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Presentation of the Content

In Number is presented an article *Coastal flooding, areas and depths, on a sand beach in the Mexican Caribbean under storm conditions* by CHÁVEZ-CÁRDENAS, Xavier, DELGADILLO-CALZADILLA, Miguel Ángel, GUTIERREZ-VILLALOBOS, José M. and MORALEZ-GARIBAY, María Cristina with adscription at Universidad de Guanajuato, in the next article *The 9 phases of attracting quality human talent with warmth* by OLVERA, Daniel Alfonso, LUENGAS, Anahí Citlalli, ALANÍS, Sergio and ESPINOSA, Olivia, in the next article *Relationship between emotional state and school average self-assessment in UJED human communication therapy students* by CEJAS-LEYVA, Luz María, RÍOS-VALLES, José Alejandro, GARCÍA-MEDINA, Mario Gilberto and BAUTISTA-SÁENZ, Jaime Hiram with adscription in Universidad Juárez del Estado de Durango, in the next article, *Industrial safety and health actions for business growth in a metalworking industry*, by NAVA-MORALES, Francisca, ALVA-GALLEGOS, Rodrigo, FLORES-GALVÁN, Francisco Ángel and BALTAZAR-PLATA, Carlos Gustavo, whit adscription in the Universidad Tecnológica del Valle de Toluca.

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Coastal flooding, areas and depths, on a sand beach in the Mexican Caribbean under storm conditions

Inundación costera, áreas y profundidades, en una playa de arena del Caribe mexicano bajo condiciones de tormenta

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Abstract

The objective of this study is to calculate the areas and depths of flooding that originate under storm conditions, in a pristine sand beach in the Mexican Caribbean. The calculation is done with the help of the XBeach numerical model. The simulated scenarios correspond to three storms that have occurred in the study zone, and the water wave conditions (significant wave height, propagation direction and period) of each storm were obtained from results of the WAVEWATCH III model. The topography and bathymetry used to generate the meshes have a resolution of 5 and 4 meters, respectively. Water level and sediment transport results were processed to obtain flood areas and depths. These data are very important because they contribute to establishing a flood risk zoning that serves as a guide to define the most appropriate area, design and construction processes and thus maintain balance in the coastal ecosystem avoiding beach loss and structural damage.

Resumen

El objetivo del presente estudio es calcular las áreas y profundidades de inundación, que se originan bajo condiciones de tormenta, en una playa virgen de arena en el Caribe Mexicano. El cálculo se realiza con ayuda del modelo numérico XBeach. Los escenarios simulados corresponden a tres tormentas que se han presentado en la zona de estudio, y las condiciones de oleaje (altura de ola significante, dirección de propagación y periodo) de cada tormenta se obtuvieron a partir de resultados del modelo WAVEWATCH III. La topografía y batimetría empleadas para la generación de las mallas tienen una resolución de 5 y 4 metros, respectivamente. Los resultados de nivel de agua y transporte de sedimento se procesaron para obtener las áreas y profundidades de inundación. Estos datos son muy importantes pues contribuyen a establecer una zonificación de riesgo por inundación que sirva de guía para definir la zona, diseño y procesos de construcción más adecuados y de esta manera mantener el equilibrio en el ecosistema costero evitando pérdida de playa y daño estructura.

Coastal Flooding, Flood Depth, Storm

Inundación costera, Profundidad de Inundación, Tormenta

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Introduction

Undoubtedly, of the effects caused by storms, coastal flooding is one of the most worrisome from the point of view of security and economy. For this reason, the various studies carried out mainly focus on areas with urban development, mainly of a tourist nature.

The issue of coastal erosion is of great importance due to its direct relationship with the flood (loss of beach). Within the Caribbean area, Juanes (2019) mentions various experiences and measures with which Cuba faces coastal erosion, among which the elevation of the sea level as a cause of erosion, which is manifested in terms of flooding.

Another issue with special relevance is ecosystem resilience, and tourism resilience is even addressed in the event of hurricanes. (Infante et al., 2019).

Most of the mentioned studies rely on numerical models as a tool to carry out prediction studies, which at the same time allow the design of engineering solutions based on shelter structures. This approach facilitates the analysis of various scenarios or storm conditions in combination with different positions, shapes and dimensions of the protection structures. Among the most used models are XBEACH, DELFT3D, TELEMAC, WAPO. SICOM With the latter, a study of hydrodynamics and morphodynamics was carried out on the north coast of Cuba. (González y Córdova, 2019).

The interest of dimensioning the danger due to flooding lies in places of low or immediate elevation to the beach, in ecosystems that have limited resilience to the occurrence of natural phenomena and in places where in addition to having the aforementioned characteristics there are locations with a high demographic index. (Neuman et al 2015)

This paper deals with coastal flooding under storm conditions, but from a preventive perspective. A sandy beach, virgin and with potential for tourism development, is evaluated under storm conditions to identify the flood surface and depths. These parameters are determined with the help of the XBEACH numerical model and the use of telescopic meshes to increase efficiency, improve accuracy and decrease computation time.

Flood areas and their depths are essential to establish adequate planning in the development and construction of infrastructure, through specific recommendations in terms of safe areas (without risk of flooding) and / or adequate construction techniques, on land with flood risk, which guarantee the structural safety of the works and respect the natural balance of the ecosystem.

The research is presented under the following scheme. The Study Zone section describes the location, selection criteria and characteristics of the chosen sandy beach. The numerical model used and its input parameters are presented in the XBEACH name section. The simulated scenarios are reflected in the Simulations part, while the results and their corresponding analysis are included in the Results and Analysis section. Finally, Conclusions summarizes the most relevant results and defines the opportunities for better.

Study zone

A sandy beach located in the Riviera Maya region was selected for two reasons. The region is one of the main tourist destinations worldwide and its impact has a significant impact on the economy of the country and the low elevations of the topography of the area, make it vulnerable and susceptible to flooding.

The beach is located at the UTM (Universal Transverse Mercator) coordinates 468517 m E and 2257400 m N (see Figure 1). It is a bay whose main morphological characteristics are a mouth width of 550 m and 250 m in length between the mouth and the coast.

The relief of the region is classified as flat and near the beach it has a primary dune that does not exceed 5 meters above sea level.

It is a beach or bar of rocky or cemented floor. The predominant rock is limestone sedimentary, while the soil is leptosol.

It is a region hit by storms during the months of July to December.

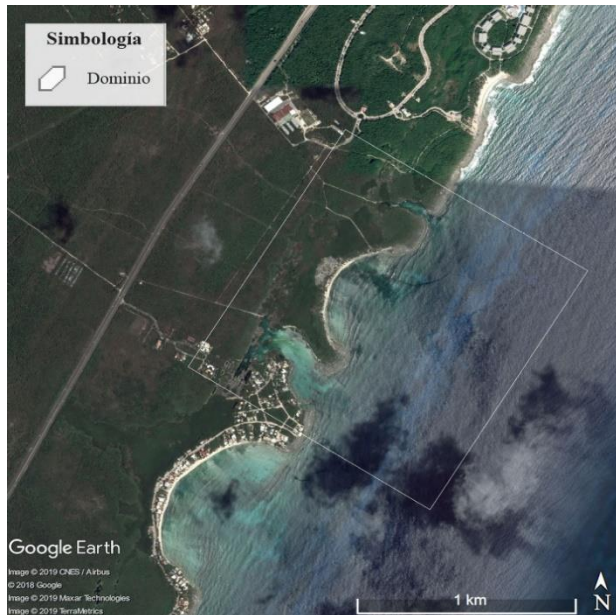


Figure 1 Study area
Source: Google Earth

3. XBEACH

XBeach is a two-dimensional model for the propagation of waves, long waves and medium flow, sediment transport and morphological changes of the area near the coast, beaches, dunes and containment barrier during storms. The main input parameters used to feed the model are described in the following sections.

Domain

The domain was delimited based on the definition of littoral cell (Inman, 2003). The coves were included on the sides of the bay, because they confine the sediment within the domain and perpendicular to the coast the elevation was taken into consideration; at sea, a suitable depth to enter the waves (16 m), and on land, the highest elevations of the land (3 m). The area of land within the domain is 616,500.0 m².

Under the aforementioned considerations, the domain was set with a length, parallel to the coast, of 1350 m and perpendicular to the coast of 1240 m, 280 m inland and 960 m to deep water (see Figure 2).

To cover the domain, a telescopic mesh was generated, which includes a maximum resolution area with a cell size of 2 m in both directions.

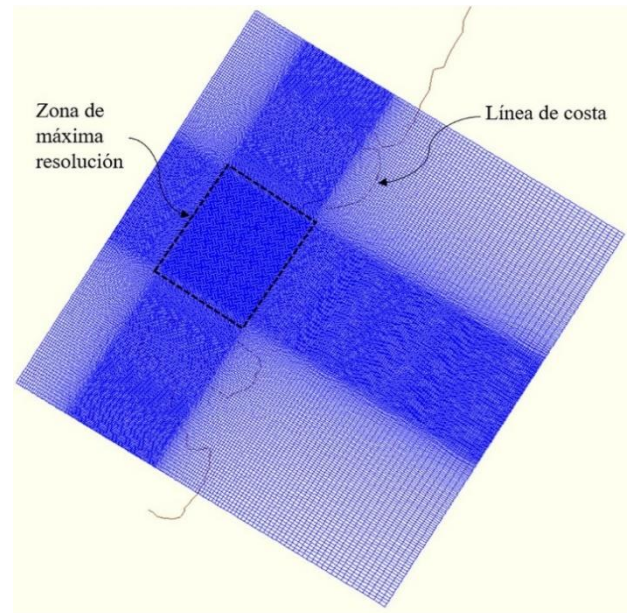


Figure 2 Computational domain

Background Border

The background boundary was established with the combined topography and bathymetry information and entered as values in the nodes of the created mesh.

The topographic data were obtained from the INEGI (National Institute of Statistics and Geography) and correspond to a digital model of high resolution elevations, LiDAR (Detection and Measurement through light) the spatial resolution of the data is 5 x 5 m.

The bathymetry data were obtained from CONABIO (National Commission for the knowledge and use of Biodiversity) with a spatial resolution of 4 x 4 m, and for the deep waters the global land surface model ETOPO was used.

The combination of the information allowed to generate the background relief of the domain (Figure 3).

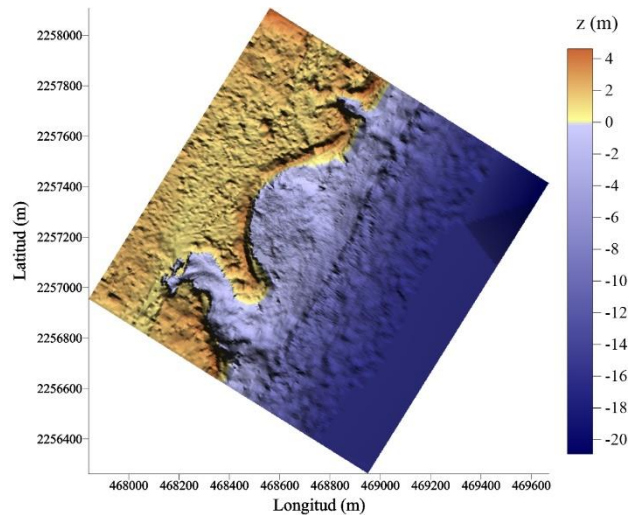


Figure 3 Topo-bathymetry of the domain

Surf

The waves in the area were obtained from the WAVEWATCH III (WWIII) registry, from 2005 to date. The WWIII cell considered is 9.5 km south of the study area. The log time interval is 3 hours.

