	7.1	20	

Note: 1/ Mid-year population projections, CONAPO 2018; 2/ Includes the non-formal education system. In the Traffic Light column: red indicates ranks between 22 and 32, yellow between 11 and 22, and green between 1 and 10. Red indicates low coverage, yellow average coverage, and green high coverage relative to the ranks among federal entities.

Source: Own elaboration based on data from the Reporte de Indicadores Educativos http://snie.sep.gob.mx/indicadores.html

Table 2. Dropout indicators in Sonora, 2019-2020 school year

School Dropout	Total Enrollment Following Cycle [3/]	Graduates Current Cycle	New Enrollment to 1st grade Following Cycle	Total Enrollment Current Cycle [3/]	% National	% Sonora	Sonora Position	Traffic Light
Primary	304 290	51 034	50 951	306 958	0.5	0.8	24	🟥
Secondary	146 950	44 584	50 524	147 384	4.3	4.3	17	🟨
Upper Secondary	111 448	30 721	44 832	113 274	13.0	14.1	24	🟥
Technical Professional	110	30	70	112	26.6	37.5	27	🟥
High School	111 338	30 691	44 762	113 162	12.8	14.0	25	🟥
Higher Education	111 393	16 781	31 739	112 548	8.2	14.3	32	🟥
Normal School	1 715	631	510	1 831	5.9	-0.3	04	🟩
Bachelor's degree	109 678	16 150	31 229	110 717	8.3	14.6	32	🟥

Note: 3/ for the calculation of Normal school dropout, enrollment from 1st to 5th grade is used instead of total enrollment. In the Traffic Light column: red indicates a position between 22nd and 32nd place, yellow between 11th and 22nd, and green between 1st and 10th. Red indicates low coverage, yellow average coverage, and green high coverage; all in relation to the position occupied according to the rates of the federal entities

Source: Own elaboration based on data from Reporte indicadores educativos http://snie.sep.gob.mx/indicadores.html

94.5% in 2020, although in Sonora it reached 87.4% of the respective population, in the third-to-last place by states. In contrast, the average schooling of the national population was 9.6 years in 2020 and 10.5 years in Sonora, ranking 3rd among federal entities; in 20 years, the growth rate of average education was 57.4 in Mexico and 67.44 in Sonora.

Another important reform, that of upper secondary education, has been progressively developed since 2008, starting with the Reforma Integral de la Educación Media Superior (RIEMS), which promoted the competency-based model and the organization of the various subsystems under a Marco Curricular Común (MCC), and the Sistema Nacional de Bachillerato (SNB). Also, in 2013, with the mandate of its compulsory nature, the Sistema Nacional de Educación Media Superior was created with several objectives, among which stands out the promotion of quality (DOF, 2018).

In Mexico, even with official support, the competency-based educational model has encountered serious difficulties at all levels. Thus, a pending issue is to evaluate its application, both in relation to academic achievements of students and teachers, and in its effects on job performance and, even more, on human development and the well-being of society members.

A broad and exhaustive diagnosis of quantitative achievements and deficits of the educational system is very necessary. Here we have just pointed out a couple, but it is necessary to consider performance,

the teacher-student ratio, attention to the demand of excluded social groups, incorporation into employment, among many others.

The recognition of quality. One of the most important challenges facing the school system is the increase in educational quality, at all its levels, for which the recent Ley Reglamentaria del Artículo 3º Constitucional was issued, whose objective is the continuous improvement of education (DOF, 2019b), through the establishment of the Comisión Nacional de Mejora Continua de la Educación, as well as the Sistema Integral de Formación, Actualización y Capacitación, which will be fed back by diagnostic evaluations.

