

INNOVATION METHODOLOGY: DESIGN THINKING AND PSYCHOLOGY APPLIED TO THE SAFETY CULTURE

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Introduction

Strategy design to achieve effective work safety training for Construction Workers in the región of Ancash-Peru through the application of Psychology and Design Thinking Innovation Methodology

One of the main causes of workplace accidents includes personal factors. These factors are related to the “lack of awareness”, which means the worker “doesn’t know” or “is not aware” how to carry out their tasks without putting their integrity at risk. It is known that in order to do a safe job, all of us need to learn how we should do it. It is also known that all of us come to work with a predefined “work culture”, and sometimes we must unlearn to learn, so training sessions are what really make the difference.

According to the Occupational Health and Safety Law - Law No. 29783 and its regulations, the employer has the obligation to provide preventive, timely and adequate training sessions to the employees according to the tasks they are going to carry out, that is, these training sessions should emphasize risks with a high potential for causing workplace accidents or illnesses.

All of us who perform on work safety know that many times these training sessions become boring and employees just lose interest in the topic. Many workers, when asked, state that the training sessions “are always the same”. Many times when we have provided or participated in a training session, we realized that workers are distracted, tired, or not interested in the topic, or they simply do not attend the meeting. This happens because behind all of this there are factors that we may not have paid attention to, or we simply were not aware. Therefore, this poster was prepared as a contribution, in which we will describe the work we made in collaboration with six (6) companies dedicated to construction, national and foreign companies that executed different types of projects in a province of Peru (Region of Ancash), and they had a problem in common: although they trained their workers in HSW issues, they became aware that the information given was not

received or understood properly by the workers because workplace accidents happened. According to the research carried out by the HSW team, they happened due to deviations made by workers because of the lack of awareness. In addition to this, they had other **characteristics that are important to take into account** such as, hiring local labor (unskilled workers), high staff turnover, lack of leadership, pressure to advance works, inadequate communication between work areas, among others. As safety professionals in charge of the development of training in companies, we must focus on how we must convey safety knowledge in an effective and efficient way, in such a way that our workers acquire the knowledge they need to carry out their work in an agile, simple, assertive, attractive way by using different strategies that help us to achieve this purpose.

With this challenging project we want to orient research towards innovation whose fundamental characteristic consists in the introduction of a new element to transform a situation that meets the real needs of users. Given that situation that the training sessions provided by construction companies did not achieve their main objective, which is to ensure that workers "know how to work safely", we relied on the **Design Thinking innovation methodology and Psychology** as a science to achieve our purpose, because we were aware that we needed to transform the situation in construction projects and it was necessary to have innovation as our ally and psychology to understand our users, that is, our workers.