To locate the storms within the WWIII registry, the historical trajectories of hurricanes of the NOAA (National Oceanic and Atmospheric Administration) were consulted. Within a radius of 100 km from the study area, between 2005 and 2007, there are 3 tropical storms (Stan 2005, Dolly 2008 and Rina 2011), a tropical depression (Olga 2007) and two hurricanes class 4 (Emily 2005 and Wilma 2005). The data required by the numerical model are: Significant wave height, H_s (m), period, T (s) and direction of propagation, D ($^\circ$). The Nautical convention, North 0° , East 90° , South 180° and West 270° were managed for the direction.

Sediment

The sediment properties were obtained from records close to the study area, these records and their corresponding statistical analysis were carried out by Ruiz-Martínez et al. (2013)

Based on the satellite images, the sediment banks susceptible to being transported were determined.

Simulations

Three storm scenarios were selected and the data were taken from the maximum condition of tropical depression (Olga 2007) and hurricanes Emily (2005) and Wilma (2005).

The simulation time for the three cases was 24 hours, this is equal to 8 wave conditions taken from the WWIII cell register. Because the frequency of recording the wave data is 3 hours, the simulation time of each condition is 10800 seconds. The wave conditions for the simulations of the three scenarios are shown in Tables 1, 2 and 3.

| Hs (m) | T (s) | D ($^\circ$) |
|-------------|-------------|----------------|
| 0.55 | 4.50 | 125.5 |
| 0.98 | 6.46 | 108.17 |
| 1.26 | 7.16 | 108.82 |
| 1.36 | 7.81 | 109.88 |
| 1.39 | 8.32 | 112.43 |
| 1.43 | 8.45 | 112.36 |
| 1.40 | 8.28 | 111.97 |
| 1.35 | 8.31 | 111.26 |

Table 1 Wave conditions of scenario 1 Olga, 2007

| Hs (m) | T (s) | D ($^\circ$) |
|-------------|--------------|----------------|
| 0.95 | 12.24 | 109.46 |
| 1.75 | 12.08 | 107.13 |
| 3.04 | 11.89 | 102.39 |
| 2.36 | 10.9 | 101.31 |
| 1.87 | 10.54 | 100.48 |
| 1.56 | 9.9 | 102.69 |
| 1.4 | 9.4 | 103.36 |
| 1.35 | 9.01 | 105.49 |

Table 2 Wave conditions of scenario 2, Emily 2005

| Hs (m) | T (s) | D ($^\circ$) |
|-------------|--------------|----------------|
| 3.46 | 13.38 | 110.31 |
| 3.65 | 13.18 | 111.38 |
| 3.29 | 12.71 | 110.77 |
| 3.47 | 12.62 | 111.34 |
| 3.34 | 12.4 | 110.84 |
| 3.27 | 12.36 | 110.1 |
| 3.36 | 12.31 | 107.86 |
| 3.64 | 12.27 | 104.08 |

Table 3 Wave conditions of scenario 3, Wilma 2005

Results and Analysis

Figure 4 shows the map of the water level directly calculated by the XBEACH.

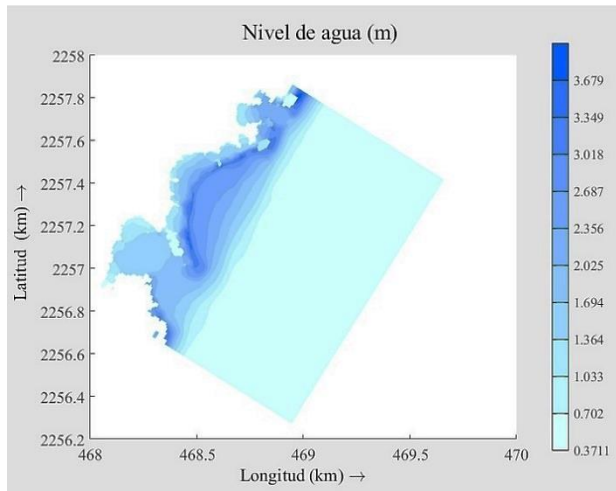


Figure 4 Wilma 2005 water level map, first wave condition

The map in Figure 4 shows that the water reaches levels above 3.5 m. However, it is necessary to make the difference between the water level and the topography level to accurately determine the flood areas and the depths present in them. Figures 5, 6 and 7 show the flood areas and their depths. These results correspond to the condition of maximum significant wave height in each scenario.

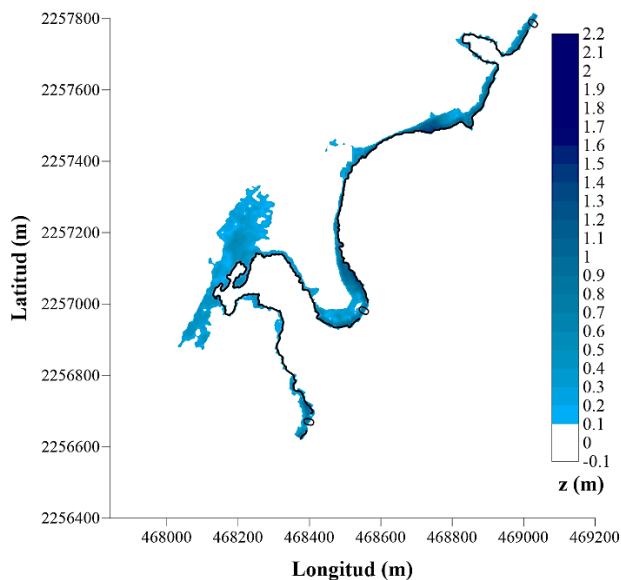


Figure 5 Map of flooding and depths, Olga 2007, Hs = 1.43 m

The southern cove is the most vulnerable to flooding, while, for the bay beach, the flood initially occurs in the central part and the extremes.

It is clear in the three maps that the maximum depths are located between the coastline and the primary dune.

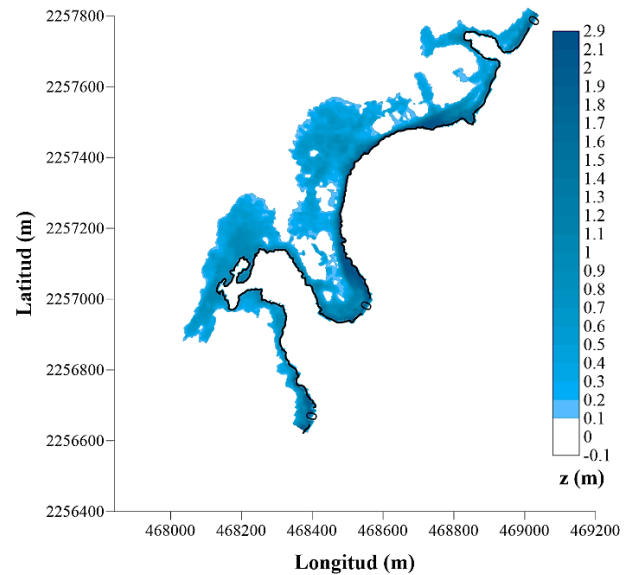


Figure 6 Map of flooding and depths, Emily 2005, Hs = 3.04 m

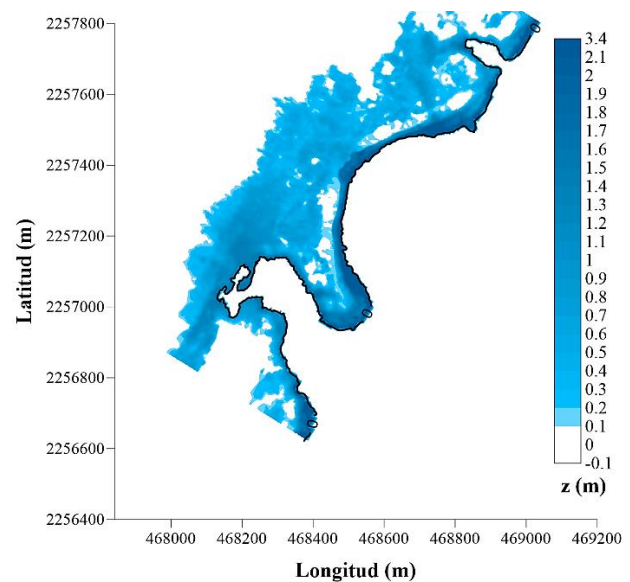


Figure 7 Map of flooding and depths, Wilma 2005, Hs = 3.65 m.

Table 4 summarizes the maximum areas and depths for each case in its maximum wave condition.

| Stage | Area (m ²) | Depth (m) |
|------------|------------------------|-----------|
| Olga 2007 | 79600 | 2.2 |
| Emily 2005 | 210300 | 2.9 |
| Wilma 2005 | 380000 | 3.4 |

Table 4 Maximum areas and depths per scenario.

Conclusions

The comparison of flood maps clearly shows the difference between a tropical depression and a hurricane. The flood area of Olga 2007, Emily 2005 and Wilma 2005 represents 13%, 34% and 62% of the total land area, respectively.

The results may be better if you perform a more detailed analysis, obtaining the areas for different depths. An analysis should also be carried out at the end of the storms, but it is recommended to increase the inland domain because in the case of Wilma it is appreciated that the flood reached the border of the domain.

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The 9 phases of attracting quality human talent with warmth

Las 9 fases de atracción de talento humano de calidad con calidez

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Abstract

This article aims to provide a new vision of attracting talent to recognize and reassess a process of integration of human talent that is committed to the Organization and that finds in it a space for personal and professional development. This writing is the result of the experience of the authors in the application of a model of the process of Selection and hiring of human talent derived from the management of human talent in the financial sector and consultancy in the same subjects, adding to this the documentary study of research and teaching on the subject, which has been taught during the training of professionals in human capital engineering. All of which can support a more humane process of talent integration that will result in a joint development of the talents of the people who join, that contributes and allows an successful expansion of the Organizations with a social as well as economic vision.

Human talent, Attraction of human talent, Selection process

Resumen

Este artículo pretende aportar una nueva visión de atracción de talento para reconocer y revalorar un proceso de integración de talento humano que sea comprometido con la Organización y que encuentre a su vez en ella un espacio para su desarrollo personal y profesional. Este escrito es resultado de la experiencia de los autores en la aplicación de un modelo del proceso de Selección y contratación de talento humano derivado de la gestión de talento humano en el sector financiero y consultoría en los mismos temas, sumándole a esta el estudio documental de investigación y docencia en el tema, que se ha enseñado durante la formación de Profesionistas en la Ingeniería de capital humano. Todo lo cual puede sustentar un proceso más humano de integración de talento que de como resultado un desarrollo conjunto de los talentos de las personas que se incorporan, que contribuya y permita una expansión exitosa de las Organizaciones con una visión social a la par que económica.