In our country, significant efforts have been made to evaluate the learning achieved by students. In this sense, the Secretaría de Educación Pública (SEP) and the Instituto Nacional de Evaluación de la Educación (INEE) designed the Plan Nacional para la Evaluación de los Aprendizajes (PLANEA) to evaluate the learning of students in basic and upper secondary education, with the purpose of continuing with the strengths and overcoming the weaknesses of the Exámenes Nacionales del Logro Académico en Centros Escolares (ENLACE) and the Exámenes de la Calidad y el Logro Educativo (EXCALE). This Plan is made up of learning tests distributed in three different evaluation modalities: Evaluación del Logro referida al Sistema Educativo Nacional (ELSEN), Evaluación del Logro referida a los Centros Escolares (ELCE), and Evaluación

Diagnóstica Censal (EDC). In the results of the latest PLANEA test, from 2020, a positive performance is shown for the state of Sonora as its students in fifth and sixth semester of upper secondary education ranked first place in Language & Communication, and in Mathematics. With this, the percentage of students who were at the insufficient level in Language & Communication was reduced by 28%, in 9th place, and by 27% in mathematics, in 15th place, according to the results obtained in 2017. According to PLANEA 2018 results for primary school, in the area of Mathematics, 25.6% of Sonora's students were placed at a satisfactory and outstanding level, ranking 22nd, and in Language & Communication, 21% of the student population was placed at the same level, ranking 24th (see Table 3).

On the other hand, the results of the international evaluations of the seventh and last round of 2018 of the Programa de Evaluación Internacional de Estudiantes (PISA) of the OCDE, applied to 15-year-old students in public and private schools in 36 countries every three years, alert us to the low performance in our country, as it ranks in the last position among the 36 OCDE member countries in the development of skills and competencies for life; and reading comprehension, logical and mathematical thinking, and scientific thinking have not improved significantly for just under two decades, when the evaluations began (2019b).

The evidence from the data collected in these 18 years shows that, in general, the degree of development of the country matters, since developed countries obtain the best results. In the case of Mexico, they reveal that students in private schools obtain the best performance, and in public schools, those with more favorable socioeconomic conditions also achieve higher learning outcomes. As a novelty, this last report includes a section dedicated to well-being: when considering socio-emotional aspects, the results of Mexican students show that their degree of life satisfaction was one of the highest, at 83%, compared to the 67% OCDE average. Likewise,

96% stated that they sometimes or always feel happy, in contrast, only 6% said they always feel sad, and 17% agree or strongly agree that they feel lonely at school, very close to the 16% OCDE average; 23% of students said they had been subjected to bullying a few times a month, and finally, 85% indicated that they agree or strongly agree that their teacher shows enjoyment when teaching classes, above the 74% OCDE average (2019b).

In parallel and expanding on what is assessed by PISA, the OCDE launched in 2008 the Programa para la Evaluación Internacional de las Competencias de los Adultos (PIAAC), which monitors, analyzes, and evaluates the level of reading and numerical competence, the use of information and communication technologies in work and everyday life of the adult population aged 16 to 65. In the third round published in 2019, which spanned 5 years, Mexico was included for the first time as one of the 39 participating countries. The results show the great lag in competencies that the Mexican population continues to have throughout life, ranking well below average: in reading and numerical areas, it ranks third to last, and in problem-solving in computerized environments, in position 35 (OCDE, 2019c). As with the results obtained in PISA, sociodemographic characteristics such as age, level of education, and social background are related to the mastery of competencies. But not only has it not been possible to raise the quality of the educational system in general, it is also reflected in the level of productivity, the lowest among OCDE countries. Mexico is the OCDE country with the highest unemployment rate for people with higher education studies, which could be partially explained by the quality of training and the productivity of the workforce. Likewise, it is possible that it has not been possible to modify low labor productivity, something accompanied by low wage levels, as well as the limited growth in the generation of quality jobs, which require a higher school and educational level (see Table 4).

