V Congreso en Docencia en Educación Superior Codes y I Congreso Latinoamericano y del Caribe de Innovación en Investigación en Educación Superior LatinsoTl La Serena, Chile. 8,9 y 10 de noviembre del 2023

DOI: https://doi.org/10.15443/codes2059

The Learning Communities as a methodology for the development of the Linkage Program with the Environment "Food Recovery" of a Chilean Dietetics Nutrition Career

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Abstract. The Nutrition and Dietetics Career of a Chilean University within the framework of the subject "Innovation in the Food Industry" implements the Environmental Linkage Program (VcM) "Food Recovery". In the first semester of 2022, the professors of the career used the Learning Communities model to link the Food Innovation and Sustainability Laboratory in the subject and address with the students the challenge of using surplus food for the creation of a prototype. food. The presentation of the food prototypes was carried out at the I Food Innovation Fair held at the Lo Valledor Wholesale Market. The VcM project mediated by the Learning Communities created a space for discussion among teachers, generating collaborative work networks and planning the activities to be carried out during the semester, likewise put this educational innovation into practice in the teaching process of the students.
Keywords: learning communities, environmental linkage program, nutrition and dietetics

1 Introduction

The Graduation Profile of the Nutrition and Dietetics Career (CNYD) of the Bernardo O'Higgins University (UBO) declares the field of "Entrepreneurship in Food Innovation". The subject "Innovation in the Food Industry" pays tribute to this area and is part of the Environmental Linkage Program (VcM) "Food Recovery". This VcM program has the objective of promoting the reduction of food losses and waste (FLW) in the Lo Valledor Wholesale Market (MMLV) and the Lo Valledor Food Bank Foundation (FBALV). In the UBO Educational Model, VcM programs seek bidirectional, systematic and mutually beneficial interaction with the productive and social environment (UBO, 2021).

2 Theoretical Framework

In Chile, the concept of VvM is defined as the set of links established with the disciplinary, artistic, technological, productive or professional environment, in order to improve the performance of institutional functions and facilitate the academic development of the members of the institution (CNA, 2022).

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A methodology for co-creating solutions between universities and communities is the implementation of Learning Communities (LC). The LCs encourage teachers and students to share common academic objectives and to interact regularly to generate instances of exchange of experiences (Zhou, *et al* 2023).

LCs are defined as small groups of students and/or teachers intentionally designed to create a positive learning environment, which fosters long-term relationships, promotes the formation of professional identities, and builds integrity as a community (Braunreiter, *et al* 2022).

The central elements of the LC are the sense of belonging, the sense of personal influence, the satisfaction of the personal needs of each member and the development of shared emotional connections (Shochet, *et al* 2019).

3 Method

In the first semester of 2022 (March to July) the CA was implemented in the CNYD with the participation of eight professors of the career who were guided by a facilitator from the Comprehensive Training Directorate of the University. The meetings of the LCs were monthly, presenting the progress and discussing the tasks to be carried out (See **¡Error! No se encuentra el origen de la referencia.**).

Fig. 1. Meeting of the LCs in the month of May 2022.

In the first meeting, the need to focus on the relationship between teaching and research, the link with the environment and the importance of educational innovation in teaching was observed. Accordingly, it was proposed to work around the Food Innovation and Sustainability Laboratory located in the MMLV (See **¡Error! No se encuentra el origen de la referencia.**) associated with the subject "Innovation in the Food Industry", as a tool for educational innovation in the teaching process.

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Fig. 2. Food Innovation and Sustainability Laboratory within the MMLV.

The 19 students of the subject "Innovation in the Food Industry" guided by their teachers addressed the challenge: How can we develop healthy and innovative food prototypes through the use of food design thinking?. The students were divided into groups to work on this challenge through four stages.

4 Results

In the first diagnostic stage, the students observed the MMLV patios to identify the surplus of vegetables and fruits (See Fig. 3).

Fig. 3. Vegetable and fruit waste in the patios of the MMLV.

The next stage was the ideation of the food prototypes through brainstorming, with the purpose of selecting the food prototype to work on during the semester (See Fig. 4).

Fig. 4. Development of brainstorming for the ideation of the food prototype.

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Subsequently, the stage of elaboration of the food prototypes and the sensory analysis of these were executed (See Fig. 5).

Fig. 5. Formulation and testing of food prototypes.

Finally, the food prototypes were presented to the community at the I Version of the Food Innovation Fair at the MMLV facilities (See Fig. 6).

Fig. 6. Development of the I Version of the Food Innovation Fair.

5 Discussion

This experience provides evidence on the implementation of LC in a Chilean Nutrition and Dietetics Career, given the scarcity of existing information.

The development of this LC rethought teaching work, suspending the isolation of teachers' work, contributing to their professional and personal development, as well as higher education institutions (Eirín, 2018). In the same way, the implementation of CA within the CNYD created a space for reflection among teachers for the promotion of collaborative work networks and planning of the activities to be carried out (Garzón, *et al* 2020).

Finally, the participating teachers were able to acquire and complement new skills and knowledge and also face the opportunity to learn about new ideas around food innovation by interacting with each other during the LC meetings (Cabezas, et al 2021).

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6 Conclusions

This VcM project mediated by the LCs is part of the educational innovation axis of the teaching process, promoting the development of students' academic skills, which in turn provide a solution through the creation of the prototype food from agri-food surpluses to the organic waste problems of MMLV and FBALV.

7 Limitations and Future Research

Due to the dedication time that this methodology requires, it is necessary to establish a mechanism that allows the participation of teachers in the LC. In addition, it is important to generate an evaluation instrument aimed at students and teachers to find out their level of satisfaction about their participation in the LC.

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