Social innovation from the design workshop: implications in the urban and social transformation of vulnerable communities | Innovación social desde el taller de diseño: implicaciones en la transformación urbana y social de comunidades vulnerables

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Abstract

This document describes the experience of social innovation implemented in the design workshop of the postgraduate Master in Design and Industrial Innovation at the University Center of Art, Architecture and Design of the University of Guadalajara.

The multidisciplinary approach of the workshop, conformed by different professional profiles of the students participating in the school calendar 2023B and 2024A of the current generation, implies the use of social innovation methods that are an essential part of the postgraduate curriculum, which facilitate the performance of the different actions corresponding to the different tools that compose or structure the work process that innovation methods require.

The document describes two case studies implemented to address social issues identified within an urban polygon near the University Center of Art, Architecture and Design of the University of Guadalajara and three neighborhoods or sub-districts belonging to the municipality of Guadalajara, Jalisco.

In its paragraphs, the progress of the process of approaching and generating value proposals from the perspective of social innovation has been validated, in the first instance, by end users and authorities of the municipality of Guadalajara.

The final part includes a reflection on the contribution that social innovation has in the training of students and in the understanding of social problems that represent a starting point for the urban and social transformation of our territory.

Keywords: Industrial design, social innovation, design workshop, darticipatory design, Design Education

Introduction:

Social problems as a starting point

The characterization of the social problems prevailing in today's vulnerable urban territories requires a necessary classification of things that make it possible to better understand and address them. In this regard and according to the Economic Commission for Latin America and the Caribbean (ECLAC, 1989), a social problem is "a condition that affects a significantly considerable number of people, in a manner considered inconvenient and which it is believed should be corrected through collective social action". Underlying this definition is a set of dimensions that make it possible to visualize an important number of variables involved in its problematic condition. In the first of these, it is established at the outset that a specific group of individuals is affected, "a significantly considerable number of people" (ECLAC, 1989, p. 2), and not someone in particular.

The second dimension addresses the circumstance that represents "a discrepancy between a state of desirability" (ECLAC, 1989, p. 3) and what we socially recognize as standardized. The third dimension focuses on "the belief that a solution is possible through collective action" (ECLAC, 1989, p. 3), that is, through the joint participation of several of the elements involved, directly and indirectly in that condition.

According to the international organization ECLAC (1989), social problems are determined by the spatio-temporal circumstances in which they manifest themselves. Thus, what is standardized may not necessarily be the best. Even so, the establishment of a problem seems to be due to a state of discrepancy that is generally due to the lack of operational capacity of some of the variables with the greatest weight in decision-making.

When using this precept in urban space, approached from the design workshop, it is necessary to consider the volatility of the variables that compose it. In an urban area with a certain level of population growth, the space corresponding to a given time and place will hardly be able to satisfy the needs and demands of larger and more diverse social groups.

ECLAC continues:

As Oszlak and O'Donnel state, "no society possesses either the capacity or the resources to meet all the needs and demands of its members… only some are problematized, in the sense that certain classes, class fractions, organizations, groups or even strategically placed individuals believe that it can and should be done" (ECLAC, 1989, p. 4).

Social problems are therefore circumstances that can become social issues when "a sequence occurs that is characterized by redefining the situation, focusing discontent, capturing public attention and forming pressure groups" (ECLAC, 1989, p. 4). The above could be considered as an additional dimension, in which it is possible to place in the collective imaginary the need to be addressed and resolved.

The study area and its social problems

For the development of this work project, the team of teachers and students involved decided to identify a geographical area in the city based on three relevant aspects: the first refers to the social vulnerability of its population, that is, the susceptibility to suffer some kind of damage, both in the physical and emotional dimension, due to some external factor. The second refers to the necessary proximity to the educational center where the project is located to facilitate the access of the students involved to the territory. The third aspect corresponds to the conditions of the environment to generate development opportunities.

Consequently, the decision was made to establish a study polygon composed of three sub-districts with backgrounds related to social vulnerability: Lomas del Paraíso, Zoológico and Huentitán El Bajo, all belonging to Zone 03 Huentitán of the

Metropolitan Area of Guadalajara, Jalisco (In-Ciudades, 2020). The three neighborhoods are located around the University Center of Art, Architecture and Design of the University of Guadalajara, headquarters of the Master's Degree in Industrial Design and Innovation.