Table 3. Sonora Educational System Indicators 2018, Basic education

EO	Educational outcomes			Entity	National	Minimum	Maximum
To what extent do basic education students achieve the key learning objectives intended in the national curriculum?							
Percentage of 6th grade primary students according to the level of educational achievement reached in the domains evaluated in the PLANEA-SEN tests (2018)	Language and Communication	Insufficient	%	43.8	49.1	33.7	68.6
			(ee)	(1.6)	(0.6)	(1.7)	(1.9)
		Satisfactory and outstanding	%	21.0	17.9	8.9	29.4
			(ee)	(1.4)	(0.3)	(0.9)	(1.5)
	Mathematics	Insufficient	%	55.2	59.1	47.4	78.2
			(ee)	(1.7)	(0.5)	(1.8)	(1.6)
		Satisfactory and outstanding	%	25.6	23.0	10.9	33.2
			(ee)	(1.6)	(0.4)	(1.2)	(1.7)

Source: INEE (2018) https://www.inee.edu.mx/wp-content/uploads/2019/09/2018_EF_Son.pdf

Table 4. Sonora Educational System Indicators 2018

What are the benefits of education in labor participation?		Entity	National	Minimum	Maximum
Employment rate according to education level. Population aged 25 to 64 (2018)	Without basic education	65.7	62.1	53.0	70.5
	Basic education	70.0	67.9	60.3	75.2
	Upper Secondary education	74.2	71.0	63.4	78.4
	Higher education	80.6	80.3	72.0	86.8
Percentage of workers with stable employment according to education level. Population aged 25 to 64 (2018)	Without basic education	34.8	20.7	5.6	46.9
	Basic education	55.8	43.4	16.5	73.6
	Upper Secondary education	71.2	60.1	42.0	79.0
	Higher education	79.5	74.6	61.5	84.9
Relative hourly wage of workers according to education level. Population aged 25 to 64 (2018)	Without basic education	0.70	0.72	0.57	0.80
	Basic education	0.72	0.81	0.72	0.88
	Upper Secondary education	1.00	1.00	1.00	1.00
	Higher education	1.69	1.78	1.56	2.23

Source: INEE (2018) https://www.inee.edu.mx/wp-content/uploads/2019/09/2018_EF_Son.pdf

The issue of quality does not stop at these appreciations since the concept itself, the policy, and the associated programs have been under debate since their adoption. As already mentioned, although it has been given maximum relevance, along with its companions, quantitative evaluation through evidence and the large number of regulations and evaluating, accrediting, and certifying bodies, school education has not improved even in the terms of that perspective; what has indeed increased is the respective rhetoric and bureaucratization (Casanova 2018). In this way, an informed, critical, and honest dialogue about quality and evaluation is urgently needed, whether to reinforce it or to discard it and adopt another perspective, according to the formative purpose of education in pursuit of human development and well-being.

Infrastructure and equipment. Casanova (2018) points out that, although in primary education in the country the coverage indicators are very high, the conditions of schools are deplorable: just over a quarter (total number of schools: 152 000) of the buildings require improvements, there are problems with drinking water supply in around 28 000, in 14 680 there are no sanitary services and 91 672 operate without drainage. More: 10% lack electricity, 82% have no telephone connection, 50% have no computers or they do not work, and 20% have internet access. Significant shortages of basic teaching supplies are also reported.

The example of deficiencies in primary schools in this area illustrates the need to address and study it in depth. In Sonora, studies in this regard are scarce or refer to the issue as part of other problems, for example, in a study by Vera, Luque, and Bautista (2016: 3) about Infraestructura y calidad educativa entre los pueblos indígenas originarios sonorenses, it is mentioned that "the results indicate the prevalence of a perception of lack of infrastructure to improve the educational quality of indigenous children and youth". We do not have, of course, clear and sufficient indicators of infrastructure and equipment for training in other areas; the absence of equipment to support schoolwork at home became evident during the pandemic: many homes without internet and without computer equipment. If it is desired that, in addition to the school, other social environments participate in training in a defined and effective way, their conditions as educational environments must be studied and diagnosed.

