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1. Introduction

Throughout this module, different tools are presented that can be used in Service-Learning (Service-Learning) experiences or projects to involve people in the community in which they are developed. This will achieve a true learning community in which decisions are made jointly.

The SL is an educational methodology that allows learning by doing a service to the community; this way of learning makes it easier for participants to self-direct and self-develop, learning to survive or live on their own; that is, to achieve sustainable development over time (ICMM, 2023). Furthermore, as Aramburuzabala (2013) points out, “(...) to fully develop the potential of this powerful tool, planning must include structured reflection and debate about the concept of social justice and the implications of service in change.” social” (p. 7).

For a SL experience to be successful, it must be associated with a process of introspection and deep reflection about the needs that are intended to be covered in the reference community, how to cover them and what will be the acquisition of skills and values that will contribute to curricular training. as professionals (Eyler and Giles, 1999; Puig et al., 2011).

It is appropriate, when talking about tools for community participation in SL projects, to take into account the different stages of their development: preparation, development and evaluation. These stages are what will determine the most appropriate type of tool in each case, without losing sight of the fact that it is an action process in which different community agents come together and that involve multidirectional and cyclical relationships.

If these three phases are addressed, we will have the necessary framework to talk about appropriate tools in successful practices. During the preparation, the process is planned and the needs assessment is carried out, subsequently the experience is developed and executed, and in the evaluation stage the analysis of the results achieved is carried out.

Below are some of the most used tools in each of the phases, although the most innovative ones are selected (Table 1) to give a more up-to-date view of this training.

Tabla 1:

Herramientas que se pueden utilizar en experiencias o proyectos de ApS

PHASES	TOOLS
PREPARATION	Photovoice technique Participatory mapping or social cartography Community assembly Needs Assessment Surveys Narrative interview SWOT Matrices
PROJECT DEVELOPMENT	Reflective journal Timeline Ecomap Collaborative cartography and community mapping The mobilization of knowledge
FINAL EVALUATION	Results report Participatory evaluation matrix
VALID IN ANY PHASE	Balanced Scorecard Focus groups Field diary Observation scales Rubrics

2. Project preparation and needs assessment

During this stage, multiple tools can be used for community participation, such as: photovoice, open house, participatory mapping or social cartography, community assembly, needs assessment surveys, self-assessment report, etc.

As anticipated in table 1, reference will be made to the following:

2.1 Fotovoice Technique

Participatory and community research tool that tries to promote change through the relationships established between the members of the community through images. As pointed out by Sanz et al. (2018, p. 42), “(...) is a participatory tool capable of capturing a community reality through photography and direct community action.”

It consists of capturing real scenarios through photographs that reveal the situations and as they are experienced by the people involved in the process.

In the case of SL, it allows us to have a first analysis of reality, which represents very valuable knowledge to know where we are starting from and where we can go to improve the society or group in which we intervene. Through panels it becomes visible to everyone and, therefore, there is the same information that can be compared at the end as a pre and post-test of the situation.

The information obtained allows us to know the strengths and opportunities of a community and promotes community participation and social change, through images and words that give rise to individual and group reflection, as well as the empowerment of the participating people.

Advantages:

- Allows you to know the point of view of each participant.
- Prevents information from being biased.
- It allows us to know reality as it is.

- Gives voice to vulnerable communities.
- Enhances teamwork.
- Facilitates problem solving.

Disadvantages:

- Requires prior training in the use of cameras.
- Gives rise to many levels of interpretation.
- It can fall into complaints and political topics.
- It may not represent reality depending on the images chosen.
- It may not reach managers or rulers and may not produce social change.

For its implementation it is necessary to follow a series of progressive phases:

1. Constitution of the work team specifying the target population to which the intervention is directed.
2. Training consisting of the use of photographic cameras (use of zoom, flash, camera protection, ethical aspects such as the consent of the people who appear in the photographs and that there is no manipulation of the images or associated narratives that are not They must make value judgments.
3. Choice of the topic that should arouse interest in the participants and that is necessary for the community.
4. Definition of the participants, collecting their informed consent to confirm voluntariness, confidentiality, right to abandon, avoidance of harm and anonymity.
5. Taking the photographs based on what was learned in the training and trying to capture the reality that is intended to be shown as best as possible.