In the following image (Figure 1) obtained by the Institute for Research and Studies on Cities (In-Ciudades) of the University of Guadalajara (2020) through the INEGI platform (2020), the Partial Urban Development Plan of Jalisco (2020) and with data from CONAPO (2020), the territorial dimension of the study area and the geographic areas or AGEBS (Basic Urban Geostatistical Area of Mexico) that refer to levels of marginalization can be seen. The latter is understood as "the lack of social opportunities and the absence of capacities to acquire or generate them, as well as deprivation and inaccessibility to goods and services that are fundamental for well-being" (IIEG, 2021). The image highlights the 10 AGEBS with medium level of marginalization identified by the Population and Housing Census (2020) and published by INEGI in 2020, who also give it a very low level according to its methodology (IIEG, 2021), which is interpreted for this document as an area of opportunity for the development of social innovation projects within the design workshop.

In relation to the social problems or issues with greater relevance in the polygon that delimits the study area, the work team prepared a first list that highlights those with greater public recognition by the media, government offices and research groups of local universities: theft from private vehicles and family violence (Transparencia Guadalajara, 2017), areas of pollution, subsidence and flooding (In-Ciudades, 2020), redensification, gender equality lag (INEGI, 2022), school dropouts at secondary level, vandalized and underutilized green spaces, as well as insecurity in general.

Methodology

The theoretical basis that supports the inclusion of a design thinking method in this case study, lies in the need to observe in detail the user's needs and generate value from different perspectives than what usually occurs in social projects in which public and civil organizations are involved in some way.

The aim is not only to show evidence that reveals the attributes of the method, but also to generate knowledge on the development of projects aimed at meeting the tacit or latent needs of vulnerable social groups (Micheli et al., 2019) from the perspective of social innovation.
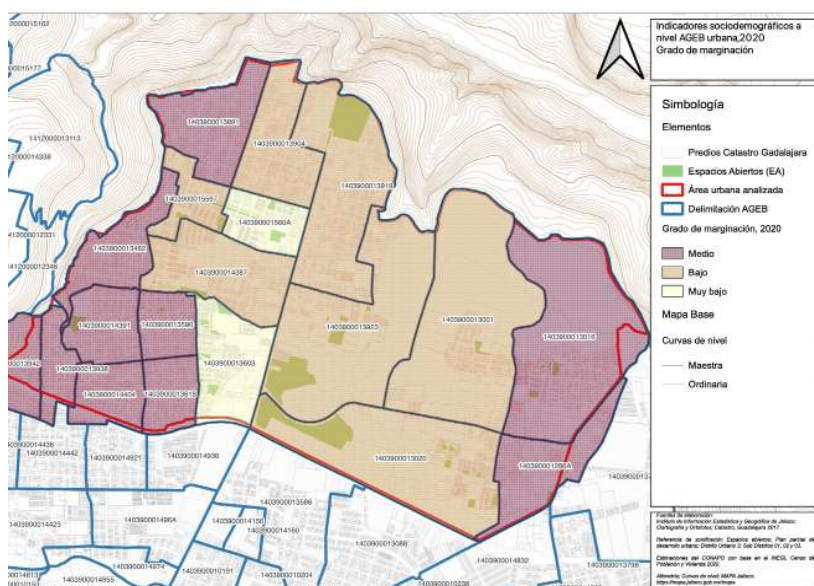

Figure 1. Socio-demographic indicators at the urban AGEB level in 2020. Source: In-Cities, 2023.

A complementary aspect that argues for the use of the design thinking method refers to the collaborative work process necessary to involve students from different professional profiles in the creation of value propositions that address specific problems. In this scenario of transversal collaboration, the method provides didactic tools such as project-based or problem-based learning to drive the necessary interaction among participants, as well as the required iteration of the creative processes resulting from the systematic validation by the user in the different stages of the method.

From the teaching point of view, the development of the project assumes the discussion on design thinking; that which reviews the social implications that the method has and the feasibility scenario that in terms of market opportunity the project provides for the students involved, who through the experience of carrying out its management and implementation, strengthen the significant learning in design and innovation, fundamental aspects of professional training of the postgraduate program that summons them.

Design thinking is therefore recognized as "an alternative approach to strictly analytical approaches, which are considered ineffective in contexts characterized by complexity and dynamism" (Micheli et al., p. 22, 2019) for the resolution of common problems that affect virtually any scenario or organization in the social realm.

The use of the design thinking method in projects such as the one referred to in this article, strengthens the theoretical and practical process in relatively short periods of time, which allows participants to develop rapid resolution skills for future work scenarios, characterized by dynamism. Linked to the above, the method positions the idea among those involved in it, about the practical relevance of working under specific procedures that facilitate the understanding of the variables that characterize common problems and the way in which they are translated into opportunities.