Talento humano, Atracción de talento humano, Proceso de selección

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Introduction

We are currently finding that many companies are renaming the recruitment and selection process by calling it talent acquisition, however, we must consider that these processes are not the same, they are closely related but each of them has a totally different objective within the organization. The reasons why the focus of this process has been changed, and the expected results of this change will be treated in this article with the objective that it can be taken as an option to revalue human talent in Organizations by establishing some strategies that allow this process to be carried out with a more humane approach, with warmth and quality for candidates to join a company and with better results in it. An exploratory study is not presented, much less experimental, it is a documentary research that supports the experience of the authors in the practice of Human Talent Management in various organizations, to offer a different vision according to the social dynamics of these times. The sections presented go from the analysis of the problem of the acquisition and contracting of quality human talent, committed, to the proposal of strategies that allow a viable change in the process of attracting talent.

The problem of attracting and retaining talent in Organizations

In this century, the study of trends in Human Capital has allowed us to know the main concerns of the Human Resources areas to respond to future challenges, with awareness of the environment and always from the position of the employee as a strategic partner of the organization. This has led to a greater sensitivity about the natural process of organizational evolution that is increasingly dynamic and demanding. The percentage of people surveyed to review these trends in Mexico and Latin America stated that the following topics have high or very high priority in their organization (Fernández, 2018):

- Diversity and inclusion: 48.96%
- Employee experience (culture and commitment): 70.62%
- Future of work and workplace: 51.03%
- Talent attraction: 76.55%

Basic definitions

In contrast, talent attraction is a completely different action from recruitment since it is more proactive. Talent attraction is to carry out a set of activities and processes to attract qualified candidates. Talent is the ability that makes us achieve extraordinary results in our work or in our private life. And the most important thing is that it can be developed. Talent attraction is to get the right talent to approach and interest in my organization. The opportunity to have talented people in organizations is something that big companies fight for. (HR, 2016)

The management of the talent attraction system in an Organization is made up of the following basic processes (Chiavenato, 2011)

- Admission of people: Recruitment and personnel selection systems.
- Application of people, includes organizational design and job design, analysis and job description.
- Compensation of people.
- People development, process used to train and increase professional and personal development.
- People maintenance: Processes used to create satisfactory environmental and psychological conditions.

It is worth mentioning that the previous list of basic activities was made up of all the assumptions that the Organization had regarding the recognition of the employee as a Human Resource of the Company.

Currently, with the evolution that has required a system of integration of human talent with a human approach, we must begin by defining what is understood by human talent: Recruitment and selection were previously focused on identifying candidates that covered the technical knowledge necessary to occupy the position.

The evaluation of certain competencies that every human being should employ not only for a job but as an integral human being that he can acquire, while contributing his skills, and that if not taken into account could affect the performance of this candidate to cause demotivation and in some companies have high rates of rotation and absenteeism as well as low productivity.

Derived from the previous situation, the organizations currently apply more detailed processes to select their personnel, hence it comes to name this process as Talent Acquisition.

“The current recruitment and selection processes focus not only on providing candidates with technical knowledge, but also on providing talent, since in this process different actions are involved to identify that the candidate is really qualified to occupy the position.” (Reyes, 2018)

It is necessary that the Human Resources department begins to make your organization more attractive, making use of marketing to position itself in the market as a recognized employer brand, which will ensure that your recruitment proposals attract more candidates for the requested position with better quality which will be understood for the integration process as personnel with greater interest and commitment in the performance of a proactive work activity with empowerment exercise and high level of success in achieving objectives.

Global trends: opportunities and limitations

Companies and Human Resources professionals in Mexico are facing an irreversible change to the Internet and social networks as a basic tool for the RSP. Social networks give us a new opportunity to offer employment, both nationally and internationally (Blasco, 2004).

Rotation and absenteeism in organizations

The constant labor turnover is a topic of great importance for companies, since frequent change by employees has a very high cost, and not only economic, but also for temporary purposes, since it usually takes a minimum of 4 weeks to cover a vacancy, in addition to everything that companies have to invest in the training of their new employees.

However, this constant does not only affect companies, job instability also harms employees, changing jobs without a professional project that supports it can represent an attractive solution in the short term, but in the medium it reduces the chances of growth and professional development.

If we try to explain this high turnover rate, we find that people seek better working conditions, are dissatisfied with the work they do or simply want a change. On the business side, it translates into high hiring and training costs. But what can employers do to combat job turnover? Consider the following factors (García, 2016):

Attraction factors:

- Salary.
- Job security.
- Promotion opportunities.
- Challenging job
- Opportunities to learn new skills.
- Reputation of the organization.
- Health and wellness benefits.

Retention factors:

- Work environment.
- Ability to handle work-related stress.
- Relationship with their superiors.
- Confidence in high level leadership.

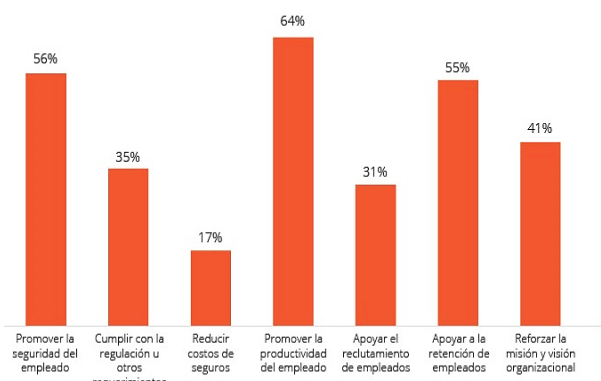
While employees' perceptions of fair payment are an obvious engine of talent attraction and retention, managers and workers are not aligned with respect to other work priorities.

In search of a more human job

One of the great challenges of talent management has been to separate the knowledge of the individual with his own being, with his integral being; For this reason, it is considered that in order to achieve the actions of talented people, it is necessary to recognize that they are really scarce and valuable and that to retain them we have two tasks: first, the identification and recognition of their personal interests and passions and second, recognition, personal progress and the assessment of what is done. And then continue towards the search for the success of the Organization. (Lozano, 2007)

The results of 2018 in Mexico show a variety of challenges with similar degree of importance and consistency with global and Latin American data, because according to the ranking about the seven trends in human capital management they have an index of importance greater than 80, which indicates that 80% of people identified these trends as important or very important for their organizational context, while in previous years only the first 3 exceeded this level.

Objetivo de los programas de bienestar en la organización



Nota: Pregunta para empleados de RH y con un nivel diferente a C-Suite
Deloitte, Human Capital Trends 2018, México

Graphic 1 Types of wellness programs. Deloitte insights. 2018. Trends in Human Capital. Mexico. The rise of the Social Enterprise

The 9 phases of attracting quality human talent with warmth: Proposal of actions

Daniel Goleman (1999), determines that intellectual conditions are not the only guarantee of success in the professional field of work, but only one factor, which together with the emotional needs covered by staff as a team, will develop the performance and results of every leader and worker, emotionally motivating him to be productive.

Once the company is clear about its needs and compatibility with the needs of its employees is achieved, both the Organization and the people benefit.

Pilar Jericó (2001) defines talent in a very similar way, although more summarized: As those people whose abilities are committed to doing things that improve the results in the organization. It also defines the talented professional as a committed professional who puts into practice their abilities to obtain superior results in their environment and organization.

2.1. Process of attraction and retention of human talent.

2.1.1. Human talent planning. It is to have in the present and in the future the ideal candidate to fill a vacancy.

2.1.2. Recruitment or attraction of human talent. It is to attract the most qualified personnel to fill a possible vacancy.

2.1.3. Choice of quality human talent. Choose from several candidates for the most suitable covering the general selection process.

2.1.4. Hiring of human talent. It is the regulation of the labor relationship between Employer and Employee.

2.1.5. Induction of human talent. It is the adaptation of the new candidates to the Company.

2.1.6. Human talent development. It is the training of the employees and development of the staff of both the external and internal Institution.

2.1.7. Remuneration and valuation of human talent. It is the remuneration that a worker obtains for the fact of participating in the Company.

2.1.8. Compensations and benefits of human talent. It is the compensation that additional to the salary a worker obtains for the fact of collaborating in the Organization.

2.1.9. Termination of labor relations. It is the termination of the employment relationship between Employer and Employee due to various circumstances.

| La realidad anterior | La nueva realidad |
|---|---|
| La gente necesita Compañías | Las Compañías necesitan gente |
| Las máquinas, el capital, la geografía constituyen la ventaja competitiva | Las personas talentosas constituyen la ventaja competitiva |
| Contar con mejor talento tiene cierta importancia | Contar con mejor talento tiene una inmensa importancia |
| Los empleos escasean | Los talentos escasean |
| Los empleados son leales y los empleos estables | Las personas son volátiles y asumen compromisos a corto plazo |
| Las personas aceptan el paquete normal que se les ofrece | Las personas exigen mucho más |

Fuente: la guerra del talento. <http://www.losrecursoshumanos.com/contenidos/986-la-guerra-por-el-talento.html>

Table 1 PRIETO, B. Pedro Gerardo. 2013. Current aspects to plan the attraction of human talent. Thesis: Human talent management as a strategy for staff retention. Colombia

Humanization of the process of attraction and retention of human talent, warmth in the process

The talent attraction strategies of an Organization with a human sense.

According to the information in Maren Hogan's article "What your candidate experience is missing" (Talent Board, 2016), 40% of candidates feel that the job application process has become increasingly difficult; 57% of applicants believe that the process lacks customization, and 51% are frustrated because they have no idea what stage of the process they are in since only 40% of employers are in communication with them. In fact, three out of five candidates remain unfinished as a result of this deal.

INDIVIDUAL TALENT = CAPABILITIES + COMMITMENT + ACTION

Apart from fair remuneration, the best factors to attract and retain talent are professional promotion, job security and trust.

The misinterpretation of "value proposition for the employee" can keep employers away from finding and keeping the best workers. To the factors of attraction must be added retention factors, since the human being is a being in search of a constant motivation and orientation to results as expressed by various Motivation Theories (Maslow y Vroom)

The empathic contact philosophy.

The first minutes of contact within an interview are crucial to create expectations and interest the candidates, rapport (trust building) is extremely important. We, as a Human Resources area, must give due follow-up to all the candidates because currently most of the recruitment processes have become very cold, impersonal and on many occasions the candidates do not feel committed to the process and much less with the organization from the first moment of the interaction during the hiring.

Employer image or employer brand.

The image we project of the organization is another very important point which we can exploit when recruiting; issues such as internal culture, flexibility and balance between work and professional life, emotional salary, offices with an attractive environment and coherence in leadership models in the Organization become essential when attracting talent.