The link between education and politics and the agents in the construction of decisions. One of the main aspects to address in the broader and deeper diagnosis will be the evaluation and objective, and therefore critical, analysis of the situation and effects of the educational policy of the current government of Sonora. Future lines cannot be drawn if the present conditions are ignored. The current government set itself challenges related to infrastructure and equipment, raising quality, social participation, cultural promotion, sports development, improvement of administrative management, social responsibility, sustainability, equality and inclusion in educational institutions, and linkage and knowledge transfer. Each of these challenges must be thoroughly reviewed to establish their level of achievement, not only based on official documents, but also according to reports of the experiences of school process actors and research products.

For example, regarding "Objetivo 19. Dar cumplimiento a las políticas y programas de igualdad e inclusión en todos los organismos, niveles y modalidades del sector educativo" of the government program (http://www.sec.gob.mx/portal/modules/informe/docs/informe_ejecutivov1.1.pdf), a study on exclusion in upper secondary education schools

(Castellanos & Zayas, 2019) reports the need to address the micro characteristics of interactions between students due to their importance for the effective achievement of curricular knowledge and the development of the students themselves. Thus, it is urgent to look at interactive and affective aspects of school agents to advance in all types of inclusion.

Analysis and diagnosis are indispensable requirements to aspire to the construction of a state policy in educational matters, one that provides continuity, to a greater or lesser extent, to governmental efforts. In other words, it is not only about making prospective government plans with political will, but also necessary to start from a historical perspective. Of course, this implies certain situations of conflict due to ideological distances between successive governments, but "the specific attribute of a state policy is some level of conjunction between conflict, continuity, and consensus" (Guardamagna & Cueto, 2013: 78).

The previous issue has to do, like all political matters, with who decides and how decisions are made, in this case regarding education in Sonora. Of course, it is the responsibility of the government to guide and lead social efforts and aspirations, based on and in the direction of these efforts and aspirations. In the case of education, decisions must be made not only based on the needs of the productive apparatus or the economic sector, but above all from a humanistic orientation, with the broadest informed participation of the different levels of government, educational agents, and society as a whole. Highly relevant in this aspect is the role of those holding positions in the government sector. This area should be carefully reviewed and addressed. It is important to examine and modify the job profiles to ensure that the holders of the positions are not accommodating politicians but professionals with the highest academic and educational authority. Political skills without substance or having held a government or union office in the field of school education is insufficient; a broad theoretical knowledge of education as a social phenomenon and as a formative and pedagogical process is required to responsibly take charge of education in the state of Sonora; experience is also required, not in the number of years worked in the sector, but in reflective experience, even written, about educational tasks. It is also about limiting the power of these decision-making bodies and transferring it to others to advance towards an increasingly democratic orientation.

To get an idea of the current academic and pedagogical preparation of officials and staff of the SEC, a brief review of their curricula included in the Transparency portal, Sonora (2020), was conducted. In these, with incomplete and confusing data, very few people are shown with an academic degree in education granted by prestigious universities. Data on experience in years in the school system as well as previous job positions are reported: the positions are held by politicians or members of the SNTE, by people coming from other government secretariats and even by former workers from the private sector, without previous links to the educational system.

What has been said in the previous lines is extremely important due to its relation to the possibility of constructing governance processes increasingly removed from grandiloquent, deceptive discourses, and ritualistic and merely bureaucratic practices, to approach training in and for human development and the well-being of social agents as educators and educated.

Another relevant aspect regarding decision-making in education is the participation of the central agents of this process: school officials, teachers, students, parents, as well as other collective actors in education: teachers' unions, civil society organizations, and companies interested in education. The issue of social participation gained relevance since the end of the last century, but it has not achieved due prominence in the management of education; even in some educational levels, setbacks have been observed.