The methodology applied in action

For the development of the design and social innovation project, a design thinking method was implemented (Figure 2) containing 5 strategic phases: Immersion, Challenge Statement, Value Construction, Prototyping and Production Management. Each of the phases includes a set of tools that allow the understanding of the problem, its variables, the resulting social implications, and of course, the value propositions materialized in prototypes.

With regard to the breakdown of the method, particularly during the first strategic phase (Immersion), an approach process was initiated that required the analysis of the documented information that currently existed regarding the problems or social issues of the population currently living in the study area. During this activity, it was made clear the intention of analyzing each of them and submitting them to viability and feasibility criteria, prior to the selection of those with the greatest possibility of materialization. The collection, evaluation, selection and synthesis of the main problems identified (Peña, 2022, p.4) by the working groups, including undergraduate and graduate professors, made it possible to establish an evaluation process in which feasibility was the most relevant criterion for the selection of the case studies in the design workshop.

As a result of the above, 4 themes linked to specific problems were identified, which led to the integration of the same number of work teams. However, for this article we only include information on 2 projects, which presented a better feasibility scenario supported by the existence of municipal and federal government programs (Pronaces, 2024) linked to the themes, which translates into a scenario with greater certainty.

The table 1 describes in detail the problems identified and the description of the project or work challenge:
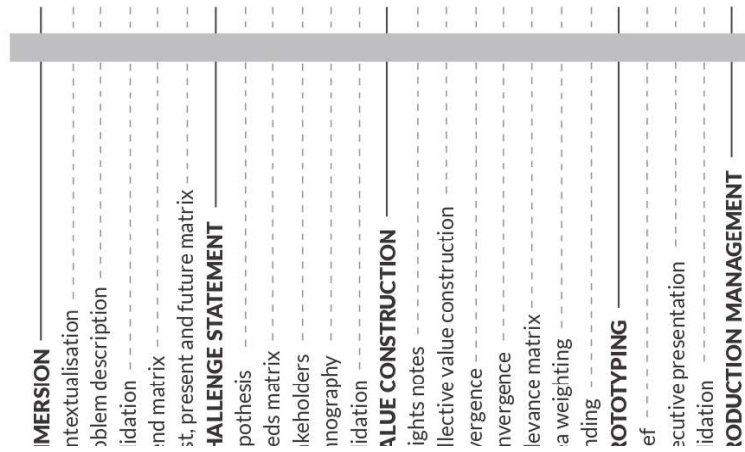
Figure 2. Breakdown of tools used in the social innovation method.
Source: IDEO, 2022.

Once the above was defined, the second phase was implemented: Challenges statement. In this stage, each work team proceeded to establish hypotheses, analyze user needs, identify stakeholders, design and analyze interviews, as well as the corresponding validation of the information obtained in this work process.

Results

Below is a description of the results at the end of January 2024 of the projects under development within the Master's Degree in Industrial Design and Innovation (MDII) corresponding to the school calendars 2023B and 2024A (in progress) that show, from the perspective of the writer of this article, the contribution that social innovation has in the professional training of the participants and the benefits that this represents for the urban and social transformation of vulnerable communities.

Project 1: Rehabilitation of the Lomas del Paraíso II Neighborhood Center for the social strengthening of women heads of household living in the neighborhood, whose main problems are related to school dropout, low income, violence and lack of opportunities for personal development. Participating students: Robles Vigil Cristina and Chávez López Eva Esperanza Margarita.

This community space, which depends on the Integral Family Development (DIF Jalisco), is located on Joaquín Mucel Street No. 664, in the Lomas de Paraíso II district, as shown in the following image (Figure 3).

This neighborhood center is identified as a meeting point for the population living in the surrounding area. It is adjacent to a church, a childcare center and a preschool, as well as a number of established and informal commercial establishments.