Internal recommendation.

The recommendation of candidates by the members of the organization is an important means in a successful attraction attraction process, since they have a high probability of being selected because when they get their data to Human Resources they already have a pre-selection of the person who has recommended it to us and who knows the organization well. And this practice also allows rapid adaptation of the new employee.



Figure 1 Human talent management model. corporacionelite.org

Methodology to be developed

The present study is carried out based on a descriptive and documentary approach, of empirical nature that shows the results of studies carried out by organizations that investigate the topic of attraction of human capital, both Business Associations and Academic Institutions, of which their results are resumed, indicating the documentary source. Since "it relies on quantitative methods and techniques, but the emphasis is also placed on describing the attributes and characteristics of the set of phenomena, using systematic criteria to highlight the essential elements of the nature of the phenomenon studied (Sampieri, 2000).

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Conclusions

The interaction between people and Organizations during a selection process is very clear to many, which is not evident because in many cases the result of the evaluation and contracting that is implemented is not entirely successful: most of the Accepted employees are not engaged, who resign in a short time, who do not adapt easily, who do not get involved and much less are productive.

It all starts with the vision, the culture of the Organization gives direction, directs all the processes of the Organization to be implemented through policies, actions and strategies.

People express that what they want in a selection process: to know in which evaluation phase they are, what results they have obtained and if they have not been selected why, which implies a communication process along with the evaluation and feedback to the candidate. Clearly explain the results obtained and the possibilities for improvement.

On the other hand, organizations must be able to involve and involve staff, using more participatory control systems: by management assuming the importance of retaining talent, not only with human management processes that favor their development, but, also, taking into account that it is necessary to connect people with the company's strategy

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Relationship between emotional state and school average self-assessment in UJED human communication therapy students

Relación entre la autoevaluación del estado emocional y el promedio escolar en estudiantes de Terapia de la Comunicación Humana de la UJED

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Abstract

Objective: To identify the relationship between self-assessment of emotional status and school average in students of Human Communication Therapy of the UJED. Methodology: Non-exploratory, survey, cross-sectional, descriptive and correlational research, with non-probabilistic sampling, for convenience, after signature of informed consent. Contribution: The information analyzed had a Cronbach Alpha of .83. About 75% of students self-assessed with anxiety, anguish and fear; 60% said they felt low self-esteem; 50% expressed apprehension, aggression and depression and 35% have felt shy. The correlational analysis between aggressiveness and school average showed $r = .206$ with $p < .05$ which makes it possible to establish that the greater the feeling of aggressiveness is lower the school average or that the lower the feeling of aggressiveness is the higher the school average. Self-assessment of anxiety, anguish, apprehension, low self-esteem, depression, anger, fear, nervousness, rebelliousness and shyness showed no correlation with the school average.

Emotional state, University students, School average

Resumen

Objetivo: Identificar la relación entre la autoevaluación del estado emocional y el promedio escolar en estudiantes de Terapia de la Comunicación Humana de la UJED. Metodología: Investigación no exploratoria, por encuesta, transversal, descriptiva y correlacional, con muestreo no probabilístico, por conveniencia, previa firma de consentimiento informado. Contribución: La información analizada tuvo un Alpha de Cronbach de .83. Alrededor del 75% de los estudiantes se autoevaluaron con ansiedad, angustia y miedo; el 60% declaró sentir baja autoestima; el 50% manifestó aprensividad, agresividad y depresión y el 35% ha sentido timidez. El análisis correlacional entre la agresividad y el promedio escolar mostró $r = .206$ con $p < .05$ lo que permite establecer que a mayor sensación de agresividad menor es el promedio escolar o que a menor sensación de agresividad mayor es el promedio escolar. La autoevaluación de la ansiedad, angustia, aprensividad, baja autoestima, depresión, enojo, miedo, nerviosismo, rebeldía y timidez no mostraron correlación con el promedio escolar.

Estado emocional, Estudiantes universitarios, Promedio escolar

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Introduction

This paper presents the results obtained as a result of the research carried out on the relationship between self-assessment of emotional status and school average in students of the Bachelor of Human Communication Therapy of the Faculty of Psychology and Therapy of Human Communication (FPYTCH) of the Juárez University of the State of Durango (UJED). Paraphrasing (Bericat, 2012) emotion is a living and truthful bodily experience that permeates the flow of consciousness of a person, it is an individual state (an emotional state), with the possibility of being evaluated, either positive or negative.

Likewise, self-assessment is an important aspect to be developed in the university student. Self-evaluation itself, consists in taking initiative to carry out a set of activities accompanied by solutions, where the undisputed protagonist is the student himself. (Núñez, 2012). In this case, the participating students issued a weighting of their own emotional state, while providing information on their school average.

Therefore, the relationship between the self-evaluation of the emotional state and the school average in students of the degree in Therapy of the FPYTCH of the UJED was observed in the process of inquiry, through the application and analysis of the questionnaire "Self-evaluation of the emotional state" Designed by the Physician in Human Communication, José Alejandro Ríos Valles, attached to the institution of higher education where this research was conducted.

Justification

Emotions have been present in humans, since their origins, however they have been the great forgotten or at least little valued. Its discovery as an important factor to increase the possibilities of learning is practically recent (Pallarés, 2010).

The study of emotion is never simple because emotions are part of a living process and can suffer multiple and enigmatic transmutations, voluntary and involuntary, conscious and unconscious (Pallarés, 2010).

An emotion depends on what is important to us. If the emotion is very intense it can produce intellectual dysfunctions or emotional disorders (Serrepe, 2015). Emotions have a key influence on academic performance, acting directly on learning (Pulido, 2017). Having contextualized parameters (product of research carried out in the institution itself) on the relationship between the self-assessment of emotions and the relationship they have with the school average of students who attend the aforementioned degree, allows to know the extent to which they are. It needs the design and implementation of proposals that have a positive impact on the emotional situation of the students in question, as well as on improving their school average. The above with the support of the application of an instrument based on the self-evaluation of the emotional state and its relationship with the school average, of the sample of the population involved, with which not only the formal investigation of this condition was sought, but also to know it with a high level of reliability.

Problem

In our country, according to the information gathered on the page of the Mexican Institute of Hearing and Language (IMAL) (IMAL, s / f), there are three universities and one institute that offer a degree in Human Communication or Communication Therapy Human:

- The Autonomous University of the State of Morelos.
- The Juarez University of the State of Durango.
- The University of the Americas.
- Human Communication Unit of the Luis Guillermo Ibarra Ibarra National Rehabilitation Institute.

According to the portal of (MEXTUDIA, 2019) within the ranking of the 100 best universities in the country, the places occupied by the three universities that offer a degree in Human Communication or Therapy of Human Communication are:

- Place 9 University of the Americas.
- Place 34 Autonomous University of the State of Morelos.
- Place 65 Juarez University of the State of Durango.

It is important to mention that the Human Communication Unit of the Luis Guillermo Ibarra Ibarra National Rehabilitation Institute is not subject to the weighting that the country's universities are subject to, so it is not included in this list. The UJED has 55 schools and faculties (with educational offer at the bachelor's level, among other levels) or institutes (UJED, 2018). One of the Faculties, is the Psychology and Therapy of Human Communication (FPYTCH), in which since 1999, the degree in Human Communication Therapy is offered.

In 2018, 13,823 students enrolled at the UJED degree level, 999 of them registered at the Faculty of Psychology and Therapy of Human Communication, of which 291 registered for the Bachelor's Degree in Human Communication Therapy (UJED, 2018). It follows that 2.10% of the tuition of the UJED corresponds to the students of the Degree in Therapy of Human Communication. Likewise, the estimates made by this university indicate a growth of 21% for the year 2022, in the enrollment of this degree (UJED, 2018).

If it is really about evaluating the Higher Education Institutions in a transparent way, to be accountable with social responsibility, it is necessary to specify what should be measured. (López, 2008) at the same time, they consider that terminal efficiency is a measure that indicates the capacity of higher education institutions to train the highly qualified citizens that the nation requires for its development.

In relation to the above, in 2018, 47 students graduated from the UJED Degree in Therapy of Human Communication and 53, which meant 113% of (UJED, 2018). However, the statistical processing of the data (carried out by the institutional statistics department of the UJED), indicates a terminal efficiency of 54% in semester A of 2018 and 34%, in semester B of the same year (UJED, 2018, p.53). Which shows a downward difference of 20% from one semester to another, in the same year.

Similarly (MEXTUDIA, 2019) mentions the research among the criteria with high scores to consider a university within the best places of the ranking, as well as the benefits that the educational center brings with it the starting of investigative processes to give response to the needs detected in the students.

With regard to the subject of the research that currently occupies "Relationship between self-assessment of emotional status and school average" in students of the Bachelor of Human Communication Therapy of the FPYTCH of the UJED "an exhaustive search for information was carried out, issue that as such yielded few results (it is important to clarify that some related issues were found, but not exactly the one proposed here).

In this way, the usefulness of knowing the relationship between the self-assessment of the emotional state and the school average of the mentioned population, as a possible tool to improve their school performance, implies a reflexive analysis exercise to find significant associations with the support of statistical procedures, between the defined variables.

In accordance with the above and in the same order of ideas, through the analysis of the aforementioned reflexive, it was also possible to have first-hand information that provides a perspective of the way in which the emotional state of education students is ordered higher (from the Bachelor of Therapy of Human Communication of the FSYTCH of the UJED) and its school average, under the perspective of the quantitative paradigm, with the intention of explaining the proportion of the relationship that exists between the determined variables.

Research question

What is the relationship between the emotional state and the school average of the students of the Degree in Human Communication Therapy of the PSYTCH of UJED?

Hypothesis

There is a relationship between the self-evaluation of the emotional state and the school average of the students of the Degree in Human Communication Therapy of the PSYTCH of the UJED.

In the case of this study, the variables are located as indicated below (starting with the statement of the independent variable and then that of the dependent):

- a) Independent variable: the self-assessment of the emotional state of the students who study for the Degree in Human Communication Therapy at the FPYTCH of the UJED.
- b) Dependent variable: The school average of the students of the Degree in Human Communication Therapy of the FPYTCH of the UJED.

Objective

Identify the relationship between self-assessment of emotional status and school average in students of the Degree in Human Communication Therapy of the FPYTCH the UJED.

Theoretical framework

The theoretical revision is one of the elements that guided and gave meaning to the objective analysis of the present; following a process of gathering and debugging information that follows the fundamentals presented in this section.

Emotions

Paraphrasing (García, 2017) emotions are especially relevant because they regulate behavior. The emotion stands out for being a basic psychological function. Without emotions, human behavior would be reduced to a mere reflection.

An emotion, according to Bisquerra (2001), cited by (Calderón, 2012), is something that a person feels and that makes them react in a certain way. Likewise, emotions are experienced individually, since not all people feel or react in the same way.

Paraphrasing (Melamed, 2016) emotions are sensations of bodily changes that follow from contact with certain types of stimuli. They are compelling responses to unexpected situations, for which one is not prepared, for which one does not have habitual patterns of behavior.