In the state of Sonora, the involvement of parents, both at home and at school, for the performance and training of students at all educational levels, including higher education, was studied (Zayas, 2010). It was concluded that their participation is a very relevant factor for the comprehensive training of students at all educational levels. Regarding the related policy, it was observed that, although at its broadest and most discursive levels it promoted fostering social participation and parental involvement, as it approached the operational level, it imposed restrictions on this participation.

It seems that the situation has not changed much, as regarding the Consejos de Participación Social, Sánchez Parra (2016) notes, citing various authors, that their installation "has responded more to administrative matters, where simulation prevails (Martínez, Bracho y Martínez, 2007), without

effective social participation work (...)" with very irregular operation and many existing only on paper (Vélez et al. 2008), with signs of "failure of the organizational structure (Canales, 2006), from a state policy that shows little progress (Latapí, 2004)".

The same author, focusing on Sonora, notes that the regulatory framework of Participación Social en Educación (PES), although it grants some autonomy to agents in the school space, for example, to raise funds, limits them in achieving more important goals, such as pedagogical ones. He also notes that participation is scarce, so the state of things is not changed. Even poorer is participation in municipal and state councils and therefore the articulation between these and the school councils. Sánchez Parra (2016) concludes by saying that the obstacles to social participation are: "the design and implementation of PES policy, which must therefore be modified (...); the role of school administrators and teachers in not allowing "parents to have greater weight in decision-making", (...) and family and household factors that limit parental participation.

Another way to gauge the development of social participation in education and its role in decision-making are the virtual portals of the respective organizations. The search for the Consejo Estatal de Participación Social en Educación in Sonora yields no results; the SEC page regarding this (http://www.participemos.gob.mx/avance-de-integracion-de-consejos-escolares.html, consulteden September 13, 2020) shows that no preschool, primary, and secondary school work center "has formed its Consejo Escolar de Participación Social en la educación en el Estado de Sonora." On the side of parent associations, the website of the Asociación Estatal de Padres de Familia (http://www.aepafsonora.com/) shows little information and the "Noticias" section is in English.

We consider that narrowing the gap between education-school and the rest of society is achieved by making all of society assume itself as an educator, as a trainer. In this way, for example, the home or the community are not collaborators of the school, but they also have specific educational tasks and collaborate with each other; also, the training agents are not only teachers but also parents, all family members, and society as a whole; as collaborating environments, all participate in decision-making.

The link between education and society, between education and the development of citizenship, democracy, security.

Article 3º establishes that the school education system must "develop harmoniously all the faculties of the human being and foster in him, at the same time, love for the Homeland, respect for all rights, freedoms, and the culture of peace..." (DOF, 2019a). Also, that the education provided by institutions must contribute to healthy coexistence, where cultural diversity is embraced, the dignity of the human being with equal rights is upheld, and, in addition, the guiding criteria will be national, democratic, equitable, inclusive, intercultural, comprehensive, and of excellence. Meeting such demands poses great challenges. Achieving the comprehensive training of society members throughout their lives, developing their cognitive, socio-emotional, and physical capacities, enabling them to achieve well-being (DOF, 2019a), requires special attention and a profound change in perspective, since currently, education is more focused on preparing students for the labor market -under this approach, the constitutional objective remains only as a wish- Fulfilling it requires a great social effort and another political, theoretical, content, and procedural orientation. Education in the school system is undoubtedly one of the fundamental pillars for human development, international evidence indicates that a more educated population is prone to greater citizen and political participation, shows less involvement in criminality and violence, is healthier and happier; in turn, it is more productive, with access to better jobs and wages, and therefore, to better economic, social, and emotional growth, development, and well-being.

What has been mentioned about social participation in education and its meager achievements shows the difficulty of linking school processes with the whole of other social processes. This difficulty runs counter to the great value attributed to education, which is usually linked almost naturally to solving huge social problems regarding citizenship development, democracy, security, and now, more acutely, health.