Table 1. Issues at the center and work project

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PROBLEM	According to INEGI (2022), the percentage of women living in the area is 51.24%, of which, a significant portion is lagging behind in terms of gender equality and empowerment, particularly women heads of household, i.e., the most senior member, either because of their economic support, age or because they are the decision-makers in the family (INEGI, 2020).	According to information from the Ministry of Development and Social Integration of the State of Jalisco (2018). t is estimated that in Jalisco and its metropolitan area (AMG) there is a high school dropout rate corresponding to 4.38% of the student population, which results in 19,091 students who are generally involved in informality.
PROJECT	Rehabilitation of the Lomas del Paraíso neighborhood center for the social strengthening of women heads of household living in the neighborhood.	Strengthening of the educational infrastructure and the immediate urban environment of Technical High School No. 78.
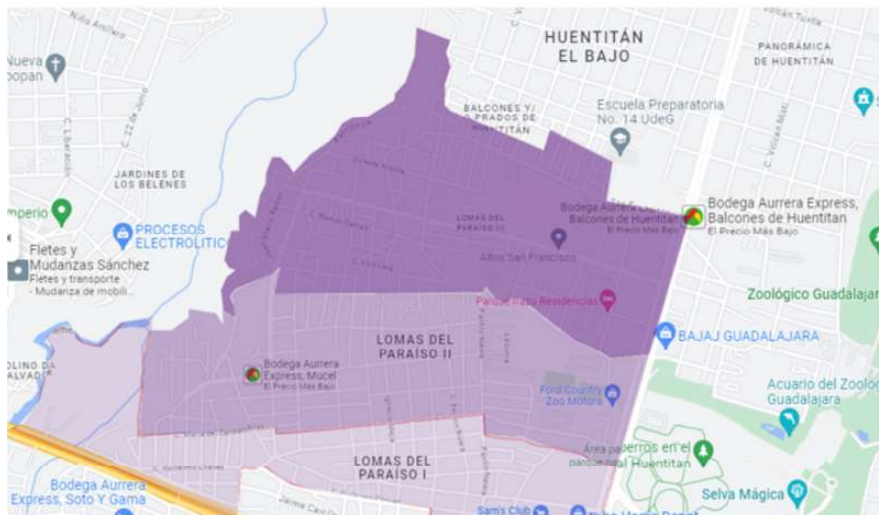
Figure 3. Demarcation of the Lomas del Paraíso neighborhood. Source: Google maps, 2023.

According to the information obtained in the Immersion stage of the social innovation method, the neighborhood center was recently physically reconditioned by municipal authorities of the city of Guadalajara, which has allowed the organization of various activities, both outside and inside, but only during the morning hours. However, it was also evident that it lacks a systematic offer of activities or social programs that have a significant impact on the vulnerable population of the neighborhood.

The resulting social innovation project focuses its value proposition on the sector of women heads of household living in the neighborhood, who according to data from the Center for Research and Gender Studies (CIEG) at the city of Guadalajara (2023), represent 38.9% of the census households under their care, who also face problems related to some type of violence, as well as significant wage inequality.

The value proposal

The breakdown of actions aimed at consolidating the value proposal for the Lomas del Paraíso II neighborhood center groups 4 conceptual proposals, whose objective is to contribute significantly to the transformation of the environment and the target social sector through the following projects:

Information Module: This space located inside the neighborhood center allows women heads of household and the adult population in general, to carry out online procedures for the management of support and services of any kind, printing of documents and their safekeeping in external devices. Its hours of operation are flexible and can be adapted to the needs of the main user. It is free of charge and you only pay for the required printouts. Its financing is obtained with support from the municipal government of Guadalajara and third parties (companies).

Computer lab: In this laboratory we offer school leveling courses for the social sector of mothers who are heads of household as a priority. It includes complementary spaces that enable the development of tasks or exercises to strengthen their education. The proposal includes the provision of computer equipment and an agenda of workshops that seek to increase the skills and competencies of the target social sector, as a priority.

Playroom: This service space, designed to provide care for children, youth and adolescents in areas of complementary education, provides a value of functionality relevant to the social sector of women heads of household, who usually assume the challenge of attending to them during working hours or without any support for it.

The playroom is located in the same facilities of the neighborhood center and within sight of the other areas that make up the overall value proposition, which

enables the attendance and participation of women heads of household during the activities offered for their personal development. The hours of attention and service cover morning and afternoon shifts and its operation involves social service personnel and/or professional internships from nearby schools and education centers (High School 14 and Centro Universitario de Arte, Arquitectura y Diseño).

Auditorium: The purpose of this physical space is to host a series of activities that promote culture, exchange and community development. It operates through a monthly agenda that is published in social networks and printed promotional materials, including activities organized by other municipal agencies and civil organizations.

The following picture (Figure 4) shows a comparison between the current state of the neighborhood center and some of the areas that make up the value proposition, particularly the rehabilitation of the auditorium, the playroom, the information module and the computer lab.

The plan describes the territorial area (Figure 5) and shows the distribution of these elements in relation to the rest that it currently contains.

rent status of the neighborhood center.

cept proposal.

