Chapter 10 Huerto Universitario in house, online learning as a result of the pandemic

Capítulo 10 Huerto universitario en casa, como estrategia de aprendizaje a distancia en tiempos de pandemia

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Abstract

The Huertos Universitarios en Casa (HUCA) project integrated productive spaces into homes located in some of the eight regions of the State of Oaxaca. It was an institutional project of the Benito Juárez Autonomous University of Oaxaca 2021. It emanates from the initiative of the Academic Body of Design, Art and Criticism (CADAC), -UABJO- in collaboration with Renovando Horizontes A. C., In response to the published call On the official website of the university, 32 participants -university students and academics- were integrated, in the category of Social Servants, Professional Internships, Community Service or volunteering. The objective is to create a domestic vegetable garden for self-consumption in residential spaces. An agronomist trainer from the civil association led the efforts with a view to complying with Goal 12 of Global Social Responsibility: guarantee sustainable consumption and production modalities; doing more and better with less. The harvests were used for family self-consumption. In such a way that, the learning acquired strengthened the integral formation of the university students.

SARS-CoV-2, Online learning, Regions, Domestic, Global

Resumen

El proyecto Huertos Universitarios en Casa (HUCA) integró espacios productivos en viviendas ubicadas en algunas de las ocho regiones del estado de Oaxaca. Fue un proyecto institucional de la Universidad Autónoma Benito Juárez de Oaxaca 2021. Surge de la iniciativa del Cuerpo Académico de Diseño, Arte y Crítica (CADAC), -UABJO- en colaboración con Renovando Horizontes A. C., En respuesta a la convocatoria publicada en la página oficial de la universidad, se integraron 32 participantes -estudiantes y académicos universitarios-, en la categoría de Servidores Sociales, Prácticas Profesionales, Servicio Comunitario o voluntariado. El objetivo es crear un huerto doméstico para autoconsumo en espacios residenciales. Un ingeniero agrónomo capacitador de la asociación civil dirigió los esfuerzos con miras a cumplir con el Objetivo 12 de Responsabilidad Social Global: garantizar modalidades de consumo y producción sustentables; hacer más y mejor con menos. Las cosechas se destinaron al autoconsumo familiar. De tal manera que, los aprendizajes adquiridos fortalecieron la formación integral de los universitarios.

SARS-CoV-2, Aprendizaje en línea, Regiones, Doméstico, Global

1. Introduction

The Huertos Universitarios en Casa (HUCA) project emerged as a pedagogical initiative of the Academic Body of Design - Art and Criticism, attached to the Universidad Autónoma Benito Juárez de Oaxaca (UABJO). With the support of Renovando Horizontes A. C., a work scheme was designed in which different communities from the eight regions that make up the State of Oaxaca -Mexico- were involved. The institutional support made possible the incorporation of 32 university students, enrolled in the different schools and faculties of the UABJO. They were students from distant communities and some higher level academics. Therefore, for the development of the project, the natural and artificial characteristics of each place were considered. The federal policy "Stay at home" provided the conditions to undertake a learning process different from the traditional one. The challenge to overcome, therefore, was to involve distance learners in Social Responsibility projects.

To this end, logistical and pedagogical strategies were designed, from which the planning, organisation, management, coordination and control made it possible to consider that the garden represented a family business that favoured the solidarity economy. Based on the above, and through a collaboration agreement between the parties involved (Academic Body of Design, Art and Criticism - UABJO- and Renovando Horizontes A. C.) the intention of working together was consolidated. In such a way that, by means of a calendar of activities, knowledge related to: the elaboration of compost, types of sowing, sowing, general care and harvesting was periodically demonstrated.

The use of ICTs made the whole process feasible. The training, follow-up and consolidation of the learning of the university gardeners had an impact on the fulfilment of objective 12 of the Global Social Responsibility.

Unsustainable consumption produces pollution and degrades the environment. Therefore, it is necessary to act from the roots in order to opt for production systems that respect the environment and are sustainable. In addition, all people must choose sustainable lifestyles to contribute to caring for nature and slowing down climate change (United Nations, 2015).

Communication channels linked participating students and academics in real time. Digital platforms and social networks proved to be the means of support for the application of pedagogical tools.

It is important to highlight the investment aspect. In this respect, it is worth noting that each participant bore the costs incurred in the course of the project. Thus, as one of the consequences of the pandemic, the project could not be supported in terms of financial expenses. However, institutional support was focused on the donation of in-kind resources. The estimated costs were reflected as an almost null factor, as the project worked with reusable materials. The donation of objects such as: crates, seeds, compost, organic material, buckets, among others, simplified the difficulties that financing always represents. Thus, the most significant investment was concentrated on human resources and the digital media to be managed.