6. Discussion in which the work team will select the best photographs and each author must accompany it with a short narrative (100-150 words) that represents their community in their own perception of it.
7. Collection and analysis of results of both photographs and narratives.
8. Exhibition and dissemination of results that will end the experience.

It is usually used with marginal groups and is a way of making them visible to the eyes of others; You could say it is a silent “empowerment.” It helps them on their path towards self-esteem and individual and collective recognition and, in addition, to raise awareness among the general population (Sanz Vega et al., 2018; Montoya, Herrera and Ochoa, 2019; Rania et al., 2022; Suárez, 2023; among others).

2.2. Participatory mapping or social cartography

It is a very useful tool at the beginning of a SL process because it allows us to reflect the perceptions that people who are part of a group or community have about their spaces, ways of life, culture, etc. This information is very useful to transform contexts and people and, therefore, to know where to start.

Álvarez, McCall & León (2022, p. 10) point out that it is a tool that can “generate the spaces for meeting, dialogue and discussion necessary to build new knowledge, perspectives and forms of management, derived from the dialogue of knowledge between the academy and the communities.”

It is located in this first phase, but it could also be during the completion of the project; but it is interesting to identify needs, share experiences, address difficulties, propose solutions and establish present and future collaboration networks (Cruz-López, Digón-Regueiro and López-García, 2022).

2.3. Community assembly

The community deployment of any participation process is based on the ability to work together and on the existence of a trained promoter group that encourages participation and generates trust and horizontal relationships between those who participate.

It is about clarifying the role of each protagonist in the process, carrying out a community diagnosis with creative feedback to the community, choosing the topic and the objectives to be achieved, planning a comprehensive action that allows the community to take ownership of the process (make it their own), and evaluate the results (RED CIMAS, 2009). Participation carries intrinsic value for the people who participate, helping to increase community cohesion, a sense of responsibility for the project, and increased self-sufficiency and confidence. As Zakus (1988) points out, "(...) To the extent that community participation develops a broader base of knowledge, understanding, acceptance and commitment, it can be used by promoters to legitimize and facilitate their objectives, policies and programs" (p .160).

2.4. Needs Assessment Surveys

A needs assessment is a process that allows us to determine needs, that is, the "gap" that exists between the current situation and the one we want to reach. This assessment provides valuable information about the team's processes and identifies where efficiency improvements can be made.

If it is taken into account that is a methodology that facilitates the development of the necessary skills to live in society in an active, plural and democratic way based on the relationship between the curricular contents of each discipline and service to the community (Martinez-Vivot and Folgueiras, 2015; Folgueiras, Luna and Puig, 2013; Housman, Meaney, Wilcox, & Cavazos, 2012; Stokamer, 2011 and Wang, 2011), it is essential to know the needs of the group in which they are going to be integrated the student and will offer him a service.

This is where needs assessment surveys gain strength and students can develop general and specific competencies that will help them in their future professional development. We are moving into a fundamental diagnostic stage to set the objectives to be achieved.

This type of survey follows the same steps as any other and can be designed with questions focused on aspects that are lacking to know to what extent they are demanded or not by the community in which the intervention is going to take place. Likert-type scales are usually the most used since they offer very valuable and nuanced information about the responses.

2.5. Narrative interview

It is about collecting information about the different ways people behave taking into account a temporal dimension and the context in which they are immersed.

The protagonist is the interviewee who responds broadly to the questions asked without overlooking any type of detail that may help understand their situation in the community: expectations, perceptions, problems, etc.