Emotions are motivational systems with physiological, behavioral, experiential and cognitive components, which have a positive or negative valence (feeling good or bad), which vary in intensity, and which are usually caused by interpersonal situations or events that deserve our attention because they affect to our well-being (Bericat, 2012).

Types of emotions

Once emotion is defined as an affective experience that is somewhat pleasant or unpleasant, it is difficult to achieve an exhaustive classification of all possible emotions so that all affective reactions are compromised in that dimension, to some extent, this is a controversial issue, about the that there is still not enough consensus among researchers (Chóliz, 2005).

Taking into account the above with the “Self-assessment of emotional state” questionnaire, the self-assessment of the emotional state of the participating students was weighted in relation to the following emotions:

- Anxiety.
- Anguish.
- Apprehensive.
- Aggressiveness.
- Low self-esteem.
- Depression.
- Anger.
- Fear.
- Nervousness.
- Rebellion.
- Shyness.

Emotional state

Paraphrasing (Piqueras, 2009) emotions lead to emotional states that, when they are intense and habitual, negatively affect people's quality of life (in this case this variable was associated with the school average obtained by the population surveyed). Emotional states are inferred and there is not necessarily correspondence with experience and emotional expression, which in no way means that they do not affect behavior (Ventura, s / f).

School performance

(Morales, 2007), comments that school performance is an index of the overall quality of education. He adds that among the specific manifestations of school performance, school achievement, grades, approval, failing, repetition, dropping out, graduation, terminal efficiency and qualification can be recognized.

At the same time, it limits two conditions of school performance: the contextual ones (socio-environmental, and instructional) and those of a personal nature (closely related to their cognitive situation and the validation of a minimum of curricular expected learning).

However, school performance is not neutral, it has both positive and negative effects on students (achieving assessments that accredit them generates motivation and confidence, the opposite generates mental states that go from "I don't know", to "I can't" to "No I serve to study", affecting their self-esteem and in some cases causing school dropout).

In order to achieve greater efficiency and quality in the teaching-learning process, it is proposed that the emotional field be incorporated into all those dimensions involved in the teaching-learning process.

The reason is that when emotions are incorporated, the results are far superior to those obtained in an impersonal process and devoid of everything affective (Pulido, 2017).

Research methodology

The design of this study outlined it as a field study, non-experimental, observational (by survey application), cross-sectional, descriptive and correlational, with non-probabilistic sampling (for convenience) so that no situation was constructed, but rather the existing circumstances were observed in relation to the self-assessment of the emotional situation and the school average of the population under study, after the signing of informed consent by the students of the Bachelor's Degree in Therapy of Human Communication, of the UJED FPYTCH.

In order to carry out this research, "The Questionnaire: Self-evaluation of the emotional state designed by the doctor in Human Communication, José Alejandro Ríos Valles, assigned to the academic unit in question was used. As Bericat (Bericat, 2012) states, emotions are not experienced in isolation one by one; With the instrument applied, the total of the expected variables were weighted in correlation with the school average that each referred to have.

Process

To the total of the students enrolled in the degree in Human Communication Therapy in FPYTCH of the UJED of the city Victoria de Durango, Dgo. Mexico. They were informed that the evaluation to be carried out is not an invasive type according to general health standards.

Of this population, only those students enrolled in semester A of year 2019 were integrated, who accepted the invitation to participate, for the interest that arose in them, for answering the questionnaire or for raising awareness of the importance of their participation in the investigation, suggestion taken from (Fernández, 2014). This interest of the students to participate, guaranteed that the information obtained, more faithfully represents the characterization of the self-evaluation of the emotional state and its school average as recommended in (Merino, 1990). As part of this research, the above-mentioned questionnaire was applied in a single moment, to each student of the Degree in Human Communication Therapy of the FPYTCH of the UJED, as recommended (Cortés, 2004) in order to measure the variables, its incidence and correlation at a given time.

Of the total of the study universe, 91 students participated, derived from the eligibility criteria (being a student from first to eighth semester of the degree in Human Communication Therapy of the FPYTCH of the UJED and having signed the informed consent letter), of exclusion (not wishing to participate in the investigation) and elimination (having participated in the piloting of the instrument or having answered it recently) so that in this investigation no third and seventh semester students participated.

The application was made in groups (programmed according to the semester of the participating students), during the same it was sought that they were physically comfortable, conveniently separated, as well as without interruptions or distractions.

The instructions for filling it were given, repeating them or paraphrasing them in the necessary cases. During the application, the progress in filling out the questionnaire was verified, circulating through the space allocated for this activity. Once the information was collected, a statistical processing was carried out with the SPSS version 20 program (recommended for social and applied research) by submitting, the variables of the referred questionnaire, likely to be weighted with a numerical attribute and from which the following results were derived.

Results

To have a clear interpretation of the data obtained, an analysis of lost values was first performed as recommended (Pérez, 2007). This procedure indicated that no missing data were found (the answers found validated the 91 cases surveyed), which allowed confirming the careful collection of data and the disposition of the participants (students of the Degree in Human Communication Therapy of the FPYTCH of the UJED). Likewise, it was possible to review with greater certainty the consideration of the defined variables, for their analysis.

First, the results obtained in the signaling variables are presented, related to: age, sex, semester, marital status, the number of children (in the cases that referred to it) and the economic condition of the sample population.

| | Frequency | Percentage | Valid percentage | Accumulated percentage |
|-------|-----------|------------|------------------|------------------------|
| Valid | 18 | 18 | 19.8 | 19.8 |
| | 19 | 8 | 8.8 | 28.6 |
| | 20 | 20 | 22.0 | 50.5 |
| | 21 | 14 | 15.4 | 65.9 |
| | 22 | 14 | 15.4 | 81.3 |
| | 23 | 4 | 4.4 | 85.7 |
| | 24 | 5 | 5.5 | 91.2 |
| | 27 | 4 | 4.4 | 95.6 |
| | 28 | 2 | 2.2 | 97.8 |
| | 31 | 1 | 1.1 | 98.9 |
| | 37 | 1 | 1.1 | 100.0 |
| Total | 91 | 100.0 | 100.0 | |

Table 1 Age of the students participating in the research
Source: self made, (2019)

As can be seen in Table 1, the students surveyed are within the expected age range to pursue a bachelor's degree in our country, locating the highest percentage of them, between the ages of 20 and 23, which represents more than 50 % of the explored.

| | Frequency | Percentage | Valid percentage | Accumulated percentage |
|-------|-----------|------------|------------------|------------------------|
| Valid | 1 | 12 | 13.2 | 13.2 |
| | 2 | 79 | 86.8 | 100.0 |
| | Total | 91 | 100.0 | |

Table 2 Sex of the students participating in the research
Source: self made, (2019)

Among the data collected, there is the variable sex, from which the participation of students of both sexes is rescued, of which almost 9 out of 10 are women (table 2).

| | Frequency | Percentage | Valid percentage | Accumulated percentage |
|-------|-----------|------------|------------------|------------------------|
| Valid | 1.0 | 46 | 50.5 | 50.5 |
| | 2.0 | 2 | 2.2 | 52.7 |
| | 4.0 | 3 | 3.3 | 56.0 |
| | 5.0 | 21 | 23.1 | 79.1 |
| | 6.0 | 16 | 17.6 | 96.7 |
| | 8.0 | 3 | 3.3 | 100.0 |
| | Total | 91 | 100.0 | 100.0 |

Table 3 Semester that students participating in research
Source: self made, (2019)

For the application of the instrument, among the eligibility criteria, the collaboration of students of all semesters (first to eighth), of the degree in Human Communication Therapy of the FPYTCH of the UJED, who wanted to participate however, a Once the investigation was initiated, those cases that had recently answered the questionnaire determined for this inquiry were removed from the sample, for the previous reason within the population no third and seventh semester students were included.

| | Frequency | Percentage | Valid percentage | Accumulated percentage |
|-------|-----------|------------|------------------|------------------------|
| Valid | 1 | 81 | 89.0 | 89.0 |
| | 2 | 4 | 4.4 | 93.4 |
| | 3 | 3 | 3.3 | 96.7 |
| | 4 | 1 | 1.1 | 97.8 |
| | 5 | 2 | 2.2 | 100.0 |
| Total | 91 | 100.0 | 100.0 | |

Table 4 Marital Status of the students participating in the investigation

Source: *self made*, (2019)

Of the total number of students surveyed, 89% are single and the remaining 11% correspond to the states of (married, free union, divorced, separated or widowed) from the lowest percentage, as shown in table 4.

| | Frequency | Percentage | Valid percentage | Accumulated percentage |
|-------|-----------|------------|------------------|------------------------|
| Valid | 1 | 9 | 9.9 | 9.9 |
| | 2 | 82 | 90.1 | 100.0 |
| | Total | 91 | 100.0 | |

Table 5 Participating students who have children

Source: *self made*, (2019)

9.9% of the students who made up the sample have children and the rest do not, as indicated in table 5.

| | Frequency | Percentage | Valid percentage | Accumulated percentage |
|-------|-----------|------------|------------------|------------------------|
| Valid | 3 | 8 | 8.8 | 8.8 |
| | 4 | 67 | 73.6 | 82.4 |
| | 5 | 16 | 17.6 | 100.0 |
| | Total | 91 | 100.0 | |

Table 6 Economic condition of the participating students

Source: *self made*, (2019)

None of the students surveyed reported having a very bad or poor economic condition, 67% considered having a regular economic condition and the remaining ones, 8% considered it a satisfactory minimum, 16% defined it as very good and none considered it Excellent. Likewise, information was obtained regarding the subjects or semesters that the surveyed students have taken (Table 7).

| | Frequency | Percentage | Valid percentage | Accumulated percentage |
|-------|-----------|------------|------------------|------------------------|
| Valid | 1 | 8 | 8.8 | 8.8 |
| | 2 | 83 | 91.2 | 100.0 |
| | Total | 91 | 100.0 | |

Table 7 Subjects or semesters appealed by the students participating in the research

Source: *self made*, (2019)

In this case, the survey showed that 1 in 10 students, has taken some subject or semester. Because this research will take into account the grade point average as a personal weighting of learning skills, the scores obtained were also assessed with a scale of 0 to 100, from which a general average of 8.9 is rescued. The participants were also asked for a self-reference of their emotional state, whose results are shown in the following table (Table 8).

| | Frequency | Percentage | Valid percentage | Accumulated percentage |
|-------|-----------|------------|------------------|------------------------|
| Valid | 2 | 4 | 4.4 | 4.4 |
| | 3 | 15 | 16.5 | 20.9 |
| | 4 | 32 | 35.2 | 56.0 |
| | 5 | 38 | 41.8 | 97.8 |
| | 6 | 2 | 2.2 | 100.0 |
| Total | 91 | 100.0 | 100.0 | |

Table 8 Self-reference of the emotional state of the students participating in the research

Source: *self made*, (2019)

In this regard, none said they had a very bad emotional condition, 2 of them consider it unsatisfactory, 15 minimum satisfactory and three quarters of regular to excellent. Specifically about 75% self-reported having some level of anxiety, anguish and fear. Around 60% declared low self-esteem and fear. Nearly 50% showed presence of apprehension, aggressiveness and depression and approximately 35% have felt fear or shyness.