Certainly, the planning took into account the low investment of the project. Thus, the management of the knowledge exchanges was scheduled considering a six-month work plan. This period of time was organised on the basis of the germination and maturation process of the species planted. Using the inductive method, the university gardeners achieved successful sowings of carrots, radishes, tomatoes, lettuce, onions, parsley, aregula and pumpkin.

The initial goal of promoting the culture of cultivation was also achieved. The integration of the university students went beyond that. In some cases, one or more of the family members became involved in the planting process; they continue with their vegetable production to this day. In fact, several of these crops are currently part of the organic markets active in the central valleys of Oaxaca. Therefore, it can be affirmed that the integral formation of the university students involved acquired new values for their personal and professional development.

University Home Gardens Project (HUCA)

Learning related to the development of sustainability has been incorporated into the higher education process. To this end, specialised research groups have been set up. Likewise, the curricula have integrated subjects related to knowledge about strengthening the environment and correcting the deterioration of ecosystems.

The reforms that the federal government has requested with respect to the integral education of students, and the commitment that teachers must assume in this area, has promoted the implementation of programmes and projects with a focus on Social Responsibility in educational centres.

Therefore, full-time teachers are committed to promoting research proposals based on the Sustainable Development Goals, issued at the United Nations World Summit, held in 2015 (Corporate Social Responsibility and Sustainability, n.d.).

With the interest of getting involved in the fulfilment of the commitment that represents the application of educational social responsibility, and to enhance the knowledge of university students; the Academic Body of Design - Art and Criticism (CADAC) of the UABJO - to which the authors belong - configured a project that was related to productive housing. This meant converting homes into a state of self-production and self-consumption.

Social responsibility was understood as a collective exercise in which diverse actors, who possess related knowledge, must be involved. For this reason, one of the goals was to work on the project jointly with a group outside the institution of affiliation. It was for this reason that the Academic Body in Design, Art and Criticism, coinciding ideologically with the mission of Renovando Horizontes A.C., called for interaction.

... is a civil, non-profit organisation, with an interest in rescuing, reforesting and reactivating green areas, helping and training society in general to promote recycling, with a view to instilling the value of respect for the environment, making use of existing tools to improve the lives of everyone (Renovando Horizontes A. C., 2020).

The executive boards that were developed for the design of the Huertos Universitarios en Casa - HUCA- project, consolidated the idea of a joint exercise focused on the promotion of integral learning. Learning is integral when it guarantees in a balanced way the acquisition of knowledge, skills and attitudes for the development of thought, growth and personal self-affirmation, the establishment of relationships with others, with the environment, and their sense of life (Lafranceso, 2005). Therefore, the purpose was focused on the installation of vegetable gardens in the homes of participating students and teachers.

Distance education exposed its own complexities. So the remote education policy, implemented in the year 2021 due to pandemic effects; represented by the Secretary of Public Education, Delfina Gómez Álvarez, made it impossible to install a university garden in the UABJO facilities. So the organisations involved designed a work plan based on which digital resources would guarantee the integral learning of the gardeners. Taking advantage of the Google Meet platform, 32 university students were trained - see image 1 - located in the eight regions of the state of Oaxaca. In this way, integral learning was fostered, and skills and aptitudes based on multiple intelligences were exercised. Personal and group values were also highlighted, which favoured the development of the project. In such a way that: The developmental teaching-learning process makes possible in the subject the active and creative appropriation of culture, develops the constant self-improvement of their autonomy and self-determination in close relation to the processes of socialisation (Reinoso, 2002).

Method and strategy

The inductive methodology was applied during the theoretical-practical exercise of the university gardens. For this reason, a work schedule was determined, comprising six months of on-site work. Two stages were defined: composting (one month) and planting (five months, including the care and transplanting of the cultivated species). The evaluation process was applied through three instruments: the planting log, checklists and a portfolio of evidence. It was a set of estimates that reflected the knowledge acquired during the process, considering at all times that:

Developmental learning is that which guarantees in the individual the active and creative appropriation of culture, fostering the development of his or her constant self-improvement, autonomy and self-determination, in intimate connection with the necessary processes of socialisation, commitment and social responsibility (Castellanos, 2002).

The resources required were attached to the reuse of domestic waste objects and by donation. This represented a garden installation with simplified investments. In fact, objects such as: buckets, cans, pots and pans, pet bottles and plastic derivatives, tetrapak cartons, tyres, crates and tubs, among others, were used.