As Hermanns (1995, p. 183) points out, “The informant is asked to present the story of an area of interest in which the interviewee participated, in an improvised narrative, ... The interviewer's task is to have the informant tell the story of the area of interest in which the interviewee participated. area of interest in question as a coherent account of all relevant knowledge from its beginning to its end”.

The interviewee, therefore, can focus on a specific area or a specific moment in their life or narrate it in its entirety. It can last for several sessions and does not have many questions, a global one is asked at the beginning and then counter-questions are asked that provide feedback. It is widely used in the life story methodology.

The subject may not be organized and that is where the researcher, reading it every day, organizes the discourse and checks that all the moments in the life of the interviewee or the area to be analyzed are properly treated. If this is not the case, in the next session, the narration is returned starting with those moments, so that they can be completed by the interviewee.

The interviewer must listen actively, he should not take notes, but only look at the interviewee and show him that his story is interesting. In the choices that the subject makes about what counts, he is saying what is important to him.

An example of a narrative-generating question could be: “I want you to tell me how your life story came about. You can start from birth, enjoying all those aspects that seem relevant to you. Take all the time you consider for your response because everything you say, no matter how insignificant it may seem to you, is very interesting to me.”

2.6. SWOT Matrix

SWOT analysis is a tool that is easy to use and very powerful as a mechanism for analyzing reality and making decisions. Its name comes from: Weaknesses, Threats, Strengths and Opportunities. It is a study methodology where the external and internal situation is analyzed and aims to determine the characteristics of a scenario. It can also be called by the expressions SWOT, SWOT and AODF. Its main objective is to synthesize, in a table, the assessment of the strengths and weaknesses and the external threats and opportunities, consistent with the strategy towards achieving an adequate adjustment between its internal capacity and its external position (Foschiatti and Alberto, 2012).

It involves carrying out a collective analysis of the negative aspects (Weaknesses and Threats) and positive aspects (Strengths and Opportunities) that exist in a given situation or problem, in order to formulate strategies to overcome it. You can use sticky notes or write directly on a whiteboard, there are also software tools that help with its preparation. The “S” is for strengths and will include things you do well, unique resources or any competitive advantage you have. The “W” is for weaknesses and will include areas that need improvement. The “O” is for opportunities and will include areas where you can have advantages over others. The “T” is for threats and will include everything that can negatively affect from the outside or any obstacle that may arise. To do a SWOT analysis, some of the following questions are used (Table 2):

Table 2:

SWOT Matrix

P O S I T I V E	<p>STRENGTHS</p> <p>What do we do well? What do they say they like about us? How do we surpass others? What is unique about our program?</p>	<p>WEAKNESSES</p> <p>What can we improve? What are they not satisfied with? How are we lagging behind others? What knowledge or resources do we lack?</p>	N E G A T I V E
	<p>OPPORTUNITIES</p> <p>What emerging trends can we take advantage of? What can be valuable?</p>	<p>THREATS</p> <p>What are others doing? What problems could affect us? How could our weaknesses make us vulnerable?</p>	

3. Project development

During this stage, multiple tools can be used for the development of the project such as: interviews, web pages, WhatsApp, pictograms, cooperative work, intra- and inter-role assemblies, reflective diaries, timelines, mapping workshops or knowledge mobilization, among others. Some of them are analyzed below.

3.1. Reflexive diary

It is a very useful tool for the necessary reflection throughout the process. Each participant must be aware of their activity in the entire project. That way it will be easier for you to project your own personality onto it and be able to follow the process in a more complete and comprehensive way. Furthermore, it will promote awareness and the evolution of the process, in general, and its own progress, in particular.

As Bordas and Cabrera (2001) point out, the reflective diary facilitates awareness of individual knowledge and allows one to analyze what one knows and what one needs to know.

Finally, it should be noted that this reflective diary can reflect organizational issues, anecdotes, description of methodological facts, issues related to the human relationships that are established, manifestation of moods, feelings and emotions, and express the personal and collective learning that goes acquiring.