Figure 4. Current images of the neighborhood center and social innovation prototypes for its interior spaces. Source: MDII, 2023.
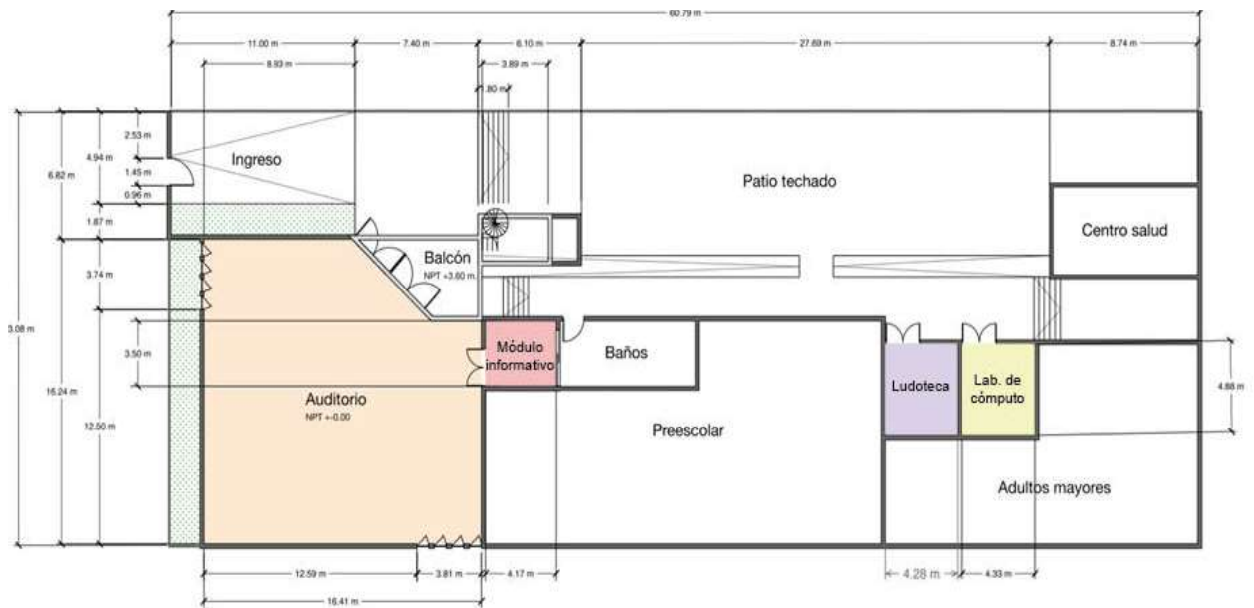
Figure 5. Plan of the Lomas del Paraíso II Neighborhood Center highlighting the 4 areas that will be rehabilitated as part of the social innovation project. Source: MDII, 2023.

The progress of the project keeps the operational strategy of the neighborhood center and the support of third parties in process. However, the responsible teams already have verbal agreements with the University Center of Art, Architecture and Design of the University of Guadalajara and with the Special Projects Secretariat of the Guadalajara City Council (2021-2024), who are interested in promoting the project, particularly the municipal government office, since there are economic resources that can be used for educational and social initiatives.

In this regard, during the presentation of the projects at the City Council meeting held on March 22, 2024 at the Guadalajara City Hall, aldermen and representatives of municipal and state educational agencies expressed their interest in incorporating the projects in the follow-up agenda of the education commission, a situation that contributes to the follow-up and materialization of the projects in the medium term.

Project 2: Strengthening of the educational infrastructure and the immediate urban environment of Junior High School No. 78: Gilberto Ortega Barbizani and Miguel Angel López Méndez.

The following picture (Figure 6) shows the current territory (4,484 mts2) of Junior High School No. 78, which has an educational infrastructure to serve approximately 1,500 students living in the surrounding area. It is located in the Huentitán El Alto subdistrict of the city of Guadalajara, Jalisco. The urban territory that contains it is characterized by social and urban vulnerability, which in recent years has been the subject of litigation arising from conflicts with construction companies seeking to build luxury housing complexes in the area in the face of opposition from its inhabitants.

In addition, the picture shows the route that must be taken by the students of the school, who need to cross to go home, since they live on the other side of Periferico Avenue. The visible characteristics of this territorial space make it possible to imagine the risks