The means chosen were centred on the identification of domestic spaces of medium or relative use. Such as: patios, backyards, roof terraces, terraces, gardens, flower boxes, sheds, and areas to hang out. The specific characteristics of these areas had to be selected prioritising water supply, lighting and ventilation. Mainly because of the implications of these three elements for planting.

The adverse circumstances generated by the forced confinement caused by the SARS-CoV-2 virus were interpreted as ample areas of opportunity. As were the digital resources and social networks, which served as a support for linking participants. In congruence with the work schedule - June to December 2021, the training sessions were scheduled on Wednesdays of each week, from 10:00 to 12:00 hrs. The trainer, Agronomist Armando Sánchez Echeverría, together with his work team, showed through the Google meet and Facebook life platform the activities to be developed, thus guaranteeing the programmed goals.

The recognition of the living spaces by the university participants boosted their sense of belonging to their home. The effect of social cohesion was reproduced, since by identifying themselves as subjects with university values, they also recognised themselves as integral and integrating individuals, in such a way that:

...social cohesion is sought as a way to enhance the symbolic richness of multiculturalism, the promises of the information society and the dissemination of the democratic imaginary, in order to move towards systems capable of creating new mechanisms for social inclusion and citizen participation (United Nations, 2007).

The project exercise was concluded with significant results. Vegetable species were harvested for self-consumption. Some of the products exceeded the expected volumes and were integrated into an exchange product modality - in organic markets - for in-kind or monetary payment. The group has consolidated in the following months as they maintain permanent communication, and have been integrated into other trainings that have been offered through the State Government.

Teaching experiences during the project (HUCA)

The SARS-CoV-2 virus confinement restricted an initial proposal that had been designed as a field exercise. The aim was to store, sanitise and supply water to the toilets of five primary schools located in the central valleys of Oaxaca. The aim was to strengthen the technical learning of architecture students in advanced semesters. The project required a presence on site for at least three days, four hours a week. The means, resources and strategies involved direct interaction between the students - twenty-five, five per elementary school. However, the compulsory contingency made it impossible to access the school units, so the initial initiative was reconsidered.

Aware of the impossibility of implementing the water supply project, other possible actions were discussed with the members of Renovando Horizontes A.C., and the conclusion was reached to jointly design a project related to home gardens.

For this purpose, the technical and pedagogical limitations were evaluated. The opinions expressed seemed to focus, on the one hand, on the accessibility and reception quality of the network. On the other hand, and of greater concern, was the handling of the technical language of agronomy and its application in practical procedures. Thus, both were identified as areas of opportunity. To this end, solutions were identified that would favour the integral learning of the participants. Pedagogical strategies were proposed, such as the creation of didactic material through the formulation of instructional videos, with a duration of no more than three minutes.

Conceptual booklets, procedure manuals and a portfolio of evidence - see image 2 - were also developed and shared among the participating students and teachers through the WhatsApp group that was created specifically for the group's permanent communication.

The training required the installation of a pilot garden. For this purpose, an architectural space of relative use was identified in the home of one of the CADAC members. The rooftop area was selected for training purposes. The identification of domestic spaces for productive use is certainly not new. Juan Legarreta's worker's house (1932), in Mexico City, included a workshop among its components; thus, self-production is the result of a constant search for family sustenance.

The demonstration of the practices and techniques to be developed for the elaboration of compost, types of sowing, planting, general care and harvesting, were undertaken through the Google Meet platform. Every Wednesday, from 10:00 to 12:00 hrs, the university gardeners were able to follow the instructions of the Agronomist trainer in real time. It is worth noting that each exercise was successfully carried out with a great response from the participants. The resulting didactic evaluation was explained as a disinhibition event, which considerably benefited the pedagogical strategies applied. The personalised support between the trainer and the gardeners via Whatsapp reinforced the identity capacity in the group. The explicit evidence of learning in the evaluations, which showed the academic, personal and emotional growth of each participating university student. To a large extent, the comments focused on their capacity for resilience, creativity, group and family development.

Evaluation and results

With regard to the evaluation mechanisms, the two stages that make up the HUCA project were examined separately; however, being complementary, they are mutually dependent. Their development required continuous observation. For this reason, the following aspects were carefully observed: objectives and goals, physical, social and economic aspects, means and resources, skills and aptitudes, performance, creativity, previous knowledge, cost-benefit, management of procedures, time and resources, procedural rigour, among others.

It is worth mentioning that the evaluation instruments were carried out individually, as each garden had its own characteristics, i.e. each sowing had its own particular times and growth. The demonstration of results at the end of the evaluation could be shared among the gardeners involved. The digital media were of great support for the real-time presentation of the achievements and lessons learned.