3.2. Timeline

A timeline is a way to visually sequence events in chronological order. Typically, a timeline is presented as a visual display, with a line representing the passage of time and events placed along the line based on the order in which they occurred.

It is a technique widely used in the educational context, whether in history books or exhibitions, since it allows the sequential ordering of information along a line or arrow that indicates the direction in which historical time passes. Therefore, the events further to the left will be the oldest,

and those further towards the head of the arrow or towards the right end of the line will be the most recent.

With timelines, the different historical eras or epochs of humanity or of a specific region or population are commonly organized; specific events that took place within a given context (such as a war, a revolution, a specific government, etc.); or the determining moments in the particular history of a person, a technology or knowledge.

Often, whatever the case may be, events of historical or universal importance are also located to provide context or establish comparative relationships with other different processes, whether it is a different country or region, or the universal history of humanity. This is often called a comparative timeline.

To create a timeline, the following steps must be followed:

1. Determine its scale. You must decide what time period the graph will cover: whether all of human history, a specific government, a specific year, a specific century, or from a specific century to the present.
2. Determine the main milestones. The most important or transcendental events of the information that will be represented on the line must be previously located and organized, since these major milestones will be the main ones on the graph.
3. Determine the contextual information. What other milestones or events of general importance -no longer specific to our topic to be addressed-, would be worth highlighting in the timeline to provide context? For example, if we want to represent key moments of the French Revolution, we probably want to highlight historical events that accompanied it in other neighboring countries.

Draw the line and locate the points. The line is drawn from left to right and the previously determined information is distributed over it, in chronological order, moving towards the present (or the end of the period of interest).

Currently there are different digital software to create this tool such as: Google, Power Point, Word, Canvas, among others.

The best tools for creating timelines are those provided by the following platforms: Miro, GanttPRO, Adobe Spark, Venngage, Lucidchart, Visme, Tiki-Toki, Preceden Timelines, Timeline JS, Bee Docs 3D Timelines, Sutori, iSpring, TimeGlider, Office Timeline, Timetoast, Capzles, Timelinr, MyHistro, HSTRY, History Timelines IA, Time Graphics, Our Timeline or Creately.

All of them require a simple registration and can be used for free, although some have a cost to maintain the timeline or to export it.

3.3. Collaborative cartography and community mapping

It consists of working with community members so that they are able to locate and graphically represent the relative distribution of the parts of a whole. In addition to representing the knowledge they have about a reality, the good thing about this tool is that it also allows us to know the perception of each subject about said reality.

As pointed out by Hernández et al. (2020, p. 5),

“Those who decide to embark on the path of cartography and community mapping have to know that they do not go alone, that these processes create new routes, provide alliances and complicity within the communities. "Those who navigate these spaces, by making what is created something collective, will create maps that are compasses for consensus and agreement in the defense of territories, based on actions of peace and respect for human rights."

Collaborative cartography and community mapping are found within social or participatory cartography. Both are part of methodological work alternatives that allow a community to recognize, re-construct and re-signify its territory to choose and decide on new ways of living and managing it. These processes involve new ways of construction, validation and recognition of local knowledge. Unlike traditional cartography, here it is about giving life to the processes of construction of group and individual identities, through collaboration.

3.4. Ecomap

It is an instrument that allows you to quickly identify the interrelationships between the person or family and the immediate sociocultural context. It allows carrying out a systematic review of extra-personal or extra-familial resources, identifying the interrelationships of the person, the family, with the sociocultural environment in which they operate, showing the current situation, allowing the person who does it to be sensitized the search for extra-personal or family social support resources and allows and facilitates the participation in the design of the subject and his or her family.

Its use, therefore, derives from the need to identify resources, detect deficiencies, promote relationships, suspect possible intra- and interpersonal or family problems, locate subjects/families and identify and prioritize problems.

For its preparation, not much material is needed (paper and pencil), an estimated time of 15-20 minutes, it can be done in one or more sessions, when it is considered necessary and starts from the representation of the family nucleus and then limits it and identifies it clearly what belongs to the internal sphere and what is external to it (Suárez Cuba, 2015).