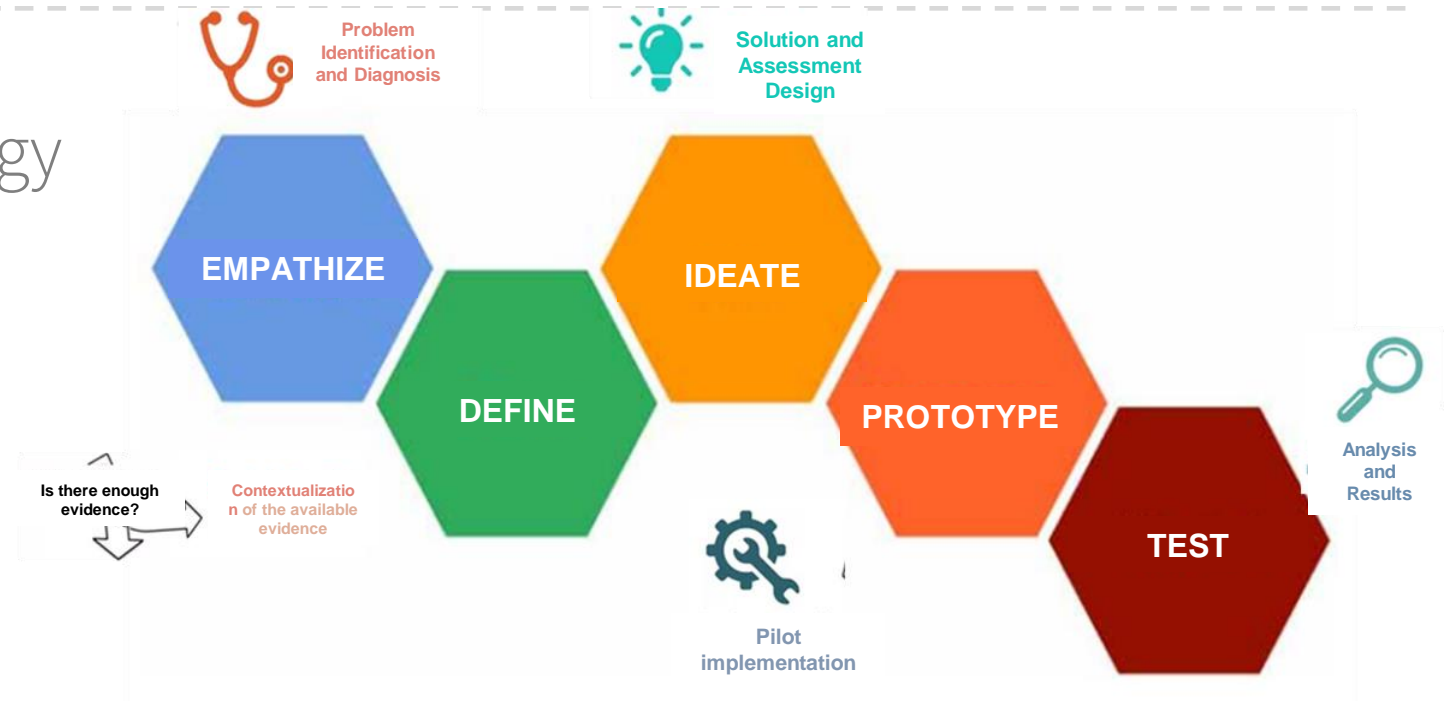
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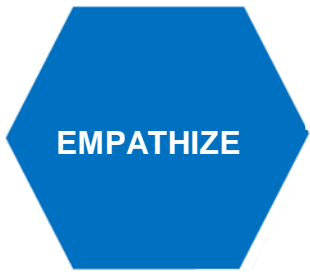
To propose training strategies from using an Innovation methodology. The scope of the project considers workers of the contractor companies that execute 6 infrastructure projects in the region of Ancash – Peru.