Figure 6. Map of the territory containing Junior High School No. 78. Source: Google Earth, 2024.
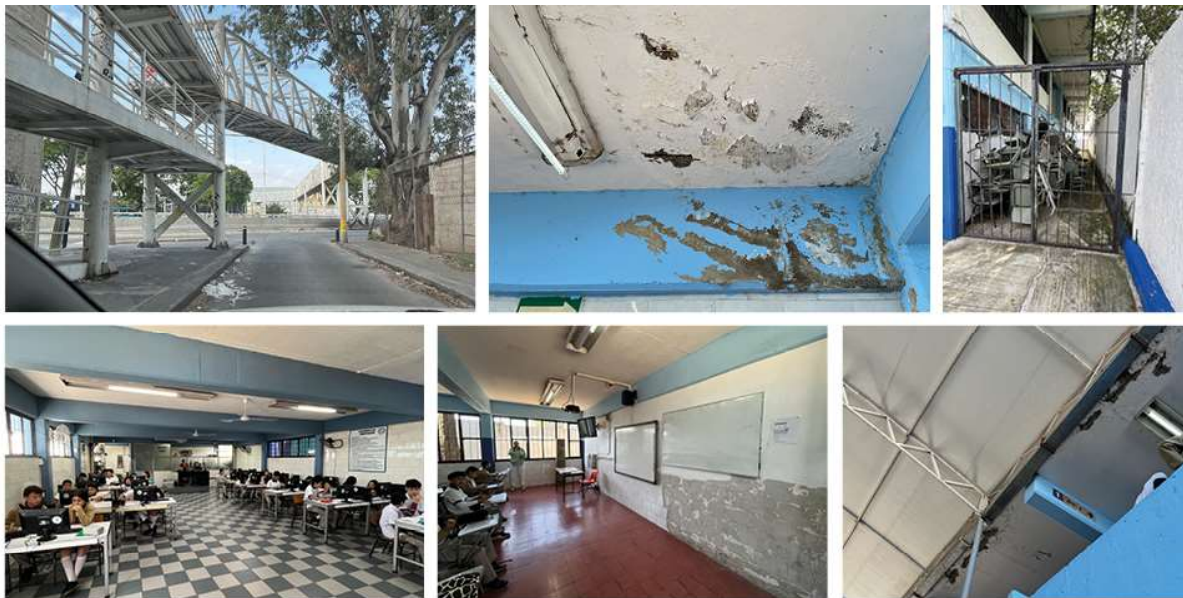
Figure 7. Pictures of the campus infrastructure with details of classrooms and outdoor spaces.

that this can generate (assaults on public roads, accidents, rapes) both for students and for teachers and parents involved in some way with the secondary school.

In this order of ideas, during the interviews with the school's directors, illegal acts reported by the authorities themselves were documented, especially during the departure times of both shifts. This situation led to the need to request support from the municipal police during the hours of greatest risk.

It was also mentioned that among the main problems that beset both the outside of the school and the people involved or families, drug trafficking and the presence of dysfunctional families are the main social issues that affect the performance of students. Evidence of this last statement shared by school authorities is the increased presence of grandparents at parents' meetings, who express on a daily basis their vulnerability in the face of having to assume responsibility for the care and attention of young people who are neglected by their parents.

An important fact derived from the interviews with students and school staff is the negative opinion regarding the internal and external infrastructure of the school (Figure 7), as well as the school's teaching staff, which results in parents or guardians seeking safer places where classes are regular, that is, without deficiencies in the

teaching staff to cover all the subjects that make up the secondary level curriculum and with adequate physical spaces for the education of students.

It is necessary to clarify that the conditions of the school are not chaotic, however, they do show important areas of opportunity that generally must be solved by the directors themselves, since, according to them, they are the ones who must implement strategies to obtain support and resources to solve the needs of the school and its operation.

Regarding high school dropouts, school administrators state that the economic situation, divorces and the conflictive environment are the main factors that end up having an impact on school dropouts.

The value proposal

The development of the instruments contained in the first stages of the social innovation method generated a set of Insights that gave shape to a comprehensive value proposition closely related to the learning and opportunities of secondary education in Mexico (ECLAC, 2021) that translate into the following projects:

Visual identity design: One of the problems perceived by the student and faculty population made clear the need to promote a strategy to strengthen the identity of students with the institution

and its main components or operational structure (teachers, facilities, administrative staff). The aforementioned points were the basis for the development of a visual identity based on four scenarios of strategic actions (observe and explore, idea and imagine, create community, develop) that are proposed to impact not only on the distribution of areas of the campus and its corresponding signage, but also on the operation of actions that contribute to promote meaningful learning of a student population characterized by vulnerable conditions.

The visual elements that structure the identity proposal for the campus (Figure 8) and its suggested operational organization consider four didactic scenarios (observe and explore, create community, devise and imagine, and develop) that could have a relevant impact on the current condition of the secondary school.

The strategic approach lies in implementing adjustments and actions of the didactic order in some of the subjects of the educational model based on the semantic interpretation suggested by each visual component or didactic scenario. As an example of the aforementioned, we can point out the case of computer subjects, which would have to be redesigned in their strategic planning to include didactic instruments such as project-based learning (PBL), which would not only have an impact on students' education, but also on the creation of culture within the school.

Model classroom: During the Insights identification stage, the need to create prototypes of classrooms that, due to their design and arrangement of internal elements (furniture), promote collaborative dynamics between students and teachers, i.e., that break with traditional schemes and adapt to the new technological reality of the new generation of students, became evident.