3.6. The mobilization of knowledge

The term *knowledge mobilization* was coined in 2004 by the Social Sciences and Humanities Research Council of Canada (SSHRC), to refer to efforts to bridge the gap between knowledge production, its practical implications and policy. It aims to bring to the population what is produced in the specialized contexts of study and training, so that they are participants in it and can use it for their own benefit and that of their reference community (Naidorf and Alonso, 2018).

4. Final evaluation

Evaluating the project requires collecting evidence based on key indicators, in addition to evaluating the different competencies, both specific to the studies carried out by the students, as well as generic or transversal to any type of studies, necessary for the development of the service: learning to be, learning to live together, creativity, decision making, active listening, empathy or social justice, among others.

In this phase, we try to find the best tools to evaluate the results of the experience from two points of view: that of the learning carried out by the students and that of the social impact generated.

Some tools used in the development of the project are: results report, participatory evaluation matrix, final assembly and satisfaction questionnaire, among others.

4.1. Result report

It is a structured document that clearly and concisely collects program performance data and its effects. This is the final product where an informative summary of the program, its results and proposals are prepared, describing its structure and the most outstanding issues of each of the sections, as well as the main conclusions and proposals for improvement. The results report must contain, in addition to the cover with the program identification information and the index of contents, at least a descriptive text that details the information collected, a section that specifies the cause-effect relationships and another that includes the set of conclusions, recommendations for improvement and suggestions (Perea, 2017).

4.2. Participatory evaluation matrix

It is a tool that allows you to view and organize the most relevant information of the program/project. This is a collective development of the double-entry matrix in which assessments are included based on the indicators used and the responsibilities of the actors involved in measuring both the process and the results.

To do this, all participants in the program are directly involved, particularly community members, which helps build consensus and mutual understanding (López-Sánchez et al., 2018).

This matrix helps identify and organize the information necessary to evaluate. The matrix can be represented in many ways, depending on the information needs that have been prioritized. One of the most used representations is the incorporation of new columns as new assumptions are generated or external factors appear, which allows us to predict what the unforeseen impacts of our program will be (Tapella et al., 2021).

4. Valid tools in any phase of the process

There are tools that, due to their versatility, can be used in any phase of the process. Some of them are:

5.1. Balanced scorecard

A balanced scorecard (BSC) is a tool that encompasses all the indicators and offers an objective, general and real vision of the project, facilitating decision making, allowing agile action in the event of any incident or weakness, implementing improvement actions, if this is the case. It is valid in any phase of the process because it is developed in the design phase and is completed as the ApS experience develops. During the development phase, it allows agile action in the event of any unforeseen event and in the final evaluation phase, it shows all the results, as well as their evolution throughout the process (Pérez, 2020).

The indicators must be chosen strategically and be aligned with the project objectives so that they add value, their range, cadence must be marked and they must be represented in figures and visually. It is very useful to use a traffic light (green if it is in a normal range, orange if there is any deviation and red with serious deviations) (Llivipuma, Álvarez and Zurita, 2019).

The advantages of its use are multiple, among which we can highlight (Guerrón-Fuentes, 2019):

- Provides a global vision of the progress of the project.
- Facilitates the design and planning of strategies for medium and long-term decision making.
- Provides useful information on the development of the project.
- Reduces risks and possible failures, being able to analyze trends by observing the evolution of the project and anticipate events.

- Involves all participating people and improves internal communication. The project objectives and results are known in real time.
- It allows the success of the project to be assessed, since through the indicators it can be seen whether the previously set objectives are being developed.

The Balanced Scorecard becomes an efficient management tool that objectively facilitates the work of making timely decisions, controlling processes, applying evaluation indicators and contributing to the management of human talent (Morales and Pinilla, 2007).