Casanova (2018, pp. 19) asks in this regard and in relation to the educational challenges for the current six-year term of the federal government: "How much of the educational is being used to strengthen society and to generate a more democratic culture? How much of the educational is being used to strengthen the common good? Is it possible to address the major problems of insecurity and violence through education?" It is well worth

asking the same questions about the challenges in education for the next government of Sonora and to these questions, others should be added, such as the issue of health and that of economic and financial education.

From our perspective, it is possible to strengthen the ties between education and society according to the proposal of thinking of education as a phenomenon not only school-based, but as something present in all social environments, and linked not only to the productive apparatus but to human development and well-being. It is thought this way because that is how it actually happens: the training built at home is present in the workplace, in school, and in other social environments and vice versa, except that so far there have not been broad and consistent efforts to engage in dialogue about this intimate relationship to agree on purposes, contents, training practices, and necessary resources in these training environments. Of course, this would imply recognizing and preserving the diversity of environments and their agents.

An effort of this kind would allow agreements and common actions in all educational environments and would prevent overloading schools with tasks, which has happened frequently. It would also make us aware that we are all, in one way or another and at the same time, training agents and agents in training, and that, to build an educating and educated society, it is necessary to take that awareness into our own hands and translate it into actions.

In Sonora, there are incipient efforts to account for the level and characteristics of the relationship between school education and society around the questions posed by Casanova and the others we added. In universities, mainly public ones, the issues of education and democracy have been studied and actions have been carried out on inclusion, gender inequality, participation, and against violence, regarding which a distinction is worth noting: this relationship is studied with two approaches: first, when the phenomenon occurs in schools, and because it occurs in them, it is considered as an educational matter; and second, when education is about these issues. The second, more of our interest, is less frequent.

On the side of non-school education, in the area of civic culture, the Junta Local Ejecutiva del Instituto Nacional Electoral (INE) in Sonora (https://centralelectoral.ine.mx/2020/05/14/ ine-sonora-invita-conocer-faro-democratico/), invites secondary school students to visit the digital platform "Faro Democrático" of UNAM (https://farodemocratico.juridicas.unam.mx/), to learn about democracy, citizenship, and political participation, to understand and form an opinion on these topics. It also invites teachers of Civil and Ethical Training obtain digital tools to strengthen their teaching.

The Instituto Estatal Electoral de Sonora offers social organizations and high school and higher education students the Foros Democráticos de la Estrategia Nacional de Cultura Cívica (ENCCÍVICA) of the INE (http://www.ieesonora.org.mx/educacion_civica/ programas/foros_democraticos_enccivica) with topics on civic and political-electoral culture to achieve participation and interest in these matters.

Regarding the contributions of education to solving major problems of insecurity and violence, its approach is also initial, as the respective research refers not so much to the educational or formative phenomenon, but to insecurity and violence occurring in schools. In other words, it is not studied how to train agents for the practice of peace and security and against violence and insecurity, but rather reports on insecurity and violence in schools and the role of school agents or social conditions in this process. Something similar happens in the area of education in and for health. Despite advances in the knowledge of dietary processes and the serious risks in the consumption of foods promoted in the current economic model, there is usually more interest in the economic dimension of this phenomenon and not so much in the health of the population, and there are almost no educational studies or proposals for health; what is possible is merely disseminating information about the nutritional values of food products.

Economic and financial education is also urgently needed. Despite the relevance of economic and financial aspects, this has been a little-addressed area in training. It will be necessary to address it in school and outside of it, for teachers, students, and all types of populations, to study topics such as market, production, work; consumption decisions and personal and family economy; banking and financial products; social and civic responsibility in the economy; advertising, critical media awareness; budgeting, consumption, saving, personal finances (Denegri et al., 2014) and taxation. The axis of these

topics would be dialogue about the human value of the economy, finance, and money: it is time to stop considering these topics only in terms of ambition and the excessive wealth of a few and to give them a human dimension.

In Sonora, regarding this, a study on tax culture and education in students of a degree program at a public university (Mendoza et al., 2016) shows the "non-existence of tax culture in more than half of the university population" and the lack of knowledge on tax issues. If this ignorance is similar in other degree programs of that and other universities and in the general population, the adverse consequences for the state's and the country's finances can be imagined.