The social innovation proposal allows high school students to access technological services to interact with the formative contents of their subjects, to save work

projects, to interact collaboratively with other classmates and to participate in online sessions.

Computer classroom: In the same vein, the computer area currently used in the school shows a set of needs in aspects such as: technological equipment, software, internet and facilities. The computer classroom prototype seeks to create value from the provision of a different physical space that contains at least 30 updated computer equipment, loaded with software whose use generates skills and competencies among its users, as well as projection equipment and quality internet that facilitate their use for the development of projects and tasks of subjects included in the academic program of the school. The proposal even considers the use and availability of equipment in schedules that do not necessarily correspond to computer subjects, that is, it seeks the appropriation of the place by the students.

Figure 8. Elements of visual identity for the educational campus, recognized as didactic scenarios. Source: MDII, 2023.

Library: The redesign of this physical space within the school aims to create the necessary conditions to generate a learning environment capable of motivating students to acquire the habit of reading, exchanging opinions and the use of technology for the development of tasks.

General facilities: The last component of the value proposition for the high school

is the rehabilitation of the playground and green spaces inside the school. The integral approach to the rehabilitation of the school and its immediate urban environment is completed with this type of adaptation, which constitutes an incremental improvement from the perspective of innovation.

The following set of prototypes (Figure 9) highlights the main physical areas located inside the campus that structure the value proposition described in previous paragraphs. In this regard, it is important to note that both the social innovation project and the work team responsible for it recognize the relevance of the urban environment and educational infrastructure in the behavior and performance (Injuve Barcelona, 2007) of the students at the school. Therefore, the 5 proposals seek to influence the physical spaces and external places that are directly and indirectly involved in the educational formation of the young people who study at the high school.

In connection with the above, during the development of the prototypes, the need to establish a linkage program between the secondary school and relevant actors or organizations present in the urban environment was raised with school authorities, with whom a set of actions that could represent value for the interested parties could be agreed upon.

The distribution of areas in the territory of the school included in the value proposition of the social innovation project (Figure 10), is closely related to the work approaches that the visual identity establishes (observe and explore, create community, devise and imagine, develop) as a mega didactic strategy, which as a whole, seeks to transcend in a positive way in the education of students.

Library and computer lab.

Exhibition centre, study module 'fogata', entrances to the school.

Bicycle module, main entrance and sports court.

Figure 9. Renderings of value propositions developed for the different physical spaces of the campus that correspond to the incremental value proposition for the high school. Source: MDII, 2023.

Figure 10. General plan of Junior High School No. 78 containing the distribution of physical spaces related to the categories of visual identity. Source: MDII, 2023.

An additional component of the prototypes previously shown corresponds to a series of interventions in the urban environment immediately surrounding the school where students, parents, teachers and administrators interact on a daily basis. Particularly, the project considers as an argument for its development, latent needs expressed by users and validated through the review of municipal documents that highlight the following: absence of bus stops and a safe pedestrian route, interruption of bicycle lanes, lack of lighting, existence of a blind spot on the street that connects the school road with Periferico Avenue (just below the pedestrian bridge), exposure to industrial developments, abandoned properties and even free animals that pass through the area.