5.2. Focus group

It is a special tool, within the group interview category, whose most relevant characteristic is to produce data that would be less accessible without group interaction. Attitudes and points of view about a certain phenomenon are not generated in isolation, but in interaction with other people.

It is a collective dynamic in small groups in which there is debate around a topic of interest or that affects the participants, allowing progress from general to more specific problems and locating conflicts and elements of consensus. Therefore, it can be said that a focus group is a conversation that has previously been planned, to obtain specific and interesting information, in a permissive and non-directive environment (Ruíz-Corbella and García-Gutiérrez, 2019).

It differs from group consensus techniques in that its fundamental purpose is to understand why and how people think or feel the way they do, without attempting to reach agreements. The open and non-directive nature of the conversation offers flexibility to explore new topics not contemplated in the previous planning, as well as allowing participants freedom to respond to the questions raised.

The focus group can be used as an evaluation method in itself, or as a complement to other qualitative and quantitative methods. In one way or another, it is indicated when you want to learn about the experiences and perspectives of the people participating in a project/program, when you

want to investigate what they think and, especially valuable, to find out why they think the way they do (Lara et al., 2022).

The participants in the discussion groups must be representatives of the target population, and it is expected to obtain information about the full variety of opinions that may exist in said population. It must be taken into account that the size of the group influences the dynamics of the discussion; small groups generate more intense and detailed discussions, providing more information, but if they are very small, more tension and passivity can be generated. For its proper development, the interview script must be prepared, including a list of the topics or issues that will be discussed, this guarantees that the necessary information is collected for the stated objectives (Pacheco and Salazar, 2020).

A focus group meeting usually takes place in four phases: first, the reception and arrangement of people at the agreed place, then a presentation of all the participating people will be made to “break the ice” and give the opportunity to everyone to speak, then the meeting takes place and, finally, the group closes, making a summary of the main themes that have been identified (Ruíz-Corbella and García-Gutiérrez, 2019).

5.3. Field diary

It is a tool for recording information, especially observations and thoughts. It is carried out in an orderly manner and gives clues about the operation of the project/program. It is carried out in an orderly manner and gives clues about the operation of the project/program. It helps to understand the physical and social environment of a given system and, therefore, it should be used to describe who, what, why, where, when and how the events, activities or processes to which you want to respond occur. The “who” refers to the people or system being studied, the “what” to the information collected; The “why”, “where”, “when” and “how” provide important details about the observation being made (Ruíz-Corbella and García-Gutiérrez, 2019).

In addition to the objective data collected and the report of the experience, this tool allows us to collect what has been experienced, the values, attitudes and beliefs. Therefore, it is considered a

reflection tool that can shed light on the development of the learning process in ApS, serving as an analysis tool, evaluating its evolution and development.

The field diary is basically made up of two sections: the identification cover, which includes the name of the program, institution, name of the professionals and the year; and the entries of the different activities that will be carried out in the program, as planned (Campos, Silva and Albuquerque, 2021).

5.4. Observation scales

They are a fundamental element of the information collection process. To obtain the greatest number of data, it is necessary to observe an objective in a clear, defined and precise way (Martínez, 2022).

It involves making a systematic record of a series of traits or characteristics of the people observed, which allows the observer to assign a value to a certain behavioral category (observation unit), indicating the degree of intensity or frequency with which it is manifested, through a qualitative and/or quantitative qualification (Ruíz-Corbella and García-Gutiérrez, 2019).

5.5. Rubrics

They are precise guides that assess the learning and products carried out, indicating the achievement of the objectives predetermined in advance. They are specified in tables that break down the levels of student performance in a specific aspect, with specific criteria on their performance (Ruíz-Corbella and García-Gutiérrez, 2019).

Rubrics have been recognized as an ideal assessment instrument for a variety of tasks, including everyday tasks; and its use in the evaluation of competencies allows the complex tasks that make up a competency to be broken down into more observable micro tasks (Pérez and Flores, 2017).