Applied Innovation Methodology

Design Thinking

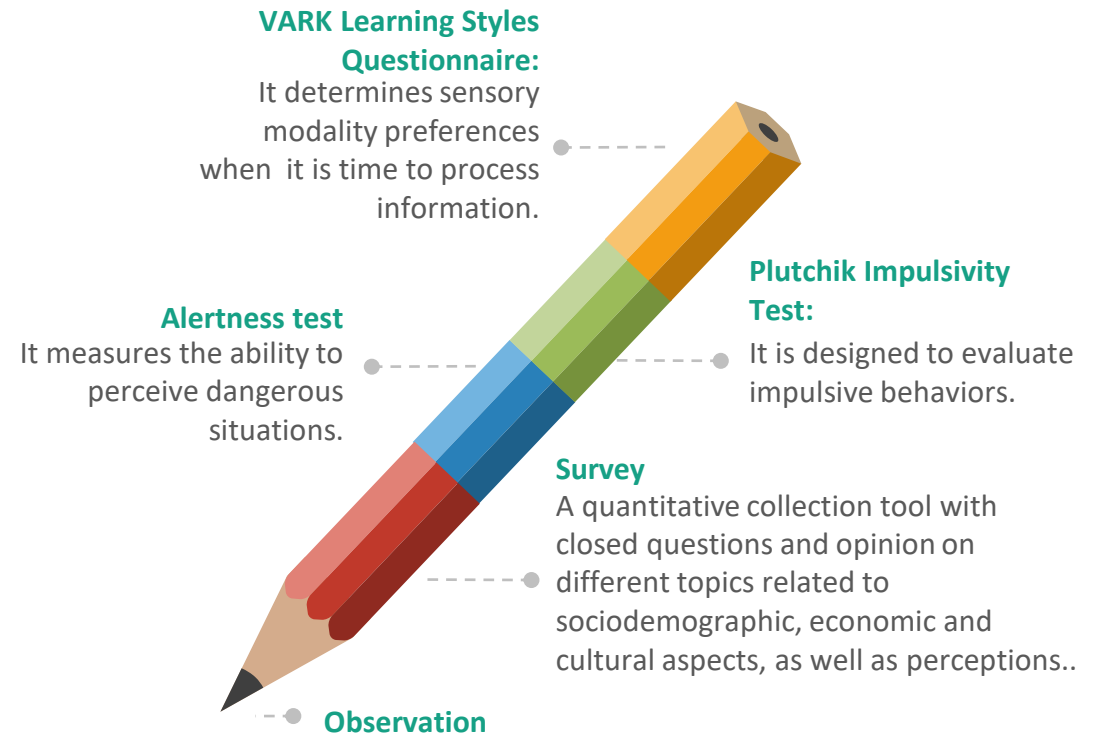
Research oriented towards innovation whose fundamental characteristic consists in the introduction of a new element to transform a situation.



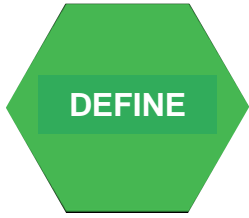


Applied tools

1. The diagnosis focuses on the workers of contractor companies that carried out infrastructure works.
1. The diagnosis allows to know and understand the social and psychological reality of the hired workers (skilled and unskilled labor).
1. The results provide information on the current socioeconomic conditions, the perception of the hired workers regarding the company and the issue of Industrial Health and Safety.
1. A description and analysis of the social and psychological components has been made such as: demography, migration process, education, culture, economy, among others that characterize the hired workers to contribute to the aim of the Project.



Problem Identification and Diagnosis



Psycho-Socio-Demographic Results

DEFINE

Most common jobs

Laborer, driver, bricklayer, operator (formwork carpenter, ironworker, electrician), assistant (carpentry, surveying), construction foreman, storekeepers, master builder, officer, HSW monitor, field supervisor and assistant.

Religion

Mostly Catholics, except in Santa Cruz de Pichiu, where they are mainly Evangelicals.

Traditions

Participation in patron saint festivals, evangelical festivities and rites such as the payment to the Earth and the tradition of coca-chewing, which are typical customs that they learned and embraced significantly in their lives.

Talks

All Strategic Partners hold a daily talk that lasts 10-15 minutes approximately in which they discuss industrial health and safety issues. These talks are varied, that is, a different issue is reinforced each day.

Place of birth

61.3% are born in Ancash, where 5 of the 6 projects are taken place.

Training

64.5% of the respondents prefer the training to be both theoretical and practical. While 32.2% prefer that it is more practical.

Levels of impulsivity and alertness

61% of the workers of Antamina's strategic partners surveyed had a high level of impulsivity.

27% of the workers of surveyed Antamina's strategic partners obtained a low level of alertness.

Learning Styles

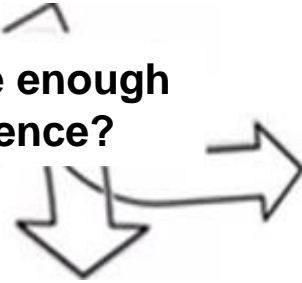
34% kinesthetic, 37% visual and 27% auditory, and only 8% reader-writer.

Opinion about the company

The most common opinion is that the company provides employment opportunities, contributes to local development and is responsible in terms of safety. However, some others consider that the activities they carry out produce environmental pollution and recommend taking the necessary measures to take care of the environment. They also suggest that the company should give more support to the towns that are within its area of influence.