Consequently, the following picture (Figure 11) shows the progress in terms of urban transformation of the territory immediately surrounding the school. Module 1 concentrates its value on the rehabilitation of secondary streets that practically surround the school but respect the direction of the same. Its objective is to contribute to the safety of pedestrians and vehicles that travel towards Periferico Avenue through the street that connects with the high school. Module 2 proposes to generate a Zone 30 on Sitio de Puebla Street to limit the speed of vehicles and thus contribute to the recovery of the social value of the streets involved. Modules 3 and 4 focus on the adaptation of an external space to be used as a parking lot for teachers and the corresponding redesign of the entrance of
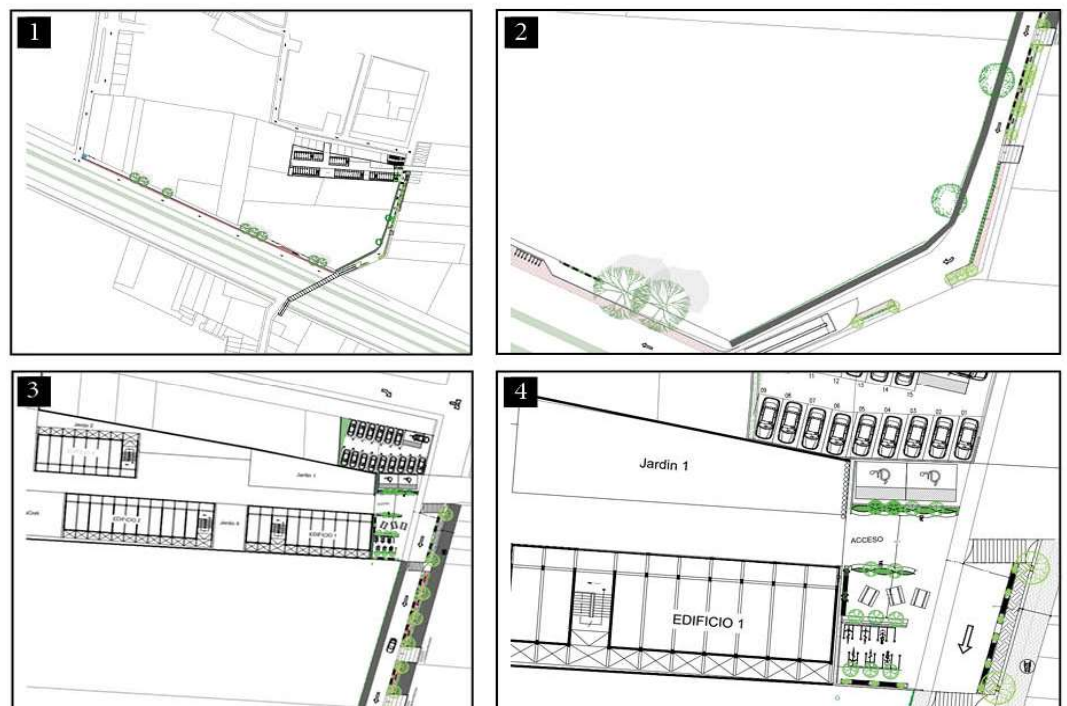

Figure 11. Progress of the proposals for the rehabilitation of the immediate surroundings of Junior High School No. 78: MDII, 2023.

the campus from an inclusive perspective that ensures the attention of any social group and improves the ability, opportunity and dignity of students with some type of disadvantage.

Conclusions

The design and social innovation workshops are spaces for co-creation in which a set of collaborative activities take place that allow the delivery of value to end users through the analysis of the variables that determine the state of things; the exchange of ideas; the collaborative and transversal work; the debate with third parties, and the transdisciplinary performance that makes possible the design and validation of prototypes aimed at satisfying social needs.

They are didactic instruments that generally show two scenarios: the first one corresponds to the materialization of prototypes of the social order that demand a systematic analysis of the information obtained in each of their stages or work process. The second scenario is characterized by highlighting the difficulty to work in teams, to analyze variables and to specifically describe social problems on the part of the participating students, who generally come from educational models with significant difficulties in terms of the development of skills and knowledge linked to a complex labor reality located below the average established by the Organization for Economic Cooperation and Development (OECD, 2017).

Based on this assumption, the workshop becomes a didactic instrument with enormous potential to generate significant learning among the students who participate in it. It is so because it also involves multidisciplinary teams that systematically collaborate in the development of value proposals based on the analysis of the nature of the initial problem, from different professional perspectives.

The configuration of the design and social innovation workshop of the Master's Degree in Design and Industrial Innovation of the University of Guadalajara, aims to

additionally consolidate two dimensions that generate functional value: the first one refers to the benefit of establishing social innovation as a guiding thread of other academic programs that seek to develop knowledge and skills to generate value for the end user. The second corresponds to the fact of increasing the emphasis on understanding the influence that the urban environment has on the individual who lives, grows and develops in a reality (Mexico) plagued by problems that end up stoning his future to a great extent. As an example of the above, and according to the Report on Social Mobility in Mexico 2019 of the Centro de Estudio Espinosa Yglesias (CEEY), 49% of the population born in low-income households, never leave that reality.

For the author of this paper, a differential aspect of the design and social innovation workshop refers to the promotion of new ways of thinking and learning, two key aspects if we consider the labor or entrepreneurial reality that students will have to face when they graduate from their university education.

While it is true that the results obtained so far in terms of significant learning of students involved in the development of social projects within the postgraduate workshop (MDII) have been empirically validated through a thorough review of their work processes and the results obtained, it still requires to be solved the way in which the academic program of the master's degree can extend and consolidate the value of design and social innovation among government organizations and civil associations involved in creating solutions to social problems that hardly visualize projects beyond their administrative periods of time.

At the end of the day, the design and social innovation workshop aims to be a dynamic and flexible repository of tools and instruments whose use and application will transcend beyond the student's professional training, beyond the university classroom and beyond the urban territory that contains us.

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Source of funding

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