5. Example of SL where some of the tools presented are used

EXAMPLE. Extracted from Sandoval-Díaz, J., Cuadra-Martínez, D., Orellana-Fonseca, C., & Sandoval-Obando, E. (2021). Community diagnosis in the face of climate disasters: A service-learning experience. *Otherness*, 16(1), 23-37. <https://doi.org/10.17163/alt.v16n1.2021.02>

Subject: Community management in the face of a climate disaster in northern Chile in the psychology degree at the University of Atacama (UDA).

Context: An extreme hydrometeorological event, on March 25, 2015, caused torrential rains in 17 locations in Atacama, Chile. In Copiapó, the regional capital, the rains washed away a large amount of water, burying the city under a 31 cm layer of sediment. There were 22 deaths, 28,000 victims, 2,000 homes destroyed and 5,000 with major damage, resulting in an economic impact of more than 46 million USD (Izquierdo et al., 2018).

In terms of psychosocial impact, the groups that presented the greatest impact were older adults, people with disabilities/chronic illness, women, with low economic income and without higher education, adding those who are in the condition of partial-total damage in their housing and did not receive support for the reconstruction of their houses (Sandoval-Díaz & Cuadra-Martínez, 2020).

In physical-material terms, the average height of impact was 45 cm, identifying four sectors of the city in which the flood exceeded one meter of water, one of them being the town of Paipote, ground zero of the disaster. According to Izquierdo et al. (2018), floods constitute a risk on a global scale, especially in areas with large slopes and arid climate, as is the case of Paipote (See figure 1). This residential town of 20,000 inhabitants, founded in 1913, is located between the communes of Tierra Amarilla and Copiapó, 8 kilometers from the latter.

Figure 1.

Aerial diagram of the case study



Source: Astudillo-Pizarro and Sandoval-Díaz (2019, p. 315), in Sandoval-Díaz et al., J. (2021).

We were located at the end of 2016 in the town of Paipote, at ground zero of the disaster, 174 families lived there with varying degrees of damage to their homes. Local leaders are trying to organize to accelerate the slow reconstruction of their neighborhoods devastated by the disaster, as well as request support from both government and civil society actors, as was the case of the Psychology Department of the University of Atacama.

A group of teachers designed a training program in the diagnosis of psychosocial needs at the community level. The implementation of said program was carried out with the purpose of responding to two objectives: carrying out a diagnosis in conjunction with the neighborhood council, and strengthening professional training tools for eighth semester students.

The implementation of the SL was carried out from mid-July to the end of December 2016. The integration workshop III had 34 students enrolled, from the eighth semester of psychology. At the

service level, prior to the beginning of the subject, two coordination meetings were held with neighborhood leaders, with the objective of: agreeing on the products, periodicity and procedures of the diagnosis, and knowing the local history and experience linked to the climate disaster, enabling a first territorial approach to the context and the problem to be addressed. After this coordination, together with the key informant (neighborhood leader), contact was made with some affected families, with the aim of disseminating the potential work to be carried out.

At the learning level, initially, weekly theoretical-practical sessions were established with a duration of approximately one and a half hours, which were extended to three hours if an activity was carried out in the field. For the development of the subject, students grouped themselves by personal affinities (with a maximum of four people), with the aim of prioritizing teamwork based on prior knowledge. In total, 13 sessions were implemented (plus two recreational sessions with the community), which were carried out both in the context itself and in the university classrooms.

Schedule of activities carried out

Table 3.