Contextualization of the available evidence

Is there enough evidence?



IDEATE

In each strategy it was considered:



Solution and
Assessment
Design



Quechua language

Mother tongue of 100% of the hired workers by the ECCOGET company. To include messages in Quechua.



Impulsivity level

Emotional intelligence workshops (assertiveness), the monthly newsletter of the Safety Guards will be used to influence on emotional intelligence. In addition to this, interventions and the play will help to this purpose.



Alertness

Reinforce alertness with brain gymnastics exercises before starting work to improve attention and concentration at work. In order to do this, the messages and activities to be described in the Safety Guards will be used.



Learning Styles

Use of experiences, simulations, practical examples, demonstrations, videos and/or case studies. Radio soap operas, interventions with the actors and Safety Guards newsletter.



Clear, simple and visual language

In order to achieve this purpose, the Safety Guards newsletter will be used, in which stories will be told with episodes of the common day of the workers, the problems or dilemmas they may face and how with the help of the "superheroes" or "gods" they manage to come out with success and alive.



Practices and dynamics

It is recommended that the training sessions about health and safety issues will be more practical and dynamic, so that the workers internalize each topic explained, which helps to reduce accidents and/or fatalities. In order to achieve this purpose, we will apply all the proposed tools.

Radio
soap opera

Artistic interventions

Safety Guards

Parent and child
day

Staging

Prototyping and Implementation Strategies

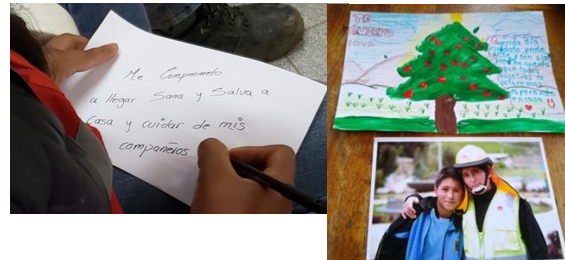
Radio soap operas

Risk situations related to family suffering (3 minutes) to be broadcasted on local radio stations, community market, buses, among others.



Workshop: I take care of myself and my family

Two dynamics in parallel. In one of them, the workers supported by a psychologist addressed emotional self-control and how it has an influence on workplace accidents. In parallel, two specialists worked with the family members, who should have prepared a Christmas card and/or a letter with messages that invite workers to work safely and responsibly, for themselves and their families.



Safety Guards Newsletter

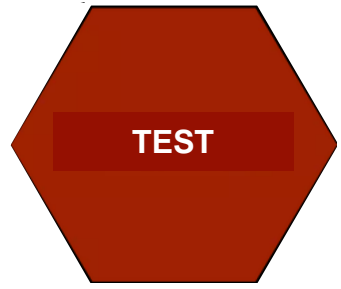
Twelve editions were produced with different topics in order to reinforce in a playful way the basic concepts of safety related to the tasks they carry out in their daily activities.



Staging - Play and Sketch

About awareness-raising, showing a drama where an impulsive worker suffers a workplace accident, a permissive leader suffers because a worker on his team dies due to a workplace accident, and a mother suffers when she loses her only son. Presentation of shorts scenes where comedy and drama were combined about daily situations that employees experience in their work and family life.





Assessment



Good acceptance

The strategies / tools implemented were well accepted by the workers.



Positive valuation of Quechua language

The employees highly valued the inclusion of Quechua language in the training and material they received.



Leadership

Active participation of leaders in the implementation of each strategy.



Continuity

These strategies will be proposed to be implemented in mine operation.



Awareness raising

Awareness raising to leaders and workers (it must be constantly reinforced).



Communication

of the basic safety measures related to the tasks carried out in the infrastructure projects in charge of the Antamina mining company.



100% of scope

It was achieved that the messages about prevention reach all the workers of its "strategic partners" and especially they were understandable.



Reinforcement tips

Tips were provided to improve communication between leaders and workers (it must be constantly reinforced).



Analysis and Results