The information analyzed had a Cronbach Alpha of .83. About 75% of the students assessed themselves with anxiety, anguish and fear; 60% said they felt low self-esteem; 50% expressed apprehension, aggressiveness and depression and 35% felt shy. The correlational analysis between aggressiveness and the school average showed r-.206 with p.05, which allows us to establish that the higher the sense of aggressiveness is the school average or the lower the feeling of aggressiveness, the higher the school average.

Self-assessment of anxiety, anxiety, apprehension, low self-esteem, depression, anger, fear, nervousness, rebellion and shyness showed no correlation with the school average.

Annexes

Questionnaire: "Self-assessment of emotional state"

Author: Doctor in Human Communication, José Alejandro Ríos Valles

IDENTIFICATION: Write or mark the corresponding data.

| | |
|--|---------------------|
| 1. Name of the participant: ANONYMOUS | |
| 2. Age: years | 3. Sex: Male Female |
| 4. Religion: | 5. CURRENT SEMINAR: |
| 6. Marital status: SINGLE MARRIED FREE UNION DIVORCED SEPARATE VIUDO | |
| 7. I HAVE CHILDREN OR DAUGHTERS: HOW MANY OR HOW MANY: | |
| 8. Place of birth: | |
| 9. Place of residence: | |
| 10. Economic condition: Very bad__ Little bad__ Minimum satisfactory__ Regular__ Very good__ Excellent__ | |
| 12. Emotional condition: 13. Very bad__ Little bad__ Minimum satisfactory__ Regular__ Very good__ Excellent__ | |
| 14. School average (so far): | |
| 15. Have you taken any subject from your current study program: NO__ YES__ | |
| 16. What subject (s) have you taken, what semester and how many times? | |
| MATTER: SEMESTER: HOW MANY TIMES: | |
| MATTER: SEMESTER: HOW MANY TIMES: | |
| MATTER: SEMESTER: HOW MANY TIMES: | |
| MATTER: SEMESTER: HOW MANY TIMES: | |
| MATTER: SEMESTER: HOW MANY TIMES: | |
| 17. Indicate which or which statements in the following list correspond to your emotional condition and next to the one or those that you consider put to what degree, according to a scale of value from 0 to 10, where ZERO IS NOTHING and the TEN THE STRONGEST OR SEVERE. ANXIETY__ ANGSTIA__ APRENSIVITY__ AGGRESSIVE__ LOW SELF-ESTIMATE__ DEPRESSION__ ENOJO__ FEAR__ NERVIOSISM__ REBELDIA__ TIMIDEZ__ If there are one or more emotional states not considered in the above list, please state it and indicate to what degree you consider it: | |

In the table below, next to each statement, PUT THE NUMBER CORRESPONDING to the rating with which you self-consider YOUR SKILL using the following value scale:

| | | | |
|---|-------------------------------|----|------------------|
| 0 | NOTHING | | |
| 1 | ALMOST NOTHING | 6 | A LITTLE GOOD |
| 2 | VERY POOR | 7 | MEDIUMLY GOOD |
| 3 | DEFICIENT | 8 | GOOD |
| 4 | BETWEEN DEFICIENT AND REGULAR | 9 | VERY GOOD |
| 5 | REGULAR | 10 | EXCELLENTLY GOOD |

| Abilities: | Qualification | Abilities: | Qualification |
|---------------------------|---------------|-----------------------------|---------------|
| 1. Attention | | 1. Mathematical calculation | |
| 2. Understand what I hear | | 2. Write | |
| 3. Understand what I read | | 3. Talk | |
| 4. AUDITIVE Memory | | 4. Read | |
| 5. VISUAL Memory | | 5. Think | |

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Analysis and conclusion

A positive relationship between the self-evaluation of the emotional situation of the students of the degree in Human Communication Therapy of the Faculty of Psychology and Therapy of Human Communication and the school average that each one has is confirmed.

So, self-evaluation (in this case of emotional state) is important and beneficial for students (in relation to their school average).

Of course, having this information becomes a tool that provides elements for the educational institution to which the aforementioned students belong (FPYTCH, of the UJED) to design contextualized strategies for the support in the management of their own emotions and this is see reflected in the improvement of the school average.

Therefore, the students of the aforementioned degree know how to detect, self-refer and manage their emotions (by the correlation found in this research) provides the opportunity to raise the possibility of improving their performance, since according to (Pallarés, 2010) this you can train, exercise and improve.

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Industrial safety and health actions for business growth in a metalworking industry**Acciones de seguridad e higiene industrial para el crecimiento empresarial en una industria del ramo metalmeccánica**

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Abstract

Objectives. Improve the working conditions and productivity index through the implementation of Industrial Safety and Hygiene and Plant Distribution actions in a pressure foundry company. Methodology. 1. Analysis of the manufacturing process of aluminum and zamak parts. 2. To identify the risk elements those do not allow to work in a safe and a right way. 3. To assign safety equipment according to the risks of the area and the integration of a Joint Commission on Safety and Industrial Hygiene. 4. To identify the containers for waste management in the different phases of the process. 5. To re-distribute the lay out to improve ventilation and lighting of the areas. 6. To analyze the results, considering the impact on the improvement of the company's productivity. Contribution. Ensure the safety of its employees, achieve a better work environment, comply with established regulations and improve productivity in the company.

Security, Terms, Improvement

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Resumen

Objetivos. Mejorar condiciones de trabajo e índices de productividad mediante la implementación de acciones de Seguridad e Higiene Industrial y Distribución de Planta en una empresa de fundición a Presión. Metodología. 1. Análisis del proceso de fabricación de piezas de aluminio y zamak. 2. Identificación de los riesgos de trabajo en las distintas áreas de fabricación para determinar cuáles son los elementos que pueden impedir que las actividades de trabajo se lleven a cabo de forma óptima y segura. 3. Asignar de equipos de protección personal de acuerdo a los riesgos del área y la integración de una Comisión Mixta de Seguridad e Higiene Industrial. 4. Identificar de contenedores para el manejo de residuos en las diferentes fases del proceso. 5. Redistribución de Planta para mejorar la ventilación e iluminación de las áreas de trabajo. 6. Analizar de resultados, considerando el impacto en la mejora de la productividad de la empresa. Contribución. Garantizar la seguridad de sus colaboradores, lograr un mejor ambiente de trabajo, cumplir con la normatividad establecida y mejorar la productividad en la empresa.

Seguridad, Condiciones, Mejora

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Introduction

Today we know that, to meet the demands within the labor market, it is important that all organizations offer excellent quality in their products through continuous improvements in their processes without neglecting the safety of their workers, for that reason it is important that employees make proper use of Personal Protective Equipment that ensures their well-being. The company dedicated to the manufacture of aluminum and zamak parts through a casting and injection process, which over time has managed to expand its market nationally and internationally, which demands a constant work of continuous improvement within its processes, and a constant work of continuous improvement within its processes, being one of the primary ones related to Industrial Safety and Hygiene because, for every organization, the well-being of all its workers favors their best performance, bringing as benefits a Increased productivity as well as a better quality of the products offered, therefore it is necessary a correct application of Safety and Hygiene in the Industrial, and the change of some of the current working conditions.

In this company activities are carried out where workers are constantly exposed to suffer accidents or occupational diseases, due to the activities that are carried out, that is, they work with smelting furnaces and high temperature injection machines, with hydraulic dies, noise, vibrations, with sharp metals, gases and vapors from the foundry. However, something that is surprising is the lack and inappropriate use of personal protective equipment in each of the company's productive areas. For all the above, the aim is to improve working conditions, which have a direct impact on better productivity rates within the company.

On the other hand, many of the working conditions put employees at risk, mainly in the polishing area, this area is in a small room, without ventilation and with insufficient lighting where small metal particles from the sanding of the products are released, not having the personal protective equipment appropriate to the type of work, in addition the flow of materials is carried out on boxes or containers that are pulled, pushed and guided on concrete stairs, which presents for the people in charge of the movement of material a great work risk.

With respect to the garbage collection containers, they are not properly identified, that is, the garbage is not properly separated, any material or any waste is deposited in them, which has the consequence that this garbage cannot be deposited in municipal garbage dumps since Many times it contains hazardous materials. "The procedures, techniques and elements that are applied in the workplace, for the recognition, evaluation and control of harmful agents involved in work processes and activities, in order to establish measures and actions for accident prevention or occupational diseases, in order to preserve the life, health and physical integrity of workers, as well as avoid any possible deterioration to the workplace itself"[1] Camilo Janania Abraham.

Process description

The company is dedicated to the elaboration of aluminum and zamak parts, its process consists of six work stations to obtain the final product.

A detailed description of the activities carried out in each of the productive areas to obtain the final products with the characteristics required by customers will be made below.

Casting (Obtaining Ingots)

This process consists of melting the aluminum or zamak, for the manufacture of ingots, using reverber furnaces. The aluminum or zamak are placed in the oven and heated to obtain the aluminum or zamak in a liquid state. Aluminum melts at approximately 700 ° C, while zamak melts at 400 ° C. Subsequently, when the aluminum or zamak is in a liquid state, it is poured onto ingot molds (molds) that will make it take the desired shape, once this occurs it takes 10 to 15 seconds to solidify, when they cool they begin to unmold, in order to obtain the ingots that will later be used in the injection area.

Casting-Injection

This process begins when the ingots previously manufactured, are placed in a crucible that is installed on a furnace of refractory partition, this is heated to a temperature that is able to melt the aluminum or zamak respectively, that is, it returns to the liquid state.

The aluminum or zamak can be poured into the injection machine that gives a shape to the product to be manufactured, by means of two molds that are compacted under hydraulic pressure, these have cavities that allow the passage of aluminum or liquid zamak, using a piston of push once it has solidified and adopted the new shape, the molds are opened, the piece is removed and placed on a work table.

Die cut

When the parts are injected, it is normal for the manufactured part to be left with surpluses of aluminum or zamak at its edges, which is why this workstation is responsible for giving the parts a better finish with the use of hydraulic dies and electric. The removal of excess material is achieved through the use of molds that have the exact shape and size of the piece, this is placed in the mold, and a pedal is operated, this causes the other part of the mold to descend under pressure and remove excess contour material.

Machining

This is the workstation that is responsible for performing the relevant machining according to the piece to be made, all manufactured parts are different, and therefore each type has its own machining. All the pieces that have a surplus of material that could not be removed by the die cut, have to be polished, in other words, bank emery is used to completely remove the surpluses of any type of piece.

Painting

Most of the manufactured products are sold with their natural color, that is, they are not painted, to take advantage of their glossy finish, however, some products must meet other specifications, which is why this work area is so important. Like the others in this area the powder paint is applied to the coating of the pieces, then they are placed in an electric oven, which produces a durable and high-strength finish, in addition to having no major impact on the environment.