Indeed, for the follow-up platform of the programmed activities, the following were created: an email (huertos.rs@gmail.com), WhatsApp group (RS Gardens) - see image 3 -, Drive (RS Gardens Portfolio), Google Meet depending on the email. The above was created with the intention of permanently possessing the evidence resulting from the executed process.

The University Home Gardens Project (HUCA), promoted by professors of the Academic Body Design - Art and Criticism (CADAC) of the UABJO, was presented to Dr. Eduardo Bautista Martínez (Rector of the university -2021-). The proposal was authorised for promotion to the UABJO university community. The participating students and professors (28 students -19 from the Faculty of Architecture- and four academics) were integrated.

With these first actions, the tasks proposed in the work calendar were started. The Q. A. Armando Sánchez Echeverría, member of the Asociación Renovando Horizontes, together with the representative of CADAC, Dr. Wendy M. Montes Ponce, agreed on the project that would aim to train students and professors in the formation of a culture of vegetable cultivation, strengthening the integral learning of the participating university community.

The agreement between the parties was consolidated through a joint collaboration agreement. It was a programme that considered a period of six months of joint work.

Thus, in the start-up stage, the participating university students received academic training based on the identification of the domestic space to be transformed. For this purpose, the following were considered: patios, backyards, terraces, terraces, corridors, balconies, utility rooms, among others. Each selected place was evaluated by the trainer, so that its characteristics were favourable in terms of ventilation, lighting and water supply. In addition, during the first week, the necessary means and resources for composting were requested.

The planting stage began in the fifth week with the use of the compost. Each participating university student freely selected the four species to be sown. The seeds were, as far as possible, native species due to their adaptability to the region. The first stage of sowing was carried out remotely, using the Google Meet platform, indicating the compatible species in a specific area of substrate.

Thus, it was convenient to plant species such as: pumpkins, tomatoes, coriander, parsley, carrots, radishes, onions and lettuce; given the lunar calendar, the growth and development of vegetables benefited. To this end, records of production, growth, quality and control of threats from common pests and diseases in plantations were kept. Photographic, film and audio evidence was also undertaken. This material was incorporated in due time and form in the means of documentary safekeeping (portfolio of evidence).

In accordance with the work schedule (see image 4), every Wednesday for six months from 10:00 to 12:00 hrs., the trainer and his team presented didactic materials through slides, tutorials, podcasts and images in digital format that strengthened the learning process of the installation and maintenance of a home garden.

At the end of the project stages, the fulfilment of the objectives, methods and achievements were evaluated internally and among the parties involved. The successful harvested products are related to leafy vegetables: lettuce, chard, coriander and parsley. -see picture 5-. The most vulnerable crops were: carrot, pumpkin, radish and tomato.

The following month, the results were presented to Rector Eduardo Bautista Martínez. He gave recognition to the professionals involved and requested the continuity of the project for the following year (2022), as part of the actions of the UABJO Responsibility Department.

The Huertos Universitarios en Casa project not only had institutional backing. The consolidation of joint work with the Asociación Civil Renovando Horizontes was achieved. The collaborative spirit that was achieved is considered relevant and necessary. The linking of architectural knowledge with the professional knowledge of agricultural chemists, as was the case, strengthens the learning domains of university students.

It should be noted that during the penultimate month of work, the academics of the Academic Body Design - Art and Criticism (CADAC) managed the opportunity to be trained in other programmes related to the installation of vegetable and medicinal gardens. Likewise, possibilities were identified for links with other professionals from: the Autonomous University of Tamaulipas, the Autonomous University of Guanajuato and the National Autonomous University of Mexico, who are undertaking projects on similar themes.

As a result of these contacts, the project was presented at national and international academic meetings, and an invitation was extended to continue the initiative of formulating a network of Huerta academics.

Conclusions and projectivity

In September, the Academic Body Design - Art and Criticism (CADAC) held the International Colloquium on Home Gardens, giving a voice to students and teachers who participated in the project undertaken in 2021, as well as integrating various Latin American academics who have developed similar projects in their schools.

Internally, the project will have a second implementation period this year. High School Number 7, of the Universidad Autónoma Benito Juárez de Oaxaca (UABJO), requested the signing of a Collaboration Agreement with the founders of the University Gardens at Home project, to integrate it as part of its integral learning activities into its curriculum. The agreement was signed on Monday 13 June. The project now has an on-site modality in the academic unit and is called LAYU Organic School Gardens.

The project's projectivity for the original project is creating the conditions to give continuity to the learning of the students and academics who participated, as the communication and contributions for the development of the culture of cultivation has not stopped almost a year after it was set up. Literature, tutorials and podcasts continue to be exchanged, as well as invitations to forums and academic and specialised meetings on the culture of planting and caring for vegetable gardens.

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