Activity sessions implemented in the integration workshop III

Date	Activity	Type of activity	Short description
15/07 24/07	Prior coordination meetings with the community	Field practice	Meetings of the academic body with neighborhood leaders to define objectives and procedures
06/08	Participatory action research design	Theoretical	Presentation in the classroom of design, synthesizing its theoretical, practical and procedural components.
30/08	First induction to the field	Field practice	At the group level, a walking tour of the town was carried out, using a field diary to record first impressions.
13/09	Guided observation: drift	Field practice	Application of a participant observation technique guided by the neighborhood directors themselves.
30/09	First day local disaster risk management	Conversational seminar	Carried out with different local experts on the topic of disaster risk management, in which both neighborhood leaders and students participated.
04/10	Diagnosis of observed needs: static and dynamic	Theoretical	Classroom presentation of the diagnosis of psychosocial needs, synthesizing its theoretical-practical components.
11/10	Design of a quantitative scale	Theoretical-applied	In the classroom, the students designed closed questions with options i) dichotomous, ii) polytomous and iii) Likert scale; This is in accordance with the qualitative impressions collected in the field.
25/10	Application of quantitative scales	Field practice	Field application of psychometric scales and closed questions (agreed upon and selected in the previous class), this via probabilistic sampling of homes per block.
08/11	Participatory strategies: ecomap and social cartography	Theoretical	Introductory presentation of participatory techniques synthesizing their advantages and theoretical-practical limitations.
29/11	Needs diagnosis systematization matrix	Theoretical-applied	Theoretical presentation of the matrix of community capacities and vulnerabilities (MCV).
06/12	Presentation of group progress	Theoretical-expository	Group presentation of the MCV matrix progress, which was given feedback by teachers and pairs of students.
13/12	Delivery of final synthesis report	Theoretical	With the feedback provided, the working groups had to prepare a final report.
10/08 21/12	Recreational activities: i) celebration of children's day and ii) support for community Christmas celebrations	Recreational activities	Carrying out and supporting two recreational activities with the academic body, students and community.

Source: Extracted from Sandoval-Díaz et al., J. (2021, p.30).

Data production tools

With the objectives of: strengthening applied learning and increasing the validity of the needs diagnosis process, the triangulation strategy of quantitative and qualitative methods was used. These techniques—first—were taught in class sessions (see table 3), and were later applied in field work.

The teaching of these techniques was carried out flexibly, according to the times and characteristics of the respective sessions, considering, among others, the following aspects: a) treated and

emerging themes, b) disposition of the students, c) characteristics of the classroom and the resources to be used, to mention just a few aspects. Table 4 describes the techniques used, with their respective objective, justification and stage of use.

Table 4.

Description of the techniques taught and applied by students for diagnosis

Context of use	Technique	Objective	Justification
Practical terrain	Narrative interview	Know the local history, such as the background and characteristics of the disaster.	First face-to-face approach with the community from a situated perspective.
Practical classroom application	The drift (Pellicer et al., 2013)	Explore the meanings and spatial meanings of the disaster experience.	Guided observation technique that territorialized the emerging narratives of the interview, this through a tour of the risk exposure area.
Practical classroom application	Participatory social cartography (Vélez et al., 2012)	Produce a map, at a neighborhood scale, of potential threats, vulnerabilities and security spaces in the face of climate risks.	Dialogical technique that graphs the use and appropriation of space, in which exposed-susceptible and risk-safe places are drawn.
Practical terrain	Ecomap (Fernández et al., 2012)	Produce a relational map of social actors identifying the degree of perceived closeness or distance.	Ecological technique that graphs the relationships of closeness, distance and absence between the community and public/private institutions throughout the disaster cycle.
Practical terrain	Sampling and application of impact scales (Sandoval-Díaz & Cuadrado-Martínez, 2020).	Apply sampling and quantitative data collection skills.	The students applied a booklet of psychosocial scales after training. They subsequently analyzed the results in a general way via descriptive statistics.
Classroom systematization	Matrix of capabilities and vulnerabilities	Systematize the information obtained, using an MVC matrix.	At the group level, the students had to systematize the information obtained to develop a community diagnosis for the areas a) physical-material, b) organizational and c) motivational.

Source: Extracted from Sandoval-Díaz et al., J. (2021, p.31).

As has been seen, there are many and varied tools that can be used when collecting information in SL experiences, the important thing is to know how to choose the most appropriate one for the purpose of the researcher and the group and context in which it is carried out is going to act.

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