ISSN 2523-2479

Volume 7, Issue 17 – January – June – 2023

Journal of Critical Pedagogy

ECORFAN®

Journal of Critical Pedagogy, Volume 7, Issue 17, January - June - 2023, is a journal published every six months by ECORFAN-Peru. La Raza Av. 1047 No.- Santa Ana, Cusco-Peru. Postcode: 11500. WEB: www.ecorfan.org/republicofperu, revista@ecorfan.org. Editor in Chief: OLIVES-MALDONADO, Carlos. MsC. ISSN: 2523-2479. Responsible for the last update of this issue of the ECORFAN Informatics Unit. ESCAMILLA-BOUCHÁN, Imelda. PhD, LUNA-SOTO, Vladimir. PhD, updated June 30, 2023.

Journal of Critical Pedagogy

Definition of Journal

Scientific Objectives

Support the international scientific community in its written production Science, Technology and Innovation in the Field of Social Sciences, in Subdisciplines of psychology of the education of the sociology, conditions of the educational act from the physiology, conditions of the educational act from the sciences of the communication, pedagogical techniques and the science of the methods, the sciences of the evaluation, the didactics and the theory of the programs.

ECORFAN-Mexico, S.C. is a Scientific and Technological Company in contribution to the Human Resource training focused on the continuity in the critical analysis of International Research and is attached to CONAHCYT-RENIECYT number 1702902, its commitment is to disseminate research and contributions of the International Scientific Community, academic institutions, agencies and entities of the public and private sectors and contribute to the linking of researchers who carry out scientific activities, technological developments and training of specialized human resources with governments, companies and social organizations.

Encourage the interlocution of the International Scientific Community with other Study Centers in Mexico and abroad and promote a wide incorporation of academics, specialists and researchers to the publication in Science Structures of Autonomous Universities - State Public Universities - Federal IES - Polytechnic Universities - Technological Universities - Federal Technological Institutes - Normal Schools - Decentralized Technological Institutes - Intercultural Universities - S & T Councils - CONAHCYT Research Centres.

Scope, Coverage and Audience

Journal of Critical Pedagogy is a Journal edited by ECORFAN-Mexico, S.C. in its Holding with repository in Republic of Peru, is a scientific publication arbitrated and indexed with semester periods. It supports a wide range of contents that are evaluated by academic peers by the Double-Blind method, around subjects related to the theory and practice of psychology of the education of the sociology, conditions of the educational act from the physiology, conditions of the educational act from the sciences of the communication, pedagogical techniques and the science of the methods, the sciences of the evaluation, the didactics and the theory of the programs with diverse approaches and perspectives , That contribute to the diffusion of the development of Science Technology and Innovation that allow the arguments related to the decision making and influence in the formulation of international policies in the Field of Social Sciences. The editorial horizon of ECORFAN-Mexico® extends beyond the academy and integrates other segments of research and analysis outside the scope, as long as they meet the requirements of rigorous argumentative and scientific, as well as addressing issues of general and current interest of the International Scientific Society.

Editorial Board

Arbitration Committee

Assignment of Rights

The sending of an Article to Journal of Critical Pedagogy emanates the commitment of the author not to submit it simultaneously to the consideration of other series publications for it must complement the Originality Format for its Article.

The authors sign the Authorization Format for their Article to be disseminated by means that ECORFAN-Mexico, S.C. In its Holding Republic of Peru considers pertinent for disclosure and diffusion of its Article its Rights of Work.

Declaration of Authorship

Indicate the Name of Author and Coauthors at most in the participation of the Article and indicate in extensive the Institutional Affiliation indicating the Department.

Identify the Name of Author and Coauthors at most with the CVU Scholarship Number-PNPC or SNI-CONACYT- Indicating the Researcher Level and their Google Scholar Profile to verify their Citation Level and H index.

Identify the Name of Author and Coauthors at most in the Science and Technology Profiles widely accepted by the International Scientific Community ORC ID - Researcher ID Thomson - arXiv Author ID - PubMed Author ID - Open ID respectively.

Indicate the contact for correspondence to the Author (Mail and Telephone) and indicate the Researcher who contributes as the first Author of the Article.

Plagiarism Detection

All Articles will be tested by plagiarism software PLAGSCAN if a plagiarism level is detected Positive will not be sent to arbitration and will be rescinded of the reception of the Article notifying the Authors responsible, claiming that academic plagiarism is criminalized in the Penal Code.

Arbitration Process

All Articles will be evaluated by academic peers by the Double Blind method, the Arbitration Approval is a requirement for the Editorial Board to make a final decision that will be final in all cases. MARVID® is a derivative brand of ECORFAN® specialized in providing the expert evaluators all of them with Doctorate degree and distinction of International Researchers in the respective Councils of Science and Technology the counterpart of CONAHCYT for the chapters of America-Europe-Asia- Africa and Oceania. The identification of the authorship should only appear on a first removable page, in order to ensure that the Arbitration process is anonymous and covers the following stages: Identification of the Research Journal with its author occupation rate - Identification of Authors and Coauthors - Detection of plagiarism PLAGSCAN - Review of Formats of Authorization and Originality-Allocation to the Editorial Board- Allocation of the pair of Expert Arbitrators-Notification of Arbitration -Declaration of observations to the Author-Verification of Article Modified for Editing-Publication.

Instructions for Scientific, Technological and Innovation Publication

Knowledge Area

The works must be unpublished and refer to topics of psychology of the education of the sociology, conditions of the educational act from the physiology, conditions of the educational act from the sciences of the communication, pedagogical techniques and the science of the methods, the sciences of the evaluation, the didactics and the theory of the programsand other topics related to Social Sciences.

Content Presentation

In the first article we present, *Counseling and Tutoring, tools to reduce desertion at the TSU level*, by RODRÍGUEZ-VARGAS, María de Jesús, ARROYO-ALMAGUER, Marisol, GAMBOA-RODRÍGUEZ, Patricia Guadalupe and CISNEROS-LÓPEZ, Hilda Lucía, with adscription at the Universidad Tecnológica del Suroeste de Guanajuato, Instituto Tecnológico Superior de Coatzacoalcos and Universidad de Guanajuato; as a second article we present, *The skills of thinking and computational programming*, by AGUILAR-ESPINOSA, María Guadalupe, CISNEROS-LOPEZ, Hilda Lucia, RUBIO-RIVERA, Rocío and VACA-GONZALEZ, Francisco Javier, with adscription at the Universidad de Guanajuato; as third article we present, *Dream Scape: Gamificando las funciones cognitivas*, by GAMBOA-RODRIGUEZ, Patricia Guadalupe, RODRÍGUEZ-VARGAS, María de Jesús, GARDUZA-CASTILLO, Kelsy Elise and JIMÉNEZ-ZARATE, Lizbeth, with adscription at the Tecnológico Nacional de México – ITS Coatzacoalcos and Universidad Tecnológica del Suroeste de Guanajuato; as the last article we present, *Job performance and psychosocial risks in teaching*, by MINA, Susana del Carmen, QUINTANA-GARRIDO, Juan Diego and DE LOS SANTOS-SANTOS, Diana, with adscription at the Universidad Tecnológica Del Sureste De Veracruz.

Content

Article **Journal of Critical Pedagogy**
June, 2023, Vol.7 No.17 1-5

Counseling and Tutoring, tools to reduce desertion at the TSU level

Asesoría y Tutoría, herramientas para disminuir la deserción en el nivel TSU

RODRÍGUEZ-VARGAS, María de Jesús†*[1], ARROYO-ALMAGUER, Marisol[1], GAMBOA-RODRÍGUEZ, Patricia Guadalupe[2] and CISNEROS-LÓPEZ, Hilda Lucía[3]

[1]*Universidad Tecnológica del Suroeste de Guanajuato, Tecnologías de la Información.*
[2]*Instituto Tecnológico Superior de Coatzacoalcos, Ingeniería en Animación Digital y Efectos Visuales.*
[3]*Universidad de Guanajuato, Colegio de Nivel Medio Superior de Salvatierra.*

ID 1st Author: *María De Jesús, RODRÍGUEZ-VARGAS* / **ORC ID**: 0000-0002-3849-622X

ID 1st Co-author: *Marisol, Arroyo-Almaguer* / **ORC ID**: 0000-0002-7360-8952

ID 2nd Co-author: *Patricia Guadalupe, Gamboa-Rodríguez* / **ORC ID**: 0000-0002-0865-3298

ID 3rd Co-author: *Hilda Lucía, Cisneros-López* / **ORC ID**: 0000-0003-3245-0279

DOI: 10.35429/JCP.2023.17.7.1.5 Received March 10, 2023; Accepted June 30, 2023

Abstract

Derived from the increase in dropout rates during the year 2020-2021 at the TSU level in Information Technology, the implementation of strategies that effectively address this problem is proposed. The most frequent causes in the students who dropped out of the career were analyzed to determine the elements to consider, these being the lack of identification with the educational program and personal problems. Counseling and tutoring strategies were implemented by the teaching staff and complemented by the support of external specialists in the different areas of the curricular plan, as well as psycho-pedagogical support. The results obtained are favorable by reducing the number of dropouts from 15 to 1 in the next cycle, in addition to strengthening soft skills in students. Additionally, a projection of these strategies is displayed as part of a didactic model for the reinforcement of technical and soft skills in the university community.

Counseling, Tutoring, Desertion

Resumen

Derivado del incremento en los índices de deserción durante el año 2020-2021 en el nivel de TSU en Tecnologías de la Información, se propone la implementación de estrategias que enfrenten de manera eficaz esta problemática. Se analizaron las causas más frecuentes en el alumnado que desertaba de la carrera para determinar los elementos a considerar, siendo estos la falta de identificación con el programa educativo y problemas personales. Se implementaron estrategias de asesorías y tutorías por parte del personal docente y se complementó con el soporte de especialistas externos en las diferentes áreas del plan curricular, así como con apoyo psicopedagógico. Los resultados obtenidos son favorables al disminuir el número de deserciones de 15 a 1 en el siguiente ciclo, además de fortalecer las habilidades blandas en el estudiantado. Adicionalmente se visualiza una proyección de estas estrategias como parte de un modelo didáctico de reforzamiento de competencias técnicas y blandas en la comunidad universitaria.

Asesoría, Tutoría, Deserción

Citation: RODRÍGUEZ-VARGAS, María de Jesús, ARROYO-ALMAGUER, Marisol, GAMBOA-RODRÍGUEZ, Patricia Guadalupe and CISNEROS-LÓPEZ, Hilda Lucía. Counseling and Tutoring, tools to reduce desertion at the TSU level. Journal of Critical Pedagogy. 2023. 7-17:1-5

† Researcher contributing as first author.

Introduction

The Technological Universities are decentralised organisms of the governments of the states of the Mexican Republic. Since 1991, they began to be created throughout the national territory, seeking to offer a new educational alternative that would favour the effective insertion of their graduates in the labour market by providing training linked between the University and the companies.

In 1998, the Technological University of the Southwest of Guanajuato (UTSOE), located in Valle de Santiago, was the third to open its doors to students from the state of Guanajuato, as its name indicates, from the southwest region, offering 4 careers. Currently, it offers 11 Technical University Degrees (TSU) with its corresponding continuity at the Engineering level. One of them is Information Technologies, which offers the area of Multiplatform Software Development and the area of Virtual Environments and Digital Business (recently created), its first generation is currently in its ninth semester.

On the other hand, as part of the teaching strategies not only in the educational programme, but also in the institution and the subsystem itself, there is counselling and tutoring (Romo, 2011), which play a crucial role during TSU training, since in addition to providing guidance in the school environment, they allow academic support, which often goes beyond the mere review of student performance and the resolution of doubts in the subjects that require it, going beyond, for example, in the development of projects and participation in various forums.

With the implementation of this work, the aim is to motivate the students of the Information Technologies educational programme to complete their training, by means of tools such as assessment and tutoring.

Problem statement

In the Information Technologies degree programme, there is a constant drop-out rate due to apathy or lack of identification with the subjects being studied; likewise, it has been perceived that the influence that one student can have on another is very high.

Justification

Tutoring and counselling are elements that are incorporated as part of the activities carried out by the Full-Time Lecturer (FTE). The PTC has time to dedicate to the group in charge, establishing at the beginning of the term what the plan to be developed will be.