About social education

Now then, although the school system and schools are a basic component for educating the members of society, without the educational participation of other social institutions, education in our country and state will always lag behind. So obvious a fact has been neglected: education takes place in the family, in the workplace, through the media, in religious institutions, among other settings. This omission has prevented us from attempting to integrate these various forms of education. However, the seriousness of the problems in our society requires this integration. Health problems, violence, exclusion, injustice, and low sustainability cannot be solved solely by the organizations responsible for these issues. The seriousness of these topics demands a comprehensive approach. For example, health difficulties cannot be resolved solely by the organizations in charge of that task, under exclusive health-disease parameters. Collaboration from the family, school, and other economic and political organizations is required, each contributing according to its parameters: educational, economic, political, communicative, within their respective spaces.

Something similar happens with education: it cannot be resolved solely by the school. To have an educated society, society as a whole must be an educator, under the coordination of the institution responsible for this task, embodied in the school education system. Attempts have already been made to integrate these institutions in some way; this has happened with the attempted collaboration between family and school, and with the poorly achieved creation and operation of national, state, and municipal social participation councils. More consistent activities have been schools for parents, although their greatest limitation has been the privilege granted to the school; parents collaborate with the school for its objectives, but the family's educational capacity is not developed, with its respective contents, procedures, training of its members, and definition of purposes. In higher education, efforts have been varied: University-business partnerships, university social service, business incubators, and that perspective presented as innovative, although already practiced since the last century: dual education at the university.

We insist, education is not only a school phenomenon, since the integral formation of individuals, which affects all dimensions of the human, has always been present in all social settings; what is now required is to give it a clear intentionality, an orientation not left to common sense or private interest, but aimed at achieving human development and well-being, as a social and community agreement.

The urgency is greater if the goal is the development not only of intellect or skills, but also of the formation of emotions, affections, and intuitions. It is necessary to educate cognitive and behavioral aspects, but also other dimensions, to address other contents that the school cannot include and to reframe those it neglects, and to do so throughout the life cycle. Too much is already asked of schools and it is time to discuss, specify, and direct that other education always ongoing in other institutions. Continuing with the health example, it is advisable to engage in dialogue about the education provided to children by the media regarding the consumption of so-called junk food or about the role of the family in early childhood regarding eating habits. Thus, it is no longer just about forming human resources or human capital, but full individuals, in all areas of human life.

Diagnoses of the situation in this area are already numerous, as well as the search for alternatives: social education, an attempt to take the school beyond its current walls; educational perspectives for well-being; the approach between the perspective of human development and education; the consideration of the socio-emotional dimension as both a perspective and an object of education; as well

as the relevance of including issues such as gender, disability, diversity, sustainability, and others, have forced the broadening of education's horizons.

If the above are the tasks, what are the perspectives that should guide their realization? We propose the following.

Guiding ideas for the transformation of education

The transformation of education in Sonora requires profound changes that include both the modification of the very idea of education and the clarification of its purpose, the places where it takes place, its contents, what constitutes the core of its activity, and its actors and authors.

A. Education in and for human development and well-being. Education's main purpose is not the formation of human resources for the productive apparatus but the integral formation of the members of society, in and for human development and personal and community well-being. Thus, the goodness of education should not be evaluated solely or mainly by the quality of performance in tests applied to teachers and students or by the achievement of competency indicators, but by its contribution to human development and individual and social well-being.

B. Education in and for the whole of society. For training for and in human development and well-being, education in school is indispensable, although to achieve it, it must also take place in the spaces of all institutions and social organizations, mainly in the home, in the media, in digital social networks, in the community, and in health and work centers, among others. It is about conducting education in a broad sense, in all contexts where people live and develop. Therefore, it is necessary that in these environments and contexts, the aforementioned purpose is considered, and the necessary and sufficient conditions, resources, and training tools are available.