Packaging

Once the pieces have gone through the entire manufacturing process complying with the specifications in particular, they are taken to the finished product area so that they can be packed in boxes according to customer requirements, sometimes the pieces are only counted and sent in sacks, this depends on the specifications indicated by the client. Each box carries an identification tag, with the name of the product, the date it was packed and the customer's name.

Risk analysis

| ÁREA PRODUCTIVA | RIESGOS |
|--|--|
| FUNDICIÓN | Alas temperaturas |
| | Mala ventilación |
| | No utilización de Equipo de Protección |
| | Falta de contenedores adecuados para el manejo de materiales |
| | Mal ubicación del extintor |
| INYECCIÓN | Alas temperaturas |
| | Mala ventilación |
| | No utilización de Equipo de Protección |
| | Falta de iluminación |
| | Instalaciones eléctricas en mal estado |
| | Tuberías no identificadas |
| | Obstrucción de pasillos |
| | Maquinaria y equipo no utilizados |
| Falta de contenedores adecuados para el manejo de materiales | |
| TROQUELADO | No hay un extintor en esta área |
| | Exceso de materiales no utilizados |
| | No utilización de Equipo de Protección |
| | No hay un extintor en esta área |
| | Carencia de orden específico de moldes y maquinaria |
| Contenedores de materiales mal ubicados | |
| MAQUINADO | Mala ventilación |
| | No utilización de Equipo de Protección |
| | Falta de contenedores adecuados para el manejo de materiales |
| | Obstrucción de pasillos |
| PINTURA | Extintor obstruido |
| | Ausencia de campana de extracción |
| | No utilización de Equipo de Protección |
| | Mala ventilación |
| | No hay un extintor en esta área |
| EMBALAJE | Salida de emergencia obstruida y reducida |
| | Ausencia de lugar específico para la realización de esta operación |
| | No utilización de Equipo de Protección |
| | No hay un extintor en esta área |
| | Salida de emergencia obstruida y reducida |
| Falta de contenedores adecuados para el manejo de materiales | |

Table 1 Risk analysis

In the company a risk analysis is carried out in order to determine what are the reasons that can prevent work activities from being carried out optimally and safely. Table 1 shows the relationship of the types of risk in each of the productive areas.

With the results obtained after performing the risk analysis, it was determined that one of the main needs within the company is Safety and Industrial Hygiene. A survey of 50 workers was carried out to determine why they do not use their Protective Equipment, Table 2 lists the main reasons why workers do not use PPE.

| RAZÓN | RESULTADO |
|--|--------------------|
| No proporcionan el equipo de protección personal | 23 |
| Es incomodo | 14 |
| Se tiene mucha experiencia sobre el trabajo | 9 |
| Se perdió | 4 |
| TOTAL | 50 personas |

Table 2 Use of production equipment

Assignment of protective equipment


It is necessary to make a reference chart that allows a correct selection of personal protective equipment that should be used by each worker considering the activities performed and the environment in which it develops. Table 3 shows the classification of the equipment highlighting each part of the body that is exposed to work and the personal protective equipment that could be used, as well as a proposal on the personal protection equipment that should be delivered to each operator of according to their area and the work they do.

| CLAVE Y REGION ANATOMICA | CLAVE Y EQUIPO DE PROTECCION PERSONAL |
|----------------------------|---|
| 1) CABEZA | A) CASCO CONTRA IMPACTO B) CASCO DIELECTRICO C) COFIA D) OTROS |
| 2) OJOS Y CARA | A) ANTEOJOS DE PROTECCION B) GOOGLES DE SEGURIDAD C) CARETA FACIAL D) CARETA DE SOLDADOR E) GAFAS DE SOLDADOR F) OTROS |
| 3) OIDOS | A) TAPONES AUDITIVOS B) CONCHAS ACUSTICAS C) OTROS |
| 4) APARATO RESPIRATORIO | A) RESPIRADOR CONTRA PARTICULAS B) RESPIRADOR CONTRA GASES Y VAPORES C) CUBREBOCAS D) RESPIRADOR AUTONOMO E) OTROS |
| 5) EXTREMIDADES SUPERIORES | A) GUANTES CONTRA SUSTANCIAS QUIMICAS B) GUANTES PARA USO ELECTRICO C) GUANTES CONTRA ALTAS TEMPERATURAS D) GUANTES DE TELA E) MANGAS F) OTROS |
| 6) TRONCO | A) MANDIL CONTRA ALTAS TEMPERATURAS B) MANDIL CONTRA SUSTANCIAS QUIMICAS C) OVEROL D) BATA E) OTROS |
| 7) EXTREMIDADES INFERIORES | A) CALZADO DE SEGURIDAD B) CALZADO CONTRA IMPACTOS C) CALZADO DIELECTRICO D) CALZADO CONTRA SUSTANCIAS QUIMICAS E) CALZADO PARA ALTAS TEMPERATURAS F) BOTAS IMPERMEABLES G) OTROS |
| 8) OTROS | A) ARNES DE SEGURIDAD B) EQUIPO CONTRA INCENDIO C) OTROS |

Table 3 EPP Type

The conditions of each worker depend on the area in which they work, that is, some workers are exposed to higher temperatures than others, some more are in contact with small metal particles that are inhaled or can affect the eyes etc., use Proper personal protective equipment prevents the worker from putting his health at risk. Table 4 which is a reference chart that proposes the personal protective equipment that should be used in each work area.

CUADRO DE REFERENCIAS SOBRE EL EQUIPO DE PROTECCIÓN PERSONAL A UTILIZAR EN LAS DISTINTAS ÁREAS DE LA EMPRESA



| ÁREA DE TRABAJO | EQUIPO DE PROTECCIÓN PERSONAL | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|-------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | | | | | | | | | |
| | A | B | C | D | A | B | C | D | E | F | A | B | C | D | E | F | A | B | C | D | E | F | G |
| FUNDICIÓN | | | | | | | | | | | | | | | | | | | | | | | |
| INYECCIÓN | | | | | | | | | | | | | | | | | | | | | | | |
| TROQUELADO | | | | | | | | | | | | | | | | | | | | | | | |
| MAQUINADO | | | | | | | | | | | | | | | | | | | | | | | |
| PULIDO | | | | | | | | | | | | | | | | | | | | | | | |
| PINTURA | | | | | | | | | | | | | | | | | | | | | | | |
| MANTENIMIENTO | | | | | | | | | | | | | | | | | | | | | | | |
| MOLDES | | | | | | | | | | | | | | | | | | | | | | | |
| OFICINAS | | | | | | | | | | | | | | | | | | | | | | | |

NOTA: EL EQUIPO DE PROTECCIÓN PERSONAL DE LAS OFICINAS, SOLO ES UTILIZADO CUANDO SE ENCUENTREN EN EL ÁREA PRODUCTIVA, YA QUE EN SU ÁREA DE TRABAJO NO CORREN NINGÚN RIESGO CONTRA ACCIDENTES O ENFERMEDADES Y EL PERSONAL DE MANTENIMIENTO Y MOLDES DEBERÁN TENER EL EPP DE ACUERDO A LA ACTIVIDAD QUE REALICEN.

Table 4 Reference chart

The correct assignment of personal protective equipment will allow a better use of it, however, assigning protective equipment to workers is not enough, it is important that they also have the necessary information to know what it is and what is the importance of using the PPE. [2] Ramírez Cavassa César. In order to raise awareness among employees, as well as to provide them with sufficient information about the importance of the proper use of personal protective equipment, a triptych was drawn up that included necessary information about the importance of proper use of the equipment, personal protection, and of each of the parts of the body that you need to be protected to preserve the health and integrity of workers (Figure 1 and 2) The Joint Health and Safety Commission (CMSH) is also created, in order to verify that all workers wear their personal protective equipment, thus preventing accidents and occupational diseases.



Figure 2 Triptych of Personal Protective Equipment

Container identification

The company presented serious problems with the garbage inside and outside the plant, that is, there were containers located in the different work areas, however, the workers did not deposit the garbage there or classify, when these containers were filled nobody moved them outside the plant and this caused problems of excessive dirt inside the company, coupled with this began to arise problems with the personnel who took the garbage; how:

- The personnel in charge of taking the garbage, had to separate it, and had to pay for that extra service.
- Waste such as sandpaper, rags, tows, gloves, mouth covers, earplugs, etc., could no longer be deposited in the garbage truck.

According to the above, a standardization of colors in the garbage containers was carried out, so that the classification of the same was easier for the workers, the standardization of the colors is as follows:

- Green - Organic
- Yellow - Inorganic
- Red - Hazardous waste



The colors used were chosen by the company, considering the needs they had and the expected results. Figure 3 shows the process of color standardization.



Figure 1 Triptych of Personal Protective Equipment



Figure 3 Standardization Process

The containers were placed in strategic areas inside and outside the plant, thus ensuring that workers deposit the garbage in the correct containers and assign personnel responsible for removing the containers located inside the plant when they are at their maximum capacity and of this how to keep work areas clean and tidy.

Plant Redistribution

Below is a description of the current plant distribution of the company and subsequently an improvement proposal will be made that allows the modification of work stations that do not have the right conditions, as well as making more efficient use of the productive area and Administrative of the plant.

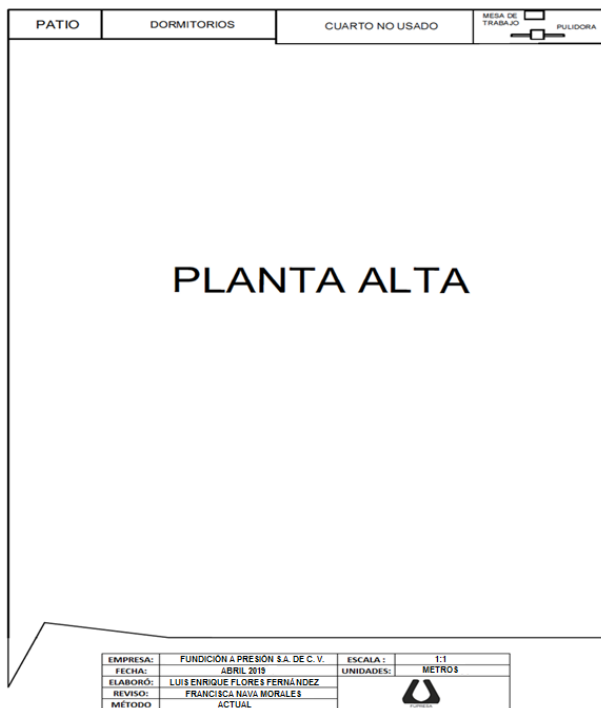


Figura 4 Upstairs distribution

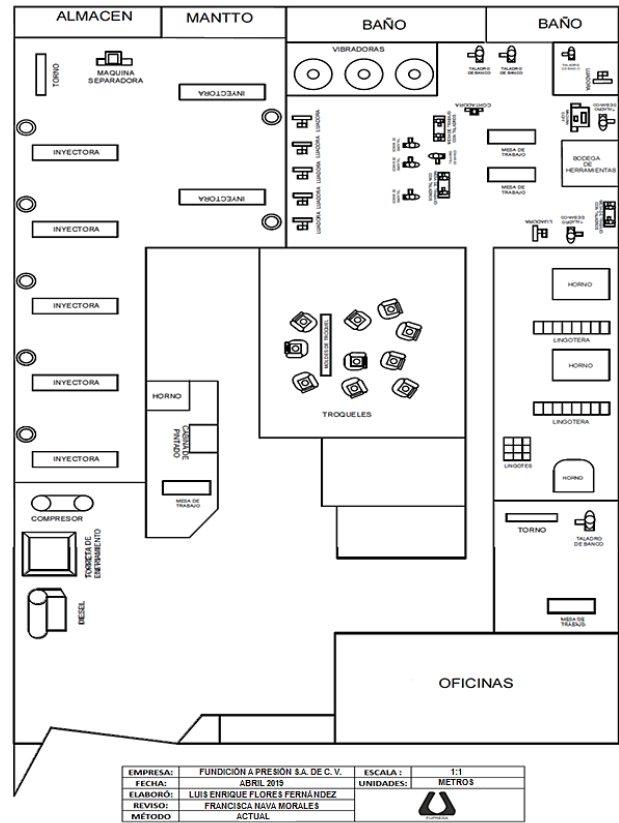


Figure 5 Ground Floor Distribution

Current Distribution

The department that presents problems with the ordering of its machinery and equipment is "machining", since the polishing area that is part of machining, is located on the top floor of the company, is a room with a dimension of 2.50 m X 2.25 m, this causes small metal particles resulting from polishing the pieces to disperse throughout the place preventing proper lighting, in addition the place lacks windows that allow the passage of sunlight and ventilation.

The quantity of pieces that can be stored as a product in process are very few because the machines and other unused foreign elements occupy most of the available space, when it is required to distribute the material to this place the operators must tie a loop to the container to be able to pull it, push it or slide it down the concrete stairs, finally when the material has been worked the same situation happens, this type of working conditions can undermine the physical integrity of the operators, due to the risk of falling to the go up or down the stairs with such heavy containers.

On the ground floor (fig. 5), there are other machines involved in the production process, the drills; They are used to make holes of various diameters according to the requirement of the piece, they do not have an adequate order within the area since they lack a good alignment, that is, each has a different position. On the left side of this area are the sanders and the containers of products in process, the last ones occupy too much space that could be used to correctly place all the machines and prevent the obstruction of the aisles as well as reduce the distance traveled by the materials to move on to the next phase of the process.

Proposed Distribution

According to the analysis performed in the machining area, the best distribution that can be had is in batches, that is, ordering the machinery according to the function it performs, firstly it is important that the bench drills are placed in only one direction, and that there is a prudent space between the work tables, thus allowing the correct transport of materials from one machine to another. The sanding machines must be on the opposite side of the drills in the same position, that is, glued to the wall, thus reducing the space used in this area.

With this distribution it will be possible to have more space in the place, which will facilitate the movement and transport of the materials either from one operation to the next or to some other area, in addition it will allow the correct placement of the other work tables, this with the purpose of having enough space for the polishing area to be installed on the ground floor, thus allowing the operator to perform their activities optimally, in addition a better flow of materials is achieved, that is, by not having to move to the upstairs the pieces to work the time it take to travel the material will decrease. In the vibrating machines, doors and concrete walls will be placed, that is, a completely enclosed room will be made that reduces the noise level, in addition the switches that actuate them will be placed on the outside, with this the operator can operate them without Need to be near the machine. Finally the containers of product in process, will be in the center of the machining area, allowing the materials to be transported and used effectively. Figure 6 and 7 is the graphic description of the distribution proposed in the company.

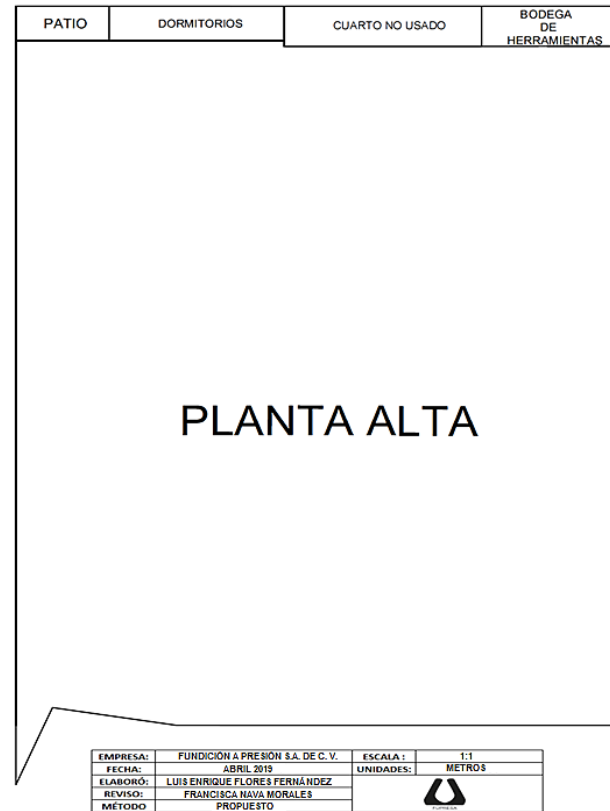


Figure 6 High floor distribution proposal

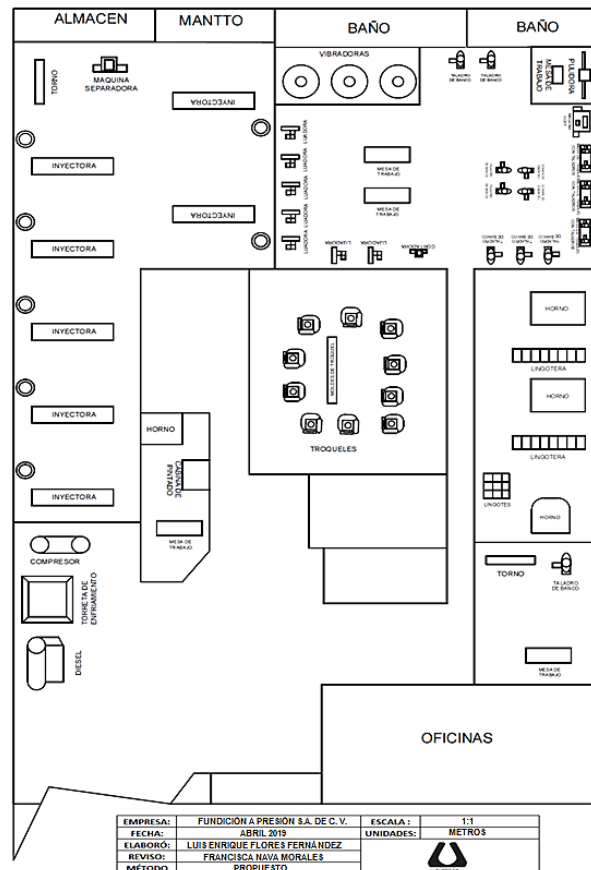


Figure 7 Ground floor distribution proposal

Results obtained

The formats developed for the choice of protective equipment allowed the workers to adequately provide the type of equipment they require according to the area in which they develop, and the proper use of this prevents accidents and illnesses or occupational injuries caused by lack of protection against working conditions. With visual aids (Figure 8) and the active participation of the Joint Commission on Safety and Hygiene, it has been possible that each and every one of the company's employees make good use of their personal protection equipment during all their working days, at their Once the injuries caused by the lack of protection have decreased thanks to this.



Figure 8 EPP visual aid

In addition, with the correct assignment of personal protective equipment within the company, it was possible to reduce the rate of occupational accidents caused by the conditions in which they worked, in addition to granting operators the protective equipment makes them feel safe to wear Out your activities. In order to get workers to make proper use of their protective equipment, it was necessary for the Joint Commission on Safety and Hygiene to participate constantly and respectfully to obtain good responses from employees.

With the correct identification of the boats, the handling of garbage and hazardous waste has been facilitated, since having a distinctive color for each type of waste it is possible to classify them quickly and effectively.

The plant distribution proposal will make the most of the space available within the company, at the same time, the flow of materials will be more efficient because having the machinery sorted according to their function, the material will circulate from one area to another efficiently since the aisles are well defined and free of any obstruction, the polishing area will be moved to the ground floor which will prevent the materials from having to go down and up several times, the tool cellar will be placed on the top floor with the purpose of making the most of the ground floor space. With the proposed plant redistribution, it will be possible to eliminate downtime between operations since the flow of materials will be more constant, that is, the time lost from one area to another may be better used, also considering that with this new distribution optimal use is made of the space available within the plant.

Conclusions

With the correct assignment of personal protective equipment within the company, the rate of occupational accidents caused by the conditions in which it was worked was reduced by 20%, in addition to granting operators the protective equipment makes them feel sure to carry out their activities. In order to get workers to make proper use of their protective equipment, it was necessary for the Joint Commission on Safety and Hygiene to participate constantly and respectfully to obtain good responses from employees. With the redistribution of the plant, it will be possible to eliminate downtime between operations, since the flow of materials will be more constant, that is, the time lost from one area to another can be better used, also considering that with this new distribution optimal use is made of the space available within the plant.

Finally, the improvements implemented reflected allowed the company to raise productivity rates, since according to the analysis made, of one of its products (lemon squeezers), it was possible to increase production per day by 12%.

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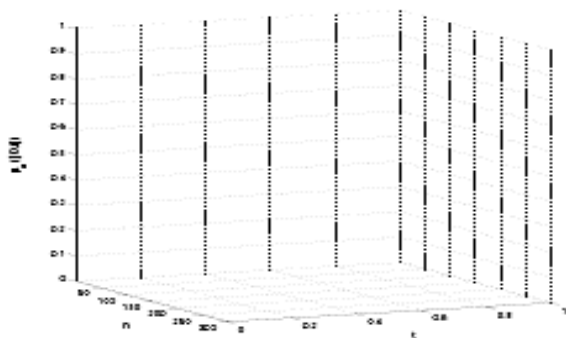
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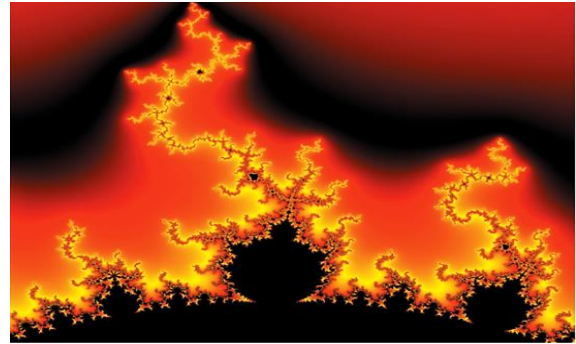


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