Regularly the activities that are carried out can be group or individual, developing explanations of topics of different subjects, motivational talks, integration dynamics, diagnostic tools for detecting the student's needs for attention, whether medical, psychological, economic, academic, personal, etc.

In summary, it could be stated then that tutoring and counselling become tools to avoid desertion, allowing to complement not only the time, but also the activities that can be developed in a combined way, for the achievement and obtaining of learning and expected results.

Development

State of the art

Quinteros (2018) in his article on counselling and the didactics of accompaniment in higher education, considers that effective, constant and relevant counselling allows the orientation of favourable attitudes for learning, the use of available resources, applying them based on their characteristics, motivations and abilities.

For their part, Hernández *et al*. (2019) in their work on peer counselling conclude that due to the results obtained, the programme should be strengthened for its implementation in the following periods in order to consolidate it, and they also highlight the importance of the active participation of teaching staff in a collegial manner.

Carranza *et al*. (2020), in their research on the study of university students' perceptions of tutoring, found that there is a difference in how they perceive the results obtained by students when receiving virtual tutoring compared to face-to-face tutoring, the latter being the one that generates greater satisfaction.

ISSN 2523-2479

Finally, Núñez *et al*. (2021), in their article on face-to-face and virtual academic writing tutorials, conclude that it is necessary to delve deeper into the use and functions of multimodal aspects in virtual tutorials and thus address the influence that factors such as the projection of the text on the screen, the use of the digital whiteboard or chat in the videoconferences themselves may have. It is also worth asking whether virtual tutoring, which has increased considerably during the pandemic, can become not so much an isolated alternative, but a useful option for accompanying the writing process for university students in writing centres where it was not a common practice.

Objective

To reduce the drop-out rate of students from the Information Technologies educational programme through tutorials and advice based on the methodology of the Applications Development Club.

Methodology

For the development of this work, the following stages were carried out:

Figure 1 Working methodology
Source: Own Elaboration

1. Beginning. In the May-August 2021 term, in a working meeting with the Career Management, the behaviour of the groups with regard to academic performance and the number of drop-outs was presented.

2. Planning. The work structure was generated by adapting the methodology of the Applications Development Club (Rodríguez *et al*, 2017) to the conditions that were occurring at the time, the schedule of activities was drawn up, and the resources and steps to be taken were determined.

3. Execution. Work began in the September-December 2021 four-month period, inviting groups to participate, evaluating project ideas, following up on them through the work methodology and attending to the established progress review dates.

4. Monitoring. This was carried out considering the schedule of activities and the deliverables corresponding to each project at each stage, providing timely feedback and ensuring that the observations received were attended to.

5. Closure. A comparison was made of the results obtained after the implementation of the improvement proposal (year 2), with respect to the indices of year 1.

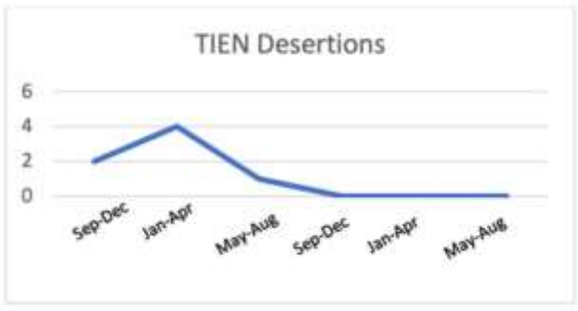
Results

Among the results that stand out from the present work are that:

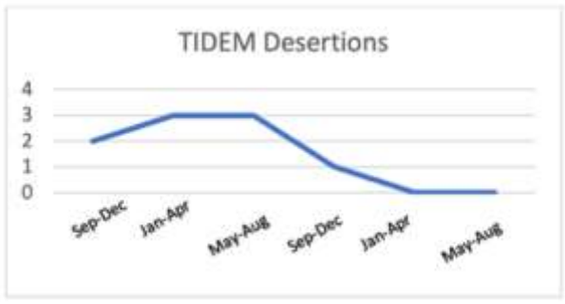
– The number of dropouts was reduced from 7 in TIEN and 8 in TIDEM in year 1 to 0 in TIEN and 1 in TIDEM in year 2, as can be seen in figures 1 and 2.

– Soft skills were strengthened in the students, achieving their participation in different forums and academic competitions at state and national level, as well as the elaboration of technical documentation (see figures 2 and 3 below).

ISSN 2523-2479



Graph 1 Defections Generation 2020-2022 TSU TIEN
Source: Own Elaboration



Graph 2 Defections Generation 2020-2022 TSU TIEN
Source: Own Elaboration

Figure 2 Project development
Source: Own Elaboration

Figure 3 Expo Ciencias Guanajuato 2022
Source: Own Elaboration

Acknowledgements

To the Universidad Tecnológica del Suroeste de Guanajuato, to the students and faculty of the Information Technology Degree, to the team of advisors of the Application Development Club.

Conclusions

Considering that this work was carried out when school activities began to be developed in a hybrid way, it is important to continue the research, therefore, the implementation of this model based on tutoring and mentoring is being carried out in the current period of TSU training, seeking with this, to have a reference that favours the clarity and objectivity of the results.

On the other hand, this model allowed us to broaden the lines of work of the Applications Development Club, which is translating into important results and will surely set a precedent in the short to medium term within the academic activity of the Universidad Tecnológica del Suroeste de Guanajuato.

Finally, after comparing and evaluating the achievements obtained, it is intended to be shared with other universities of the Subsystem, as a good practice.

References

Carranza Alcantar, M. d. R., Plascencia Jiménez, R., Islas Torres, C., & Jiménez Padilla, A. A. (2020, 09 20). Percepción de estudiantes universitarios sobre la tutoría presencial y la virtual. EDUCATECONCIENCIA, 27(28), 126-146. https://tecnocientifica.com.mx/educateconcienc ia/index.php/revistaeducate/article/view/259/41 5

Hernández, A. D., Robles, G. y Pérez A. (2019) *Asesoría entre iguales y su impacto en indicadores de reprobación en la educación superior*. ANFEI Digital 11. https://www.anfei.mx/revista/index.php/revista/ article/view/561

Núñez, J., Errázuri, C., Neubauer, A. y Parada C. (2021). *Las tutorías de escritura académica presenciales y virtuales: ¿qué podemos aprender sobre sus estrategias didácticas?* https://doi.org/10.17533/udea.ikala/v26n3a10

ISSN 2523-2479

Quinteros, V. (2018). *La asesoría y didáctica del acompañamiento académico en educación superior: El manual del tutor par UC Temuco.* Congresos CLABES. https://revistas.utp.ac.pa/index.php/clabes/article/view/2017

Rodríguez, M., Arroyo, M., Rico, J., Barrón, J. Fonseca, J. y Noria, R. (2017). Una nueva estrategia: Club de desarrollo de aplicaciones móviles. Revista de Teoría Educativa - ECORFAN. https://www.ecorfan.org/republicofperu/research_journals/Revista_de_Teoria_Educativa/vol1num2/Revista_de_Teoria_Educativa_V1_N2_7.pdf

Romo López, A. (2011). La tutoría: una estrategia innovadora en el marco de los programas de atención a estudiantes. ANUIES. http://publicaciones.anuies.mx/pdfs/libros/Libro225.pdf

ISSN 2523-2479

Article **Journal of Critical Pedagogy**
June 2023, Vol.7 No.17 6-11

The skills of thinking and computational programming

Las habilidades de pensamiento y la programación computacional

AGUILAR-ESPINOSA, María Guadalupe†, CISNEROS-LOPEZ, Hilda Lucia, RUBIO-RIVERA, Rocío and VACA-GONZALEZ, Francisco Javier

Universidad de Guanajuato/Escuela de Nivel Medio Superior de Salvatierra

ID 1st Author: *María Guadalupe, Aguilar Espinosa* / **ORC ID**: 0009-0007-7561-9421

ID 1st Co-author: *Hilda Lucia, Cisneros Lopez* / **ORC ID**: 0000-0003-3245-0279

ID 2nd Co-author: *Rocío, Rubio Rivera* / **ORC ID**: 0009-0005-8194-8681

ID 3rd Co-author: *Francisco Javier, Vaca Gonzalez* / **ORC ID**: 0009-0006-4014-7113

DOI: 10.35429/JCP.2023.17.7.6.11 Received March 15, 2023; Accepted June 30, 2023

Abstract

This article presents the results obtained in the research carried out at the Salvatierra High School, in which the impact of the use of computer programming on the development of higher order skills in students was measured, for such purpose. For this purpose, a quantitative route was followed, applying Likert scale instruments and questionnaires to an intentional sample of students who began programming from the basic education level, either formally or through social learning. The results refer to an important recognition on the part of the students about the critical, analytical, reflective, creative skills, among others, that allow them to generate deep thought processes in any context of their lives, and therefore allow them to have an academic development different from the rest of their classmates, giving them competitive advantages that are reflected in their academic life. The foregoing highlights that teachers must include in our study plans and programs transversal projects that include computer programming to solve problems of daily life and also awaken or promote thinking skills.

Skills, Technology, Strategies

Resumen

El presente artículo presenta los resultados obtenidos en la investigación realizada en la Escuela de Nivel Medio Superior de Salvatierra, en la que se midió el impacto que tiene el uso de la programación computacional en el desarrollo de habilidades de orden superior en los estudiantes, para tal efecto se siguió una ruta cuantitativa, aplicando como instrumento un cuestionario con escala de Likert a una muestra intencional sobre los estudiantes que desde el nivel de estudios básicos comenzaron con la programación ya sea de manera formal o a través de un aprendizaje social. Los resultados refieren un reconocimiento importante por parte de los estudiantes sobre las habilidades críticas, analíticas, reflexivas, creativas, entre otras, que les permiten generar profundos procesos de pensamiento en cualquier contexto de su vida, y por lo tanto les permiten académicamente contar con un desenvolvimiento distinto al resto de sus compañeros, dándoles ventajas competitivas que se reflejan en su vida académica. Lo anterior destaca que los docentes debemos incluir en nuestros planes y programas de estudio proyectos transversales que incluyan la programación computacional para resolver problemas de la vida cotidiana y además despierten o fomenten las habilidades de pensamiento.

Habilidades, Tecnología, Estrategias

Citation: AGUILAR-ESPINOSA, María Guadalupe, CISNEROS-LOPEZ, Hilda Lucia, RUBIO-RIVERA, Rocío and VACA-GONZALEZ, Francisco Javier. The skills of thinking and computational programming. Journal of Critical Pedagogy. 2023. 7-17: 6-11

† Researcher contributing as first author.

Introduction

According to Anderson (1983) there is a difference between declarative and procedural knowledge, on the one hand, declarative knowledge includes factual and verbal information, memories based on signs, senses and perception. Additionally, it encompasses facts and concepts related to everyday life events up to organised and interrelated conceptual knowledge. Procedural knowledge, in contrast, comprises the ability to monitor one's own cognitive processes (metacognition), as well as the automated ability to transform and organise new methods to solve problems.

For Montaño (2021), thinking processes are sets of actions related to the elaboration of knowledge based on internal and external stimuli, in order to process information. According to this author, learning is related to the processes of observation, comparison, classification, analysis or description which are activated to build new knowledge and through which the ability to think, process information or have a critical attitude is built. Basic thinking processes relate to the way in which the individual perceives the reality around him/her, while integrative thinking processes emerge once the basic thinking processes have been completed.

It is useful to distinguish between the cognitive skills that are used to execute the process of encoding, storing, retrieving and transforming information, and the higher-order (metacognitive or executive) processes that are needed to implement the lower-order processes and to monitor the outcome of the transformations and responses generated by these processes. The terms used to distinguish between lower- and higher-order thinking skills vary widely, but there is some consensus that these metacognitive skills are among the most transferable mental competencies (Warner and Sternberg, 1984).

The concept of higher order cognitive skills relates directly to mental processes needed in the analysis of complex activities. At the end of the 20th century, Bloom established what these processes were, which is why Bloom's taxonomy became a reference in the educational world.