C. Training contents with instrumental and social value. Training contents, in addition to instrumental ones necessary to meet the needs of economic production, should be those to achieve human development and well-being. It is necessary to train in knowledge contents, both scientific and common sense, actions and behaviors, as well

as feelings and emotions, to understand and give meaning to individual and social life and achieve strong and supportive social and individual identities. General scientific contents about nature and society, yes, but also those derived from ancestral and non-Western knowledge and feelings. Contents focused on promoting well-being, in fields such as health education, inclusion and equity, sustainability, democracy, citizenship and peace, leisure, and entertainment. These should be incorporated into the school curriculum and developed through social education.

D. Education based on experience and formative relationships of trust and good treatment. Training and being trained in and for human development and well-being requires certain practices and modes of relationship between subjects. Practices are those of teaching and learning, based on conventional pedagogies and didactics; also, and centrally, formative experiences based on the activities of the trained and the trainers, activities linked to systematic reflections and the refinement of emotions and feelings, carried out personally and through collective dialogues, to bring about changes in individual and social subjects around:

- particular and community life projects, linked to the meaning of individual and social life,

- different ways of signifying society, nature, and one's own and others' spirit,

- the construction of solid and supportive individual, community, and social identities.

On the other hand, the relationships and interactions between educational subjects cannot be vertical and authoritarian between trainer and trainee and among education agents: administrators, officials, students, teachers, organization leaders, parents. Social relationships and interactions must be horizontal and based on cordiality, trust, and good treatment.

E. Participatory education of all authors and actors involved in training. Education in and for human development and well-being in school takes place according to the characteristics and practices of teachers, administrators, and officials, all of them focused both on teaching, learning, reporting, and performance indicators and, above all, on the formative experiences of themselves

and those around them. This entails constant training of these actors to act as agents in practice, through systematic reflection and the refinement of feelings and daily dialogue with peers, and through the confrontation and complementation between scientific and traditional knowledge, intuitive action, ethical commitment, and emotional and sentimental impulse. It also necessarily requires the informed and committed involvement of other educational agents, in their respective formative environments and with their participation in other spaces and with other educators: mothers and fathers, leaders and members of health institutions and media organizations, social digital networks, workplaces, sports, leisure, and entertainment centers.

A relevant clarification: "in and for" has been repeatedly used. This is to indicate that the intended transformations must operate from and not be left for the future. For example, if it is a health promotion program, changes should not wait until the end of the program to begin: they must start even when the program is being developed, continue during its implementation, and go beyond its completion; carry out the program in health conditions, promote the health of participants at the moment of its application, and prepare them to continue their healthy practices and relationships in the future.

These guiding ideas will orient not only the future formulation of policies, plans, and programs but even the situation diagnosis of education in the state of Sonora.

Conclusions

In education, the challenges for the new government and social representation in Sonora imply: dialogue and reaching conclusions for a state educational project, not only school-based but also social, based on a state project for Sonora; expanding the coverage of the school system, from early childhood to higher education, and doing so with a solid perspective of justice and social inclusion; discussing the relevance and advisability of maintaining, modifying, or discarding the current criterion of quality as a central element of school educational processes; strengthening strategies not only to improve student performance and the continuous and permanent learning of teachers but also the integral training of students, teachers, and officials

for and in human development and well-being; impacting and improving, with criteria of justice and social inclusion, the infrastructure and equipment of schools and the conditions and resources of other social institutions for the proper performance of their educational task; fostering a link between education and politics in favor of training in and for human development and well-being and not in favor of the demands or interests of unions, political parties, or other economic power groups; improving the link between education and society by increasing social participation in schools and developing other educational forms in society to address problems, as far as education is concerned, of democracy, security, health, and sustainability. It is also imperative to face the challenge posed by educational digitalization, which will undoubtedly be the arena where the future of society will be decided.

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