In a traditional classroom, there are usually three moments (explanation, practice and correction), which only encourage the development of three cognitive thinking skills: remembering, understanding and applying. One of the objectives pursued with the introduction of ICT in teaching and learning processes is to develop the higher level of cognitive thinking (Fernández, 2018).

The teaching and learning of programming seeks the formation and development of skills in students to favour the resolution of problems in school, professional or everyday life (Diaz, Fierro and Muñoz, 2018).

For Cuny, Snyder and Wing (2010), computational thinking is "the thinking process involved in formulating problems and their solutions so that the solutions are represented in a way that can be performed by an information processor".

The value of this concept lies in the application of this concept in the representation of the solution of a problem through sequences of instructions and algorithms. In this way, abstract thinking would be used to identify relevant aspects and a sequence of processes to develop a model.

From this perspective, this concept is transferable and of great relevance in the field of education, where technology not only encourages students' learning, but also fosters their interest in areas of knowledge related to science, technology, engineering, mathematics and computer science. The inclusion of computational thinking in educational programmes encourages students to develop competences that will enable them to move from being consumers to producers of technology.
The implementation in teaching and learning processes of activities that promote the development of computational thinking generates the following advantages for students' learning (UNIR, 2021):

- Stimulates creativity.
- Encourages reasoning and critical thinking skills.
- Develops and reinforces numerical and linguistic skills.
- Encourages leadership and teamwork skills.

ISSN 2523-2479

However, the challenge is to have teachers capable of incorporating activities related to computational thinking into their teaching practice. Globally, the implementation of computational thinking activities in educational institutions is a trend, as it is considered to favour innovation and is associated with a long-term investment in the economic and social structure of a country.

Methodology to be developed

The research route defined in this work was quantitative, defining a purposive sample with students enrolled in the speciality of Physics-Mathematics at the High School of Salvatierra, Guanajuato, Mexico, this sample consists of 58 students who take the Learning Unit of Programming Languages and on the other hand a sample of 20 students of first and third semester who have learned to program under social learning and not by a formal learning.

In this context, the hypothesis is defined: "Students who solve problems through computer programming develop reasoning, critical thinking, numerical, linguistic and other skills, called higher order skills. For this reason, the following objectives are derived:

To measure the impact that the use of computer programming has on students' higher order skills.

Particular objectives

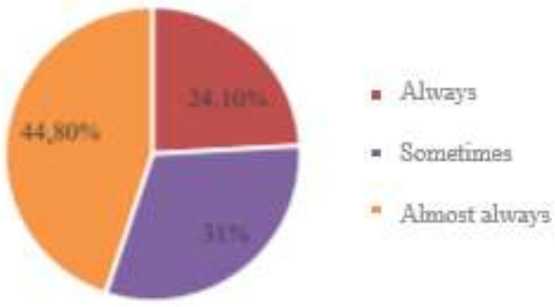
To identify fifth, third and first semester students who use computer programming to solve problems.

To measure through a Likert scale with a set of items validated by the body of researchers, the impact that the use of programming has on students. For this purpose, we worked with Google Forms (Figure 1).

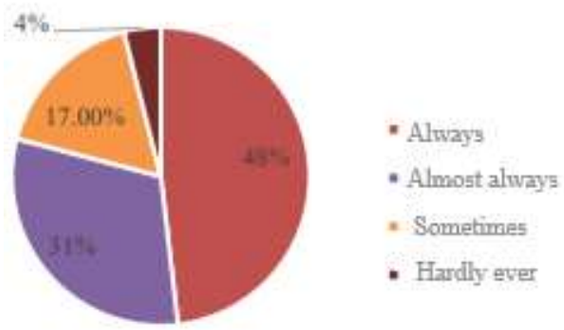
Figure 1 Likert Scale

Results

The following figures show the most outstanding results of the Likert scale and the questionnaire applied to the entire population sample defined in the methodology, regardless of the way in which the knowledge about computer programming has been acquired, i.e. formal learning or social learning.



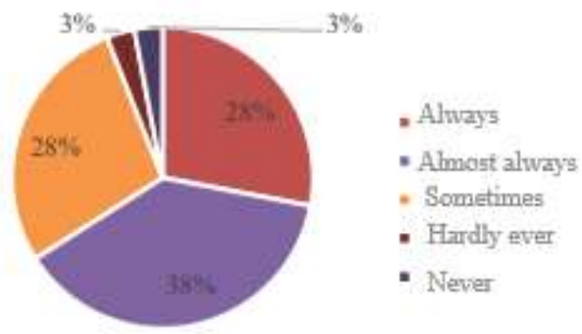
Graph 1 Problem analysis



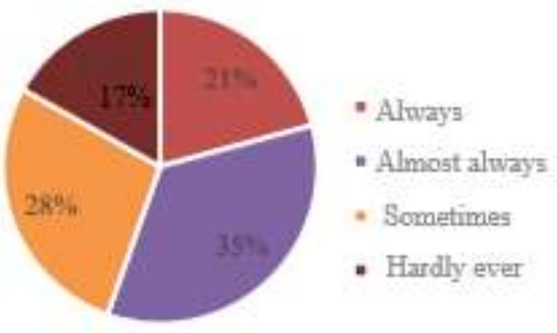
Graph 2 Reading comprehension of the problem

ISSN 2523-2479

In Graph 1, more than 72% of students report that in order to solve a problem they break it down into small problems, which they say gives them a broad perspective of the elements that make up the problem. As we can see in Graph 2, more than 79% of students report that reading a problem several times leads to a better understanding of the elements of the problem and how they can solve it. The survey talks about reading comprehension processes, which helps in subjects such as physics, chemistry, English, Spanish, among others.



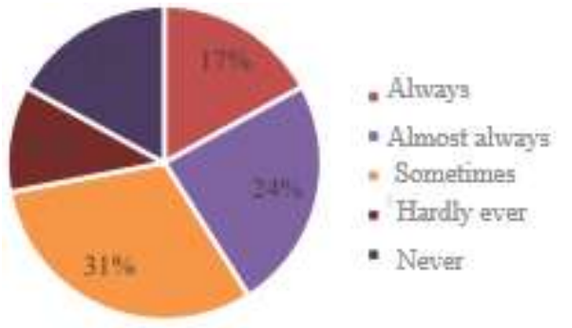
Graph 3 Use of methodologies



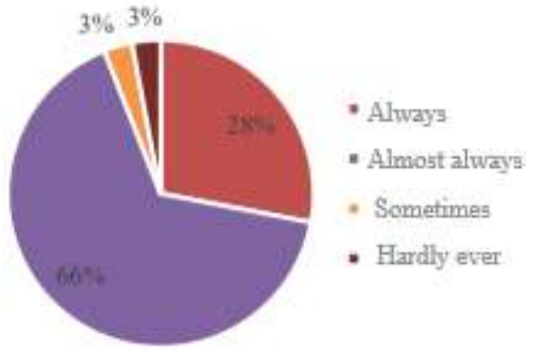
Graph 4 Use of algorithms

According to Graph 3, 65% of students report using a computational methodology to be able to analyse and model the problem before programming a solution. As we can see in figure 5, 55% of students make use of algorithms as a problem analysis methodology, followed by flowcharts and finally pseudocode.

The questionnaire addresses the use of methodologies to achieve the process of analysis in problem solving, being pressing in subjects such as mathematics and experimental sciences.

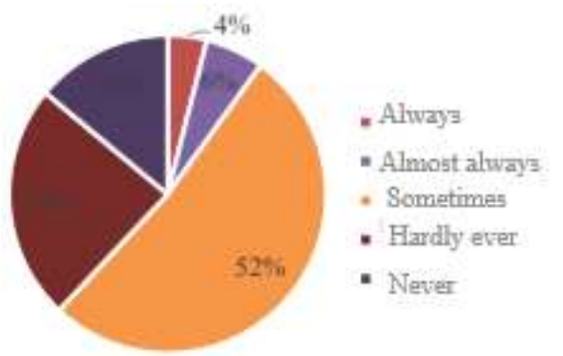


Graph 5 Validation of algorithms



Graph 6 Consideration of possible scenarios

According to Graph 5, 41% of the students say that before starting to programme a solution they make use of the prior validation of the algorithm, i.e. they verify that the proposal proposed will be successful by validating each of the processes defined in the algorithm. Figure 7 shows that more than 90% of the students mention that when analysing the solution they consider all the possible scenarios that could occur in the process. The questionnaire addresses the consideration of different routes or paths that a problem may take, which is very useful in subjects such as experimental sciences.



Graph 7 Logic when running a programme

At least 50% of the students, according to figure 8, mention having logic problems when executing a solution programmed by themselves.

ISSN 2523-2479

Although in the survey they refer that at the beginning of the programming the failure of the logic was above 50% and the other percentage to syntax problems with the passage of time have been improving, having much less logic errors, as they refer to be improving with practice.

Something also important in the survey was to recognise that their academic performance is acceptable, mainly referring to having fewer learning problems in the learning units of mathematics, physics, chemistry and communication languages mainly, in addition to the fact that they observe various opportunities to make inroads such as olympiads, competitions, science fairs, among others.

Conclusions

The use of computer programming at any age in a person's life is very useful, and even more so if it is encouraged from childhood, in what is now called early programming. The use of technologies is another important factor to consider, for the generations of students currently in the classroom called digital natives, who seek to solve problems using technology.

Therefore, derived from the concern to achieve graduation profiles in upper secondary level students, mainly in logical-mathematical skills, critical thinking, reflective thinking, initiative, creativity, among others, which fall into what is called higher thinking skills, it is necessary to look at technologies that contribute greatly to developing the graduation requirements of students.

The results of the study, from the students' perspective, emphasise the importance of the use of computer programming for the development of these skills and also the need to incorporate it into any learning unit, not as just another subject but as a transversal learning that supports the resolution of problems in any environment that may arise, and that in parallel enriches the desired profiles.

Likewise, the results show that the students' perception of programming in their academic training is very noticeable, as they observe a different way of proposing solutions to the problems they are presented with, generating complex analysis processes that lead to the achievement of different higher order skills such as those already mentioned, thereby providing more participative, creative, enterprising and reflective students, generating deeper teaching and learning processes with a significant transversality. As Steve Jobs pointed out, programming a computer teaches you how to think.

References

Anderson, J. R. (1983). The architecture of cognition. Cambridge: Harvard University Press.

Cuny, J., Snyder, L., y Wing, J. M. (2010). Demystifying computational thinking for non-computer scientists. Unpublished manuscript, referencedinhttp://www.cs.cmu.edu/~CompThink/resources/TheLinkWing.pdf

Díaz, K. I., Fierro, E. R. y Muñoz, M. A (2018). Empleo de los entornos virtuales de aprendizaje en la formación de profesionales de la educación Una experiencia cubana. Disponible en: https://www.researchgate.net/publication/328107562

Fernández, P. (2018). Las Habilidades Cognitivas de Orden Superior. Actividades prácticas para su desarrollo en el aula. Blog: Un Aula para todos. TAC, competencia digital, inclusión y mucho más. https://unaulaparatodos.wordpress.com/2018/06/03/las-habilidades-cognitivas-de-orden-superior-actividades-practicas-para-su-desarrollo-en-el-aula/

Montaño, J. (2021). Procesos del pensamiento: qué son y cuáles son (con ejemplos). Lifeder. Recuperado de https://www.lifeder.com/procesos-del-pensamiento/

ISSN 2523-2479

UNIR. (2021) ¿Qué es el pensamiento computacional?. UNIR REVISTA. Recuperado de https://www.unir.net/educacion/revista/pensamiento-computacional/

Wagner, R. K. y Sternberg, R. J. (1984). Alternative conceptions of intelligence and their implications for education. Review of Educational Research. 54 pp. 179-224.

ISSN 2523-2479

Article **Journal of Critical Pedagogy**
June 2023, Vol.7 No.17 12-20

Dream Scape: Gamificando las funciones cognitivas

Dream Scape: Gamifying cognitive functions

GAMBOA-RODRIGUEZ, Patricia Guadalupe†*[1], RODRÍGUEZ-VARGAS, María de Jesús[2], GARDUZA-CASTILLO, Kelsy Elise[1] and JIMÉNEZ-ZARATE, Lizbeth[1]

[1]Tecnológico Nacional de México – ITS Coatzacoalcos. División de Ingeniería en Animación Digital y Efectos Visuales. Carretera Antigua Minatitlán Km. 16.5, Reserva Territorial, Veracruz, MÉXICO. Teléfono (921) 13-45891
[2]Universidad Tecnológica del Suroeste de Guanajuato, Tecnologías de la Información.

ID 1st Author: *Patricia Guadalupe, Gamboa Rodríguez* / **ORC ID:** 0000-0002-0865-3298

ID 1st Co-author: *María de Jesús, Rodríguez Vargas* / **ORC ID:** 0000-0002-3849-622X

ID 2nd Co-author: *Kelsy Elise, Garduza Castillo* / **ORC ID:** 0009-0002-9687-6092

ID 3rd Co-author: *Lizbeth, Jiménez Zarate* / **ORC ID:** 0009-0005-8117-0814

DOI: 10.35429/JCP.2023.17.7.12.20 Received March 20, 2023; Accepted June 30, 2023

Abstract

In Mexico, learning problems affect educational quality and hinder pedagogical planning. There is a lack of updating in learning methods and academic training, as well as insufficient commitment to the educational system. Additionally, public servants and administrators show inefficiency in education preparation. (De Ibarrola Nicolín, 2012) However, games have been proven to be an effective tool for improving student learning and motivation. Gamification, based on neuro didactics, aims to strengthen learning through brain functions such as motivation and attention. (Briones Cedeño & Benavides Bailón, 2021). A gamification tool called Dream Scape is presented, focusing on enhancing cognitive functions related to recognition and language. An experimental study was conducted with 66 third-grade students from two schools, using data collection tools and traditional evaluations. The results showed that gamification is motivating and stimulating, improving academic performance and student participation. In conclusion, gamified tools can enhance students' knowledge.

Gamification, Education, Learning

Resumen

En México, los problemas de aprendizaje afectan la calidad educativa y dificultan la planificación pedagógica. Existe una falta de actualización en los métodos de aprendizaje y formación académica, así como un compromiso insuficiente con el sistema educativo. Además, los servidores públicos y directivos muestran inconsistencia en la preparación en la educación de acuerdo con las competencias que día a día se demandan (De Ibarrola Nicolín, 2012). Sin embargo, los juegos se han demostrado como una herramienta efectiva para mejorar el aprendizaje y la motivación de los estudiantes. La gamificación, basada en la neuro didáctica, busca fortalecer el aprendizaje a través de funciones cerebrales como la motivación y la atención. (Briones Cedeño & Benavides Bailón, 2021) Se desarrolla una herramienta de gamificación llamada Dream Scape, que se enfoca en fortalecer las funciones cognitivas relacionadas con el reconocimiento y el lenguaje. En esta investigación se realizó un estudio experimental con 66 alumnos de tercer grado de dos escuelas, aplicando una herramienta de recolección de información y evaluación tradicionales. Los resultados mostraron que la gamificación es motivante y estimulante, mejorando el rendimiento académico y la participación de los estudiantes.

Gamificación, Educación, Aprendizaje

Citation: GAMBOA-RODRIGUEZ, Patricia Guadalupe, RODRÍGUEZ-VARGAS, María de Jesús, GARDUZA-CASTILLO, Kelsy Elise and JIMÉNEZ-ZARATE, Lizbeth. Dream Scape: Gamificando las funciones cognitivas. Journal of Critical Pedagogy. 2023. 7-17: 12-20

* Correspondence to Author (e-mail: pgamboar@itesco.edu.mx)
† Researcher contributing as first author.

Introduction

The basis of student learning is in the first three years of basic school, being the most important throughout the student's life, starting from learning to read (Caballeros Ruíz, Sazo, & Gálvez Sobral, 2014).

In Mexico, learning disabilities are a reality that affects educational quality and hinders pedagogical planning. Despite this, there is a lack of updating in learning methods and academic training, as well as a lack of commitment to the education system. In addition, there is a notorious inefficiency in the educational preparation of public servants and managers (Muñoz Izquierdo, 2012).

It has been demonstrated that games can be an effective tool for teaching and learning, as students can take advantage of the knowledge of the characteristics of goals, rewards and levels to improve their academic performance. Furthermore, the use of games in education has been associated with increased student motivation and engagement, which can improve the quality of their learning (Ortíz Colón, Jordán, & Agredal, 2018).

Studies have also shown that the implementation of learning styles that identify how students perceive and process information can further improve learning outcomes. (Sailer, Ulrich Hense, Mayr, & Mandl, 2017).

This is known as Gamification which according to Rousseau's postulate defines it as the strengthening of cognition through brain functions such as: motivation, attention and memory in a framework of emotions, activated by neurotransmitters such as dopamine and serotonin, containing among its elements stimulus, discovery, narrative and ambience. (Castillo, 2021); of which has as its basis the neuro didactics that according to (Pherez, Vargas, & Jerez, 2018), establishes that it has the mission to give theoretical support to the design of didactic strategies based on the performance of the brain to strengthen learning, as well as its educational basis in the need to learn in an environment of freedom and spontaneity through play to develop personal and social skills.

Playful learning, has been figured mainly according to the teaching applied in video games, according to the different forms and levels used, the authors mention why not apply it to the themes and factors involved in the teaching-learning process. (Guerra Antequera & Revuelta Domínguez, 2022).

In the studies it is established that games are considered applicable tools that allow the improvement within the educational process focused on reading comprehension, the development of spatial skills, as well as the assimilation of numerical concepts. (Fernández Lara, 2022).

Gamification, has behaved as a means of generating different educational tools, although it is an entertainment environment which has been its main support through the creation of video games, it is also important to mention that in order to apply the gamified teaching must meet a number of parameters for its development and this apply it on an educational context that allows to be a guide for students.

There are different ways of defining gamification and with this we can identify that it is not only applied to educational tools, but also to the generation of video games, which is our main objective in this research, however we start with the author: (Teixes, 2015) where he defines it as "the use of mechanics based on games, aesthetics and playful thinking to build people's loyalty, motivate actions, promote learning and, above all, problem solving".

Under this definition we can consider that there are different research works focused on problem solving, in an educational way, but with an applied approach to the teaching-learning process. To this we can present different previous works related to gamification and the impact within the education system focusing on specific areas that served as a guide for this research such as: Analyse the use of gamification in children with Down Syndrome between 5-7 years old, where the problem is the constant change that occurs in the world of technology, this must continually advance with the educational reality that is currently living, a virtual reality that must be coupled to the individual need of students, particularly in children with Down syndrome, considering that they require more support in terms of their teaching-learning process; with daily activities.

ISSN 2523-2479

The software has proven to be widely accepted. These results allow us to deduce that the proposal could become a valuable aid to stimulate the cognitive part of students with Down syndrome (Balarezo Lata, Mendieta Parra, Pérez Pérez, & Hurtado Crespo, 2022).

Another study looks at developing Gamified Software Engineering Learning Systems (GSEELS) and assessing the effects of gamification, learning motivation, cognitive load and learning anxiety on academic performance. The research results support all nine hypotheses and also show the effects of cognitive load on learning anxiety, with strong learning motivation resulting from low learning anxiety. As a result, this study further demonstrates that a well-designed GSEELS would affect students' learning motivation and academic performance. Finally, the model of the relationship between gamified learning, learning motivation, cognitive load, learning anxiety, and academic performance is clarified, and four suggestions for software engineering education course instructors and future research are offered to assist instructors in implementing favourable gamified teaching strategies. (Prieto Andreu, Gómez Escalonilla Torrijos, & Said Hung, 2022).

Similarly we have different applications established in Android and App Store environments that do not have academic disclosure, but are in the entertainment environment and maintain a completely commercial profile, which likewise should be considered that in video game environment different forms of installation are established starting with mobile phones and considering the operating system to use, and likewise the platform or console to work. Having said this, we show some educational applications that are focused according to the population, market, and objective to be worked on.

Figure 1 Video game El Tren de Lola (Lola's Train)
Source Google Play Store

According to the AppStore there is a great diversity of applications focused on videogames, but few on education, the main one being Lola's Train, shown in Figure 1, which has the objective of learning five different languages through a narrative in which the player starts to advance. (Google Play Store).

Figure 2 Video game Leo with Grinn
Source: Google Play Store

Another of the applications found, according to the acceptance table shown in the Google Play Store, is Reading with Grin, showing its interface in Figure 2, since this application allows infants aged 4 to 6 years to form words and complete sentences for their comprehension, with this we have the application of the Gnosias and the main focus on executive functions, which is our main focus when establishing gamification for cognitive functions.

However, in the review of the Play Store there are no specific applications defined for executive functions for infants in third grade of primary school, and that support the academic content defined by the education system.

That is why this research considers the design, development and testing of a video game that fulfils as its main engine the strengthening of cognitive functions in its executive trait, through gamification.

ISSN 2523-2479

(Liberio Ambuisaca, 2019) establishes that gamification is a strategy that allows children to develop their cognitive skills from an early age, and applying it in the classroom, whether virtual or face-to-face, has a significant impact, from the feedback of educational processes, providing information to the teacher, stimulating the relationship with peers, maintaining active learning, as well as motivating students for specific topics.

While it is true that cognitive skills are strengthened by the development of achieving dexterity through physical motor use, in this project we will focus on strengthening the cognitive functions for students in third grade of primary school, with the main instance being reading comprehension, decision making, being able to have the ability to process and organise information, this being determined by decision making.

With the above, a gamification tool called Dream Scape is designed, whose objective is to strengthen the cognitive-executive functions, focusing on the gnosias that have the capacity of the brain to recognise previously learned information such as objects, people or places through our senses, as well as the function of language oriented to reading and comprehension. (UNIR Revista, 2022)

Methodology to develop

With the above in this applied research we present an experimental study with a cross-sectional design, on the subject of educational gamification as a strategy for teaching cognitive functions in learning environments.

Focusing on cognitive functions specifically in the executive functions being its definition as "a mental process of metacognitive type, since they are responsible for guiding and regulating the mental and behavioural activity of the human being" (Bausela Herreras, 2014) and in a classificatory manner to the Gnosias defined as "The skills that allow perceiving the environment by processing the different sensory signals". (Valencia, 2020)

From the above it is understood that gnosias are cognitive skills that allow a person to perceive and recognise information from the environment through the processing of sensory signals.

These skills involve the ability to interpret and understand previously acquired sensory information about objects, people or other stimuli. By combining the ability to perceive the environment by processing different sensory signals with the ability to recognise previously acquired information, gnosias allow us to effectively interpret and understand our environment and the stimuli around us.

To this end, the Dream Scape tool is designed as an interactive tool to help students between 8 and 10 years of age at basic level to retain and understand the topics seen in class in a more didactic way. To achieve this, illustrated 2D mini-games with interactive mechanics are used. The target audience is specifically aimed at students in the third grade of primary school. The videogame has mini-games specially designed for a child audience. These mini-games use gamification and address current educational topics. Meticulous care has been taken to ensure that the themes and game mechanics support the player's understanding of educational areas, focusing specifically on the subject of Spanish reading comprehension.

The development of the videogame is divided into different sections that make up its main elements.

In the artistic section, 2D illustrations were created, as shown in Figure 3 and Figure 4, for the main characters, the game scenarios, the assets used, the mini-games and the menus. The entire visual aspect was created completely from scratch, both the character art and the game mechanics.

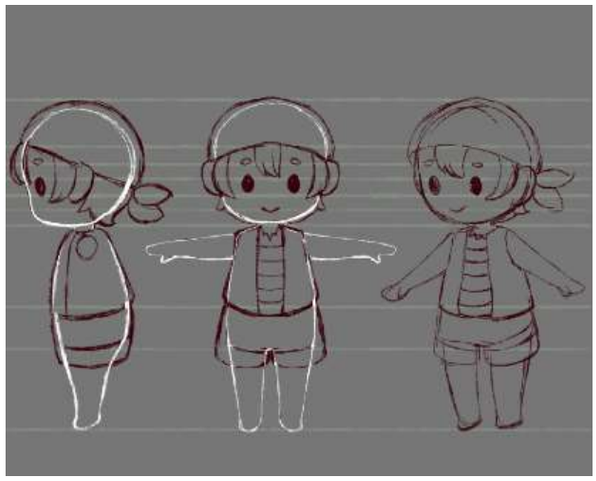


Figure 3 Illustrated carácter
Source: Own Elaboration

ISSN 2523-2479

Figure 4 Main character of the game
Source: Own Elaboration

In the programming section, research was carried out on different coding systems in order to generate the mechanics of the mini-games. A 2D project was used as a basis and was structured in an optimal way to facilitate its design and future updates. In addition, free-use code was sought and readapted, and the Unity graphics engine was chosen, as shown in Figure 5 and Figure 6, due to its practicality in adapting the game and generating the executable. Finally, work continues on the technical development to correct and improve the structure, thus achieving a stable and optimised programme for distribution on various devices.

Figure 5 Input interface of the Dream Scape Videogame
Source: Own Elaboration

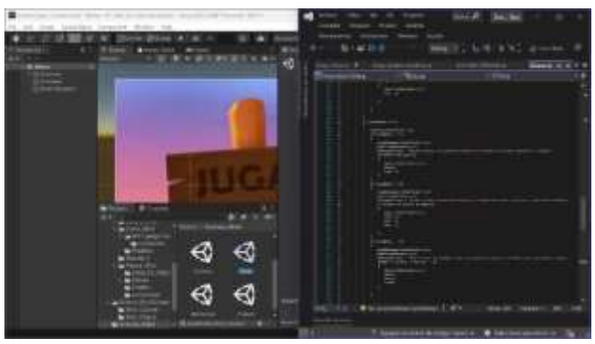


Figure 6 Programming interface of the Dream Scape Videogame
Source: Own Elaboration

Finally, in the narrative and level design section, the creation and adaptation of all the mini-games was carried out, taking into account the educational gamified elements.

This involved from the conception of sketches and structuring to the functionality and purpose of each game. In addition, the overall story of the game was designed, including the main characters, supporting characters, antagonists and other relevant characters. This whole process was carried out in an original way, with the aim of allowing our target audience to enjoy the game while learning, as shown in Figure 7 and 8.

Figure 7 Dream Scape Reading Comprehension Representation

Figure 8 Representation of Max, performing dexterity in catching obstacles

With the tool designed, the testing stage begins to corroborate the stimulus made in reading comprehension and ability that is governed by the causal predictive hypothesis:

It is necessary to consider that cognitive functions: in visual gnosias and language will improve with the implementation of gamification using Dream Scape, compared to the use of traditional assessments.

ISSN 2523-2479

For this it is necessary to test the improvement in the cognitive functions: Gnosias and language, through the Dream Scape tool, applying gamification for students in the third grade of basic level.

In its verification process, the design of data collection is carried out, supported by the Google Forms tool, and with the linking of two educational institutions being the School Article 123 Tomasa de Valdés Viuda de alemán and the Primary School Ernesto Toral Lombard with a total sample of 43 and 66 students of third grade of basic education. It is important to mention that prior to the support of the instrument, a basic test was carried out with the same exercise items that would be applied in the game, with the objective of observing their performance and development and subsequently doing the same with the application of the Video Game. As shown in Figure 9 and 10 respectively.

Figure 9 Elaboration of written evaluation prior to the application of Dream Scape
Source: Own Elaboration

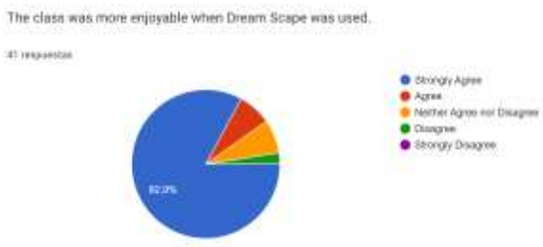
Figure 10 Application of Dream Scape after the manual instrument
Source: Own Elaboration

Results

Measurements were made through observation of students' motivation and initiative in their participation, despite their lack of knowledge of the use of the equipment and the Dream Scape application, during the test. Thus determining that gamification as a teaching technique is motivating and stimulating, not only in terms of academic performance, but also in terms of student participation and stimulation. With this, we can establish that through gamified tools the reinforcement of students' knowledge is attributed.

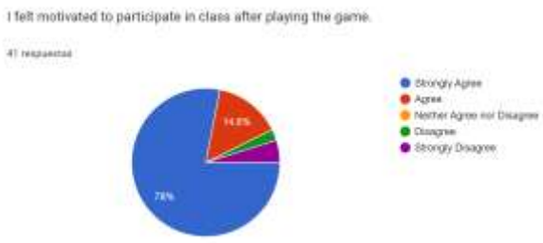
While in order to compare the hypothesis, the presentation of these results is carried out, obtaining as shown in Graph 1. Using a gamified tool does not allow the replacement of basic education teachers, but rather a feedback support of the subjects, as well as the reinforcement of the acquired knowledge, with a total of 82.9% of both institutions stating that the class using Dream Scape was considered fun.

ISSN 2523-2479



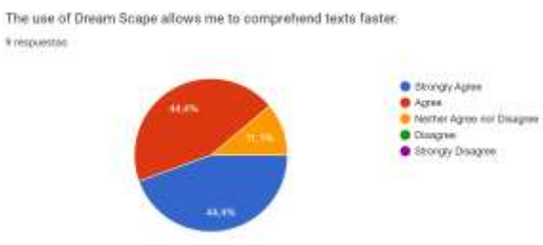
Graph 1 Application of Dream Scape following the manual instrument
Source: Own Elaboration

While another of the issues involved in the development of cognitive functions is precisely the motivation and stimulation shown to students to use this tool, they consider that 78% were not limited by it, according to Figure 2.



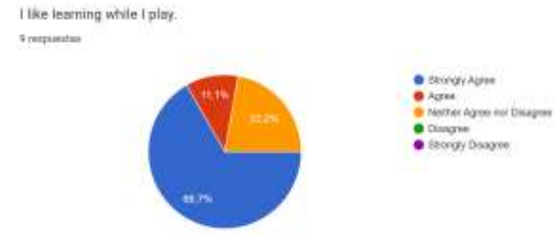
Graph 2 Application of Dream Scape after the manual instrument
Source: Own Elaboration

While, for the use of the tool in the formation of the cognitive functions of basic education students in the third grade, it is shown that 44.4% were able to understand texts quickly using Dream Scape, as shown in Figure 3.



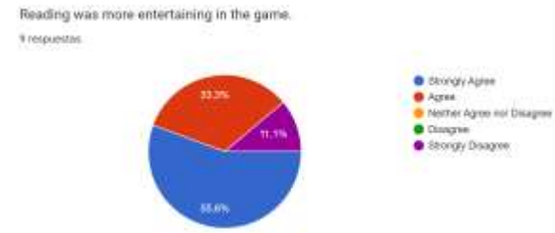
Graph 3 Understanding Gnosias using Dream Scape
Source: Own Elaboration

Using the tool allows the generations applied to technology to use more tools that involve the use of software or video games than other generations, so it is important to note that 66.7% of the students consider that they enjoy learning by playing more. As shown in graph 4.



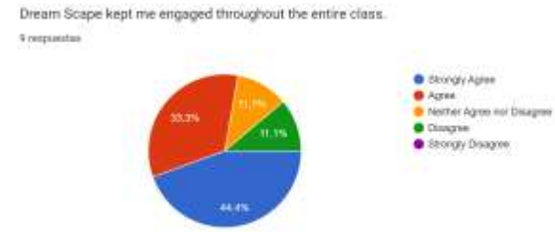
Graph 4 Acceptance of learning by playing
Source: Own Elaboration

Reading is one of the functions that as learners underpin their basic development so engaging with the Dream Scape characters maintains a positive training environment in the development of reading comprehension, according to figure 5.



Graph 5 Acceptance of learning by playing
Source: Own Elaboration

Another important aspect of this research is to be able to establish that cognitive functions are positively formative and that they keep students active in meaningful learning and acquisition in the development of cognitive functions, so figure 6 shows that involving tools of this type will allow for this to be accomplished in a positive way.



Graph 6 Entertainment and learning of cognitive functions
Source: Own Elaboration

ISSN 2523-2479

Acknowledgement

Special thanks to the two basic level institutions that participated with the 66 students that formed our sample in order to carry out the corresponding tests of the Dream Scape Video Game and show the importance of the development of the functions with them. Also to the Tecnológico Nacional de México Campus Coatzacoalcos with the support of the director Dr. Bulmaro Salazar Hernández who allowed us the loan of 30 Chromebook computers to implement the tool and perform the corresponding tests.

Conclusions

Gamification is not something new in our country, nor in the process of teaching and learning, however the design of video games focused on specific areas establishing the design of narrative, story, characters using programming such as Unity allows us not only to consider creating entertainment programs that are illustrative to our students, but to consider how the Dream Scape tool allows us to use the corresponding levels of development to be able to establish the reinforcement through the entertainment company as a feedback and promotion of the cognitive functions of students in third grade of basic education in Mexico, specifically in the city of Coatzacoalcos, Veracruz, where we can allow students of these grades to interact with technological tools that seek feedback, support and monitoring of the knowledge acquired in a classroom.

But, in addition, this tool will allow the strengthening of the Gnosias defined as the scope of the educational programmes, preventing the population of groups of 40 to 50 students from being affected, since it will allow constant feedback, at one level, with rewards and strengthening of the student's stimulus and motivation to learn.

The first level has been complemented by being able to use the tool in a test phase, and the next level is to be able to corroborate that its continuous use will allow students to maintain a higher level by being a support tool for teachers in their classrooms.

References

Balarezo Lata, E. D., Mendieta Parra, D. I., Pérez Pérez, J. M., & Hurtado Crespo, G. P. (2022). Gamificación en la estimulación cognitiva de niños entre 5-7 años. Ciencia Latina Revista Multidisciplinar, 6(1), 36-46. doi:10.37811. https://ciencialatina.org/index.php/cienciala/article/view/1761

Bausela Herreras, E. (2014). Funciones ejecutivas: nociones del desarrollo desde una perspectiva neuropsicológica. Acción Psicológica, 11(1), 21-34. Obtenido de https://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S1578-908X2014000100003

Briones Cedeño, G. C., & Benavides Bailón, J. (2021). Estrategias neorudidácticas en el proceso de enseñanza - aprendizaje de educación básica. Revista de Ciencias Humanidades y Sociales, 6(1), 72-81. doi:10.5281/zenodo.5512773, https://www.redalyc.org/journal/6731/673171218006/673171218006.pdf

Caballeros Ruíz, M. Z., Sazo, E., & Gálvez Sobral, J. A. (2014). El aprendizaje de la lectura y escritura en los primeros años de escolaridad: Experiencias existosas en guatemala. Interamerican Journal of Psichology, 48(2), 212-222. Obtenido de https://www.redalyc.org/pdf/284/28437146008.pdf

Cadavid, N. (2008). Neuropsicología de la construcción de la función ejecutiva. Universidad de Salamanca, Tesis doctoral Departamento de psicología básica, psicobiología y metodología de las ciencias del comportamiento Facultad de psicología, España. Recuperado el 15 de Junio de 2023 Castillo, K. (29 de Marzo de 2021). https://docentesenlinealatinoamerica.com/. Obtenido de https://docentesenlinealatinoamerica.com/2021/03/29/principios-de-la-gamificacion-para-la-educacion/

De Ibarrola Nicolín, M. (2012). Los grandes problemas del sistema educativo mexicano. Perfiles Educativos, 34, 16-28. Obtenido de http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0185-26982012000500003&lng=es&tlng=es.

Fernández Lara , S. (28i de Noviembre de 2022). ¿Son los videojuegos herramientas adecuadas para aprender a aprender? Revista Colombiana de Educación, 239. doi: 10.17227. http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S0120-39162022000200239#:~:text=Los%20videojuegos%20se%20han%20mostrado,de%20resoluci%C3%B3n%20de%20problemas%2C%20la

Google Play Store. (s.f.). Google Play. Obtenido de https://play.google.com/store/apps/details?id=com.beiz.lolaabclite&hl=es&gl=US

Guerra Antequera, J., & Revuelta Domínguez, F. I. (28 de Noviembre de 2022). Investigación con videojuegos en educación. Una revisión sistemática de la literatura de 2015 a 2020. Revista Colombiana de Educación, 85(236). doi:10.17227 -12579. https://dialnet.unirioja.es/servlet/articulo?codigo=8436250

Liberio Ambuisaca, X. P. (19 de Diciembre de 2019). El uso de las técnicas de gamificación en el aula para desarrollar las habilidades cognitivas de los niños y niñas de 4 a 5 años de Educación Inicial. Conrado, 392-397. Obtenido de http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1990-86442019000500392

Muñoz Izquierdo, C. (2012). Tres problemas fundamentales del sistema educativo. Perfiles Educativos, 154-159. Obtenido de https://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S0185-26982012000500014

Ortíz Colón, A. M., Jordán, J., & Agredal, M. (2018). Gamificación en Educación: Una Panorámica sobre el estado de la cuestión. USR Educação e Pesquisa. doi: 10.1590/S1678-4634201844173773, https://www.scielo.br/j/ep/a/5JC89F5LfbgvtH5DJQQ9HZS/

Pherez, G., Vargas, S., & Jerez, J. (2018). Neuroaprendizaje, una propuesta educativa: herramientas para mejorar la praxis del docente. Civilizar, 149-166. Obtenido de http://www.scielo.org.co/pdf/ccso/v18n34/1657-8953-ccso-18-34-00149.pdf

Prieto Andreu, J. M., Gómez Escalonilla Torrijos, J. D., & Said Hung, E. (2022). Gamificación, Motivación y rendimiento en educación: Una revisión sistemática. Revista electrónica: Educare, 26(1), 251-273. Obtenido de https://www.redalyc.org/journal/1941/194170643014/html/

Sailer, M., Ulrich Hense, J., Mayr, S. K., & Mandl, H. (2017). How gamification motivates: An experimental study of the effects of specific game design elements on psychological need satisfaction. Computer in Human Behavior, 69, 371-380. doi:10.1016/j.chb.2016.12.033 https://www.sciencedirect.com/science/article/pii/S074756321630855X

Teixes, F. (2015). Gamificación: Fundamentos y aplicaciones. Editorial. UOC.

UNIR Revista. (20 de Julio de 2022). unir.net. Obtenido de https://www.unir.net/salud/revista/gnosias-praxias/

Valencia Echeverry, J., García Murcia, D. C., Londoño Martínez, J. D., & Barrera Valencia, M. (2020). Habilidades gnósico-práxicas relacionadas con dificultades del aprendizaje de la lectura y la escritura en individuos de 9 a 12 años. CES Psicología, 113-128. Obtenido de http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S2011-30802020000200113#:~:text=Las%20gnosias%20son%20habilidades%20que,%2C%20Bigler%2C%20%26%20Tranel%2C%202012

Article **Journal of Critical Pedagogy**
June 2023, Vol.7 No.17 21-39

Job performance and psychosocial risks in teaching

Riesgo psicosocial y desempeño laboral en la docencia

MINA, Susana del Carmen†*, QUINTANA-GARRIDO, Juan Diego and DE LOS SANTOS-SANTOS, Diana

Universidad Tecnológica Del Sureste De Veracruz. Dirección de Carrera de Administración

ID 1st Author: *Susana Del Carmen, Mina* / **ORC ID**: 0000-0002-6076-5377, **Researcher ID Thomson**: F-7402-2019, **CVU CONAHCYT ID**: 803667

ID 1st Co-author: *Juan Diego, Quintana-Garrido* / **ORC ID:** 0009-0005-5041-4409

ID 2nd Co-author: *Diana, De Los Santos-Santos*

DOI: 10.35429/JCP.2023.17.7.21.39 Received March 30, 2023; Accepted June 30, 2023

Abstract

Psychosocial risk factors have greatly affected the performance of teachers. At the Niños Héroes School in the municipality of Ixhuatlán del Sureste in the state of Veracruz, the work of teachers is seriously affected due to interactions with different actors in the educational community, causing job dissatisfaction, as well as effects on health and in their job performance. Psychosocial risk factors have various repercussions in the psychological and psychophysiological fields, as well as behavioral reactions and work accidents. For this reason, the objective of this research is to diagnose psychosocial risk factors and their impact on the work performance of teachers at the Colegio Niños Héroes de Ixhuatlán del Sureste Veracruz through the application of evaluation instruments. The present study is based on a quantitative, descriptive, non-experimental, and cross-sectional investigation. The instrument is a questionnaire that allows us to realize that workers work in an environment that is harmonious for them, although their activities require constant attention and this leads to making difficult decisions, which cause stress and anxiety, but in very small amounts.

Psychosocial risk, Job performance, Health

Resumen

Los factores de riesgos psicosociales han repercutido en gran manera en el desempeño de los docentes. En el Colegio Niños Héroes del municipio de Ixhuatlán del Sureste en el estado de Veracruz, el trabajo de los docentes se ve gravemente afectado a causa de las interacciones con diferentes actores de la comunidad educativa, ocasionando insatisfacción laboral, así como afectaciones en la salud y en su desempeño laboral. Los factores de riesgos psicosociales tienen diversas repercusiones en el ámbito psicológico, psicofisiológico, así como reacciones en el comportamiento y accidentes de trabajo. Por esta razón, el objetivo de esta investigación consiste en diagnosticar los factores de riesgos psicosociales y su incidencia en el desempeño laboral de los docentes del Colegio Niños Héroes de Ixhuatlán del Sureste Veracruz mediante la aplicación de instrumentos de evaluación. El presente estudio se basa en una investigación cuantitativa, de tipo descriptivo, no experimental y de corte transversal. El instrumento es un cuestionario que permite damos cuenta de que los trabajadores laboran en un ambiente que para ellos es armónico, aunque sus actividades requieren de una atención constante y esto conlleva a la toma de decisiones difíciles, las cuales causan estrés y ansiedad, pero en cantidades muy pequeñas.

Riesgo psicosocial, Desempeño laboral, Salud

Citation: MINA, Susana del Carmen, QUINTANA-GARRIDO, Juan Diego and DE LOS SANTOS-SANTOS, Diana. Job performance and psychosocial risks in teaching. Journal of Critical Pedagogy. 2023. 7-17: 21-39

* Correspondence to Author (e-mail: susana.mina@utsv.edu.mx)
† Researcher contributing as first author.

1. Introduction

Psychosocial risk factors are probable factors of damage to health, they are negative and can affect both physical and psychological health. They are stress factors that can alter and unbalance people's resources and abilities to manage and respond to the flow of activity derived from work. (Moreno, 2011).

Job performance is the behavior of the person being evaluated, aimed at effectively achieving the formulated objectives. This is the individual strategy to achieve the intended objectives (Chiavenato, 2007).

Psychosocial risk factors are of increasing concern to a large number of workers around the world. According to recent estimates published by the International Labor Organization (ILO) 2.78 million workers die each year from occupational accidents and diseases, of which 374 million workers suffer non-fatal occupational accidents. At the same time, many workers continue to face persistent work-related health and safety risks (ILO, 2019).

Being a teacher in Latin America, as an occupational activity, exerts greater exposure to stress due to its function, social organization and demand, among the common demands are: "The volume of working hours, the pace at which one works, deadlines, demands and time pressures imposed on the execution of tasks, schedules that regulate work activity, the various temporal aspects related to attention, distraction and other factors that influence performance, or the organization and management of time needed to carry out tasks. (Monroy & Juárez, 2019)

For years, the World Health Organization (WHO), the Mexican Social Security Institute (IMSS) and the National Autonomous University of Mexico (UNAM) have identified that mental and behavioral disorders are having a major impact on health, economically and occupationally. The WHO, for example, estimates that at least 25% of patients who use a health system do so because of a mental disorder, and the IMSS and the UNAM project that by 2025 mental disorders will be the leading cause of occupational disability.

Derived from this, the Ministry of Labor and Social Welfare (STPS) in our country, has determined that psychosocial risk factors are the cause of between 50% and 60% of all working days lost.(Ramos, 2019).

The state of Veracruz occupies the first places in one of the main psychosocial risk factors (occupational stress), therefore, experts recommend employers to become aware of the Mexican Official Standard 035, to increase labor efficiency, especially to promote and enhance the quality in the environment.(Meza, 2019)

Psychosocial risk factors have had a great impact on the performance of teachers mainly in the private sector. In the Colegio Niños Héroes in the municipality of Ixhuatlán del Sureste, the work of teachers is seriously affected due to interactions with the different actors of the educational community, this decreases their work performance, causing the deterioration of the proper development of their abilities and skills, which can cause negative psychological, physical and social results, such as work stress, burnout or depression. (AESST, 2021).

The present research will allow us to diagnose the psychosocial risk factors and their incidence in the work performance of the teachers of the Colegio Niños Héroes de Ixhuatlán del Sureste, Veracruz.

The specific objectives are the following: to use secondary sources on psychosocial risk factors immersed in previous research; to establish the bases of the research with respect to authors of topics related to psychosocial risk factors and work performance; to choose a data collection technique and instrument to obtain information; to apply the data collection instrument to human capital to obtain information on psychosocial risk factors presented within the work environment of the Colegio Niños Héroes.

ISSN 2523-2479

2. Development

2.1. Theoretical foundation

For the study of the relationship between health and work in teachers there are several positions, of which we base ourselves on authors such as: Idalberto Chiavenato, Alisma Monroy, Arturo Juárez, Flor Meza, Daniel Rubén Tacca Huamán, Ana Luisa Tacca Huamán, Lucas Pujol Cols (Doctor in Administration, Master in Business Administration, Researcher of the National Council of Scientific and Technical Research (CONICET, 2022), Mariana Foutel (Master in Management and Administration of Health Systems and Services), Luis Porta (Doctor in Pedagogy), Nury Cáceres Villarroel, Jocelin Campillay Lira, Claudia Cvitanic Vergara and finally Mariana Bargsted Aravena.

2.2. Normative Foundations

Universal Declaration of Human Rights

Everyone has the right to work, to free choice of employment, to just and favourable conditions of work and to protection against unemployment....

Article 24. Everyone has the right to rest and leisure, to reasonable limitation of working hours and to periodic vacations with pay. (United Nations, 2018).

Political Constitution of the United Mexican States

Every person has the right to decent and socially useful work; to this end, the creation of jobs and the social organization of work will be promoted, in accordance with the law (Carranza, 2021).

Federal Labor Law

Article 330-J. The special conditions of safety and health for the work developed under this Chapter shall be established by the Ministry of Labor and Social Welfare in a Mexican Official Standard, which shall consider the ergonomic, psychosocial factors, and other risks that could cause adverse effects on the life, physical integrity or health of workers who perform in the modality of teleworking (Diaz Ordaz, 2022).

Federal Regulation on Occupational Safety and Health

Article 3 defines psychosocial factors as: "Those that may cause anxiety disorders, non-organic disorders of the sleep-wake cycle, severe stress and adaptation, derived from the nature of the job functions, the type of workday and exposure to severe traumatic events or acts of workplace violence".

Article 43 establishes the obligations attributable to the employer, who must comply in order to avoid or control the incidence of psychosocial risks within the organization.

Likewise, the Regulation establishes that psychosocial risk factors are also considered to be those deriving from dangerous conditions inherent to the work, when these imply the performance of the same in unsafe conditions, with high demand of responsibility or under a high demand of concentration during prolonged periods (Calderón Hinojosa, 2012). (Calderón Hinojosa, 2012)

Article 55 provides a series of obligations attributable to the employer (employer) regarding the prevention of situations of violence in the work environment (Calderón Hinojosa, 2012).

Mexican Official Standard NOM-035-STPS-2018

Regarding psychosocial risk factors at work, identification, analysis and prevention, are obligations of the employer: to establish in writing, implement, maintain and disseminate in the workplace a psychosocial risk prevention policy that contemplates:

- The prevention of psychosocial risk factors;
- The prevention of workplace violence, and
- The promotion of a favorable organizational environment (DOF, 2018).

ISSN 2523-2479

2.3. Institution Background

Business Line of Business

The Educational Institution Colegio Niños Héroes (CONIHES) is an organization that since its inception has undergone transformation, with the aim of seeking continuous improvement and growth in the provision of educational services and search for increasingly satisfied students. It is necessary to mention that CONIHES Educational Institution is one of the most important in the sector, due to its location, its educational system (preschool, primary, secondary and high school level) and its good name in the city makes it more attractive to students (Hernández De la Cruz, 2022). (Hernández De la Cruz, 2022).

Quality Factors of the Institution

With the continuous growth of the Institution, many challenges have arisen for it, such as the constant training and motivation of its personnel, since the students change as well as the demands of the educational system and it is required to be at the forefront.

For this reason, different factors influence and are considered for its teaching staff: The individual aspect of the employees, in which attitudes, perceptions, personality, values, learning and stress that the employee may feel in the organization, the groups within the organization, structure, processes, cohesion, norms and roles; motivation, needs, effort and reinforcement; leadership, power, influences, style; organizational processes, evaluation, remuneration system, communication and decision making process are considered (Data provided by the institution).(Hernández De la Cruz, 2022).(Hernández De la Cruz, 2022).

2.4. Methodology

The present study is focused on quantitative research, with a descriptive scope. It is necessary to emphasize that it maintains a descriptive, non-experimental character and is subject to a cross-sectional scope, with data implication that corresponds to a specific moment of the psychosocial condition of the teaching staff of the Colegio Niños Héroes.

For the study of the psychosocial risk factors present in the work environment of the teachers under study, dependent and independent variables are defined, these are evaluated with psychometric indicators by means of the SUSESO/ISTAS21 Questionnaire.

The aforementioned instrument allows measuring the risk factors present in teachers, helps to define the risks they possess and the potential for causing somatic or psychological damage to the worker.

Population and Sample

The present research will specifically present the psychosocial risk factors of the Colegio Niños Héroes.

The educational institution is made up of four educational levels: preschool, elementary, middle school and high school; in which, the middle school and high school teachers have to attend to the students in these two levels and in the case of preschool and elementary teachers it is different, because they only attend one level each. The main purpose of this research is to diagnose the factors that influence their teaching performance.

The CONIHES teachers are a heterogeneous group of men and women between 30 and 45 years of age; each one works in different areas within the school. The teachers to be studied are from the preschool, primary, secondary and high school levels, with a total of 17 teachers.

The institution is located at 112 Hidalgo Street, in the municipality of Ixhuatlán del Sureste, Veracruz, as shown in Figure 1.

Figure 1 Location of the school *(Google Maps, 2022).*

Most of the teachers of this private school are only dedicated to this profession, in which 90% of the teachers are engaged in this style of work and the other 10% have another profession in which they are employed in a particular way.

CONIHES has as its main objective a good education with principles and values for its students, so from teachers to students practice a discipline in ethics and values, with implementation of the theological faith that operates the school for the entire campus.

Sometimes, teachers who do not profess the same faith as the school and are hired knowing the school rules, have disagreements with these rules and contract, which are subject to these and in many cases is authoritarian for teachers; although it is a minimum percentage of teachers with these types of incidents, even so, they leave a negative record in the file of the administrative area of the institution, so it would be ideal to eradicate and provide solutions to these types of conflicts that may arise.

Most of the teachers in this area are women; they have problems in terms of their concerns and opinions, which can lead to conflicts, causing disunity among the teaching staff and affecting the fulfillment of their objectives as an institution.

Data Collection Technique and Instrument

For the purposes of this research, the instrument was adapted and modified for the specific needs of the educational institution.

The instrument is a SUSESO/ISTAS21 Brief Version questionnaire. Authors: Candia Macarena; Pérez Juan; González David.

It is a method to measure and modify psychosocial risks at work through a participatory methodology that includes all stakeholders (operational workers, managers, experts). The SUSESO/ISTAS21 questionnaire is a measurement instrument that allows the evaluation and measurement of psychosocial risks at work (Candia, Pérez, & González, 2016).

The SUSESO-ISTAS 21 questionnaire, short version, is designed to be used in companies or work groups of less than 25 workers, for diagnostic, prevention, control and training purposes. Its use does not require the participation of experts, and it can be applied in small companies. It can also be applied in larger companies in order to have an overall picture of the risk level of each company. This allows the design of prevention policies and epidemiological surveillance. It contains 20 psychosocial risk questions, one for each subdimension, which are grouped into five major dimensions (Superintendencia de Seguridad Social, 2020).

The questionnaire has five major dimensions and they are:

1. Psychological demands at work.
2. Active work and skills development.
3. Social support in the company and quality of leadership.
4. Compensation.
5. Dual presence.

The questionnaire is divided into the general section and the specific psychosocial risk section; the general section comprises the demographic data and units of analysis making a total of 5 questions, while, in the specific psychosocial risk section are the dimensions corresponding to 20 questions. (Suseso, 2019).

Procedure for Analysis of Results

The application committee is responsible for data analysis. At this stage of the process, confidentiality in the handling of the data must be ensured at all times.

Once the scores and the prevalence of risk have been obtained, these results must be made known to the workers in the work center and by the previously defined analysis units. During the analysis of the results, under no circumstances may actions be carried out that could lead to the identification of the participants. The material form and type of data to be made available to workers will be defined by the implementation committee. For example, each unit analyzed should have access to its own results and those of the work center as a whole, but not necessarily to the results of all other units.

ISSN 2523-2479

Score Calculation and Interpretation

Questionnaire full version; the questionnaire scores must be calculated for each worker separately. Once this is done, it is possible to calculate the scores per work unit. The questionnaire has a general part and a specific part.

General Section. The demographic data section contains data on sex and age; it allows the frequency of each to be calculated and some correlations to be established with the indicators that appear later. It is possible to establish differentiated risks for men and women or by age group.

In the specific psychosocial risk section, all questions have answers on a Likert-type scale with a score from 0 to 4, where the higher the score, the higher the risk. Each subdimension should be calculated separately because it provides a better picture of the risk status of the workplace.

Interpretation of Scores

Once the scores are obtained for each worker and knowing what level of risk he/she is at, a first approximation of the state of the workplace is to calculate the prevalence of risk in that workplace. This means calculating what percentage of workers are in each of the risk levels.

The analysis of the frequency of responses to each question can be a great help in interpreting the meaning of the risk factor measurement and in designing intervention measures. It is recommended to do this analysis for each subdimension (especially those with the highest risk) and note the frequency of responses at risk.

The score obtained in the calculation of the risk level in the complete version for the purposes of the Protocol for the Surveillance of Psychosocial Risks at Work allows the analysis by sub-dimensions, focusing the interventions or prevention measures. However, it is also possible to obtain the level of risk by dimension, results that are necessary to establish the overall level of risk according to what is indicated in the Protocol of Surveillance of Psychosocial Risks at Work of the Ministry of Health.

The scores obtained by each worker are added up by subdimension. The result is divided by the maximum number of points for that subdimension and multiplied by 100, as shown in Figure 2. To obtain the percentage score for each worker, proceed in the same way for each of the subdimensions that make up a dimension of the complete version of the questionnaire.

$$\text{Ptje porcentual subdimension del trabajador} = \frac{\sum \text{Ptje preguntas subdimensión}}{\text{Máximo de ptje subdimensión}} \times 100$$

Figure 2 Formula for percentage score by subdimension *(Candia, Pérez, & González, 2016).*

Figure 3 shows that the percentage score of a Dimension for a worker is calculated by averaging the percentage scores of each of the subdimensions that make up that Dimension.

$$\text{Ptje porcentual subdimension del trabajador} = \frac{\sum \text{Ptje porcentuales subdimensiones}}{\text{Número de subdimensiones}}$$

Figure 3 Formula for dimension percentage score *(Candia, Pérez, & González, 2016)*

To know the level of risk of the worker in a Dimension, the percentage score obtained in the Dimension must be compared with the percentage scores of the terciles table of the full version questionnaire.

Once the level of risk per dimension has been established for each worker, the prevalence of risk in the workplace is calculated by adding the number of workers for each level of risk and calculating their percentage.

In the case of the short version, the calculation of scores is done directly with the points obtained, without transforming them into percentages. The simple addition of the total points obtained gives the score for each major dimension (and not by sub-dimension) (Dissemination and Communications Division, 2013).

Psychological Demands at Work

There are both qualitative (emotional, creative, sensory demands) and quantitative elements (quantity and pace of work, distribution of work). It contains the "demand" dimension of the demand-control-social support (DCAS) model.

ISSN 2523-2479

Meaning of the dimension: It essentially represents the concept of "demand" of the demand-control-social support model. A high prevalence of people "in the red" means that the demands on workers are high, or that the effort they make is high, but also that the emotional demands are high. Similar to the full version of the questionnaire, another way to examine this is through the analysis of the responses.

Subdimension 1. Qualitative Psychological Demands (CU)

Amount or volume of work demanded contrasted with the time available to perform it. If the time is insufficient, the high demands are presented as a fast work pace without pause, impossibility of keeping up with the work or accumulation of work or an irregular temporal distribution of tasks. The opposite situation may occur, in which the demands are limited or scarce. Very high quantitative demands are usually related to lack of personnel, inadequate work or technology planning.

Subdimension 2. Cognitive Psychological Demands (CO)

Demands on different mental processes (attention, memory, decisions) and responsibility for the consequences of what is done.

Subdimension 3. Emotional Psychological Demands (EM)

Emotional demands make demands on our ability to understand the situation of other people, especially when those people are themselves intensely emotional. For example, the care of victims of violence or rape, people who lose a loved one, or who lose their job or have suffered a serious accident or amputation, or know they have an incurable disease, or adults and children in a critical social situation, or in trouble with the law.

In all these cases there is a high emotional demand on the worker, which can occasionally lead to confusing his or her personal feelings with the demands of the users.

Subdimension 4. Psychological Demands to Hide Emotions (EE)

In theory the requirement to hide emotions refers to all basic emotions (anger, sadness, fear, disgust, joy, surprise). In practice, the emotion that is most often required to be hidden for "professional reasons" (along with the opinions that accompany it) is anger, which is usually provoked by aggressive behavior from both users and co-workers. It can also be experienced as concealment of shame when having to perform activities that are in contradiction with the values of the worker (for example, communicating demoralizing news for the user such as communicating that his/her claim is not resolved or the rejection of a long-awaited request, the termination of a benefit, the change in the conditions of a service with which the worker himself/herself does not agree).

Subdimension 5. Sensory Psychological Demands (ES)

Work demands that mean using the senses, especially vision, with high attention and alertness to detail.

Active Work and Skills Development

In essence it is about the autonomy of the worker (how much he/she can decide about schedules, pace, methods, variety, initiative, quality). It can be equated to the "control" dimension of the demand-control-social support (DCAS) model. Meaning of the dimension: "Active work" is a job where it is possible to develop as a person, mainly through the autonomy and learning possibilities that workers have, i.e. the "control" concept of the demand-control model. A high prevalence of people "in the red" may mean that workers have little control over their tasks, or that these are irrelevant, and therefore the possibilities for learning are scarce. This can be clarified through the analysis of the responses.

Subdimension 6. Influence (IN)

This is the margin of decision or autonomy that the worker has with respect to the content (what is done) and the working conditions (how it is done). It includes deciding the sequence or order in which tasks are performed, what methods are to be used, the amount of work that can be done, schedules, and the choice of co-workers.

ISSN 2523-2479

Subdimension 7. Control Over Working Time (TC)

Possibility of pausing or momentarily interrupting the task, whether for a short break, to attend to personal obligations or to take a vacation. This dimension complements that of influence.

Subdimension 8. Job Development Opportunities (PD)

Opportunities offered by the job to put into practice and develop the knowledge and skills that the person has, and the degree of monotony of the task.

Subdimension 9. Sense of Work (ST)

Relationship that the worker establishes with values or purposes of his/her work that transcend the most immediate purpose of economic income. It does not refer to the worker's relationship with the company/institution. It is usually a source of strength for workers. It is usually associated with the social value of work ("my work serves others"). A high sense of work makes it easier to cope with the demands of work.

Subdimension 10. Integration In The Company (EI)

Identification of each person with the company or institution in general. It does not refer to the content of the work itself. It is an opposite and complementary dimension to that of sense of work.

Social Support in the Company and Quality of Leadership

This dimension is equivalent to "social support" in the DCAS model. It moderates the effects of the two previous dimensions. It also contains elements of leadership.

Dimension significance: This dimension primarily assesses leadership, and is roughly equivalent to the concept of "social support in the firm" in the demand-control-social support model. A high prevalence of people "in the red" may mean that leadership styles are inappropriate.

Subdimension 11. Role Clarity (RL)

Degree of definition of actions, responsibilities and resources available in the assigned task.

Subdimension 12. Role Conflict (RC)

Contradictory demands that arise at work that can generate professional or ethical conflicts, when the demands of what needs to be done are different from personal norms and values.

Subdimension 13. Leadership Quality (LC)

Behaviors and attributes of the boss or direct supervisor that allow for judging his or her value as a leader. It includes the ability to resolve conflicts, plan and distribute work in a fair manner, concern for the welfare of subordinates and communication skills. Dimension linked to the social support of superiors.

Subdimension 14. Quality of Relationship with Superiors (SR)

Attributes of both the direct boss and the organization in general that make it possible to receive the type of help and information that is needed and at the right time to do the job. It means having the right information, sufficient and on time to be able to perform the job correctly and to adapt to changes (future restructuring, new technologies, new tasks, new methods and similar issues).

Subdimension 15. Quality of Relationship With Co-workers (CR)

Relationships with co-workers that are expressed both in forms of communication and in the possibility of receiving the right kind of help to get the job done at the right time, as well as the sense of belonging to a team.

Compensation

It allows measuring the effort-reward imbalance, as well as status control (job stability, undesired changes).

Dimension significance: It mainly represents the recognition received by the worker for the effort made, and is more or less equivalent to the "rewards" dimension of the effort-reward imbalance model, but also measures job stability.

ISSN 2523-2479

A high prevalence of people "in the red" may mean that they feel little recognition for their work, or that their work is unstable. In the same way as in the other dimensions, the frequency of "at risk" responses can be analyzed in the questions that constitute it.

Subdimension 16. Esteem (ET)

Recognition and support from superiors and colleagues for the effort made to perform the job. Includes being treated fairly.

Subdimension 17. Insecurity Regarding General Conditions of Contract (IC)

Concern about contract conditions, stability or renewal, salary variations, forms of salary payment, possibilities of dismissal and promotion.

Subdimension 18. Insecurity Regarding Specific Job Characteristics (It)

Includes insecurity about working conditions such as functional mobility (changes of tasks) and geographic mobility, changes in working hours and working time.

Double presence

It measures the concern for fulfilling household chores, in addition to work-related tasks. It can be partially equivalent to what some authors call "work-family interference".

Meaning of the dimension: It represents the synchronous or simultaneous demands of the worker's work and family environment. A high prevalence of people "in the red" may indicate that workers have incompatible demands in the two domains (e.g., due to long or incompatible work schedules).

Subdimension 19. Worrying about housework (DP)

Restlessness caused by domestic demands that may affect work performance. It is more frequent in women, thus producing a gender inequity.

Data Analysis Instrument

The survey is used to collect the required data. This data collection technique is used to establish contact with the observation unit by means of previously established questionnaires.

The modality of the survey to be applied is the online survey, this is a method of data collection in which questionnaires are sent to the sample being analyzed and they can answer this tool through the network in this case Google Form is used.

One of the main reasons for the implementation of online surveys is that they are cheaper, have a greater reach, are faster, have more control over the analysis of the data, and because of pandemic issues this method is the most practical. Respondents are sent online surveys through various means, such as email, embedding on a web page, distributing it on social networks such as WhatsApp and Messenger.

This type of survey was chosen because it is a type of self-administered survey in which the researcher does not have to participate in person, this provides us with more practicality and facilitates the research that is carried out. In addition, they allow the use of multimedia data collection, advanced functions such as logical jumps and branching, etc.

As for the data analysis in the Brief version, the calculation of scores is done directly with the points obtained. In addition, the simple summation of the total points obtained in each major dimension is considered.

With this score it is possible to calculate the prevalence, i.e. the percentage of workers who are in each risk level, low, medium or high, using the limits of each level according to Table 1.

Dimensión	Nivel de riesgo bajo	Nivel de riesgo medio	Nivel de riesgo alto
Exigencias psicológicas	0—8	9—11	12—20
Trabajo activo y desarrollo de habilidades	0—5	6—8	9—20
Apoyo social en la empresa	0—3	4—6	7—20
Compensaciones	0—2	3—5	6—12
Doble presencia	0—1	2—3	4—8

Table 1 Table of results of dimensions *(Own creation, 2021)*

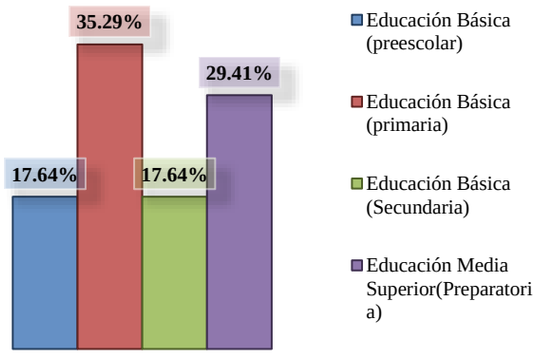
3. Results

The ages of the participants are as follows: 1 aged 25 years, 1 aged 27 years, 1 aged 29 years, 1 aged 30 years, 2 aged 37 years, 2 aged 38 years, 1 aged 41 years, 1 aged 43 years, 2 aged 45 years, 1 aged 46 years, 1 aged 48 years, 1 aged 51 years, 1 aged 54 years and 1 aged 63 years. The average age is 41 years.

Subjects taught: Social Sciences, Geography, History, Tutoring, History, Ethics, Psychology, Personal Development, Computers, Biological Sciences, Spanish, Literature, Reading and Writing Workshop and Communication Sciences, Mathematics, Knowledge of the Environment, Arts, English, Physics, Civic Education.

The respective graphs and, therefore, the interpretations are shown below.

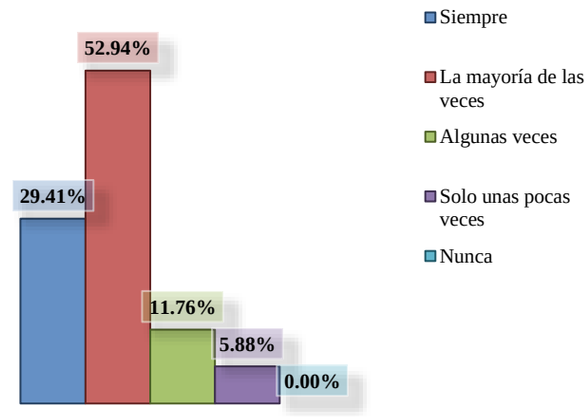
Graph 1 shows that the population is comprised of: basic education (preschool) with 17.4%, basic education (primary) with 35.29%, which occupies the highest percentage, basic education (secondary) with 17.64% and high school with 29.41%.



Graph 1 Level of education provided
Own Elaboration, 2022

Psychological Demands Dimension

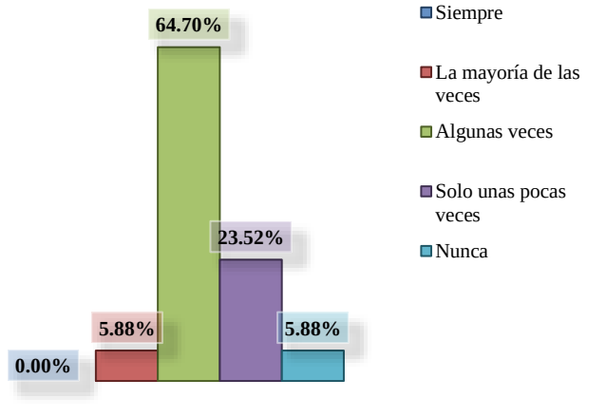
In Graph 2, 52.94% of the population affirms that most of the time they can do their work calmly, followed by 29.41% who mention that they can always do it calmly, 11.76% sometimes, 5.88% only a few times and 0.00% never, referring that within the activities they perform they have enough time to do them, without postponing them and have them in time and form.



Graph 2 Can you do your work with peace of mind and keep it up to date?
Own Elaboration, 2022)

In Graph 3, 64.70% say that sometimes they have to make difficult decisions, 23.52% only a few times, 5.88% most of the time, 5.88% never and 0.00% took "always" as an option.

We clearly see that these difficult decisions arise when we are faced with situations in which we must make a choice, the result of which could cause us certain levels of stress and anxiety, however, our population reports that this is not the case for them.

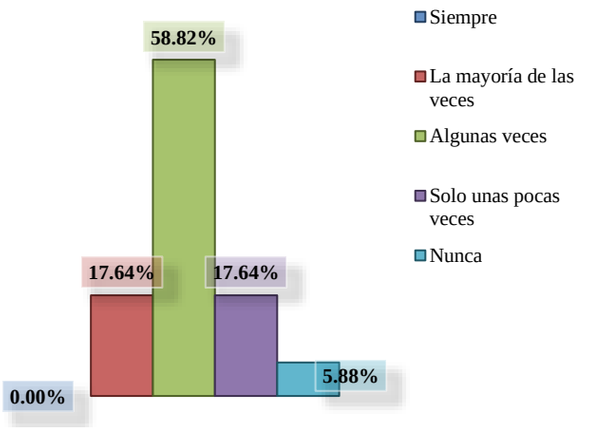


Graph 3 In your work, do you have to make difficult decisions?
Own Elaboration, 2022

In Graph 4, 58.82% of the population commented that sometimes their work requires emotional exhaustion, 17.64% only a few times, 17.64% most of the time, 5.88% mentioned never, while 0.00% opted for always.

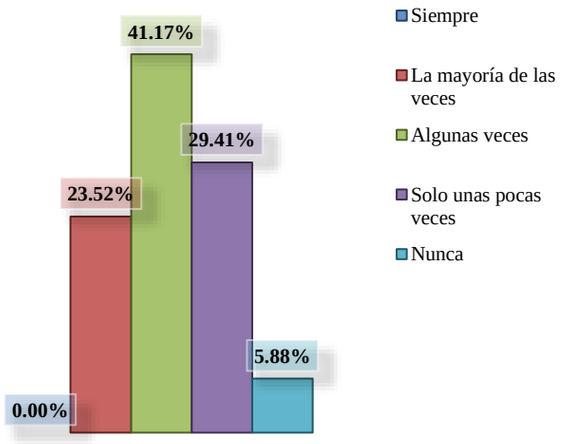
ISSN 2523-2479

This burnout is a state reached by overload of psychic effort. In this case, we are not only talking about work excesses, but also about the burden of assuming conflicts, responsibilities or adverse emotional or cognitive stimuli, which means that sporadic situations may arise for which they may feel this way, however, it cannot be taken as a totality.



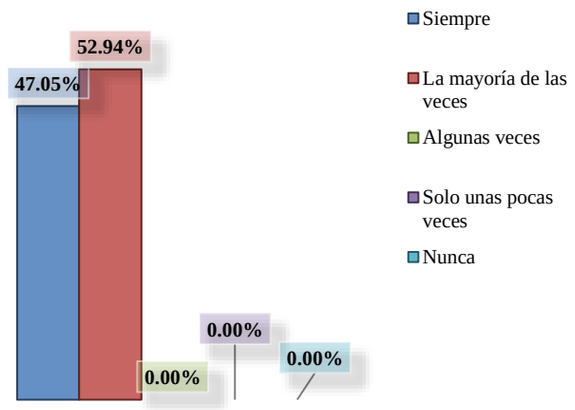
Graph 4 Do you consider that your work causes you emotional exhaustion?
Own Elaboration, 2022

In Graph 5, 41.17% chose that sometimes they keep their emotions and do not express them, 29.41% only rarely keep them and do not express them, 23.52% mention that most of the time they keep them and do not express them, 5. 88% say that they never keep their emotions and do not express them; repressing emotions would only lengthen the physiological effects affecting health, however, 0.00% chose to keep their emotions and do not express them, this gives us an indication that in certain situations people will seek to express them, although they do not know how.



Graph 5 In your work, do you have to keep your emotions bottled up and not express them?
Own Elaboration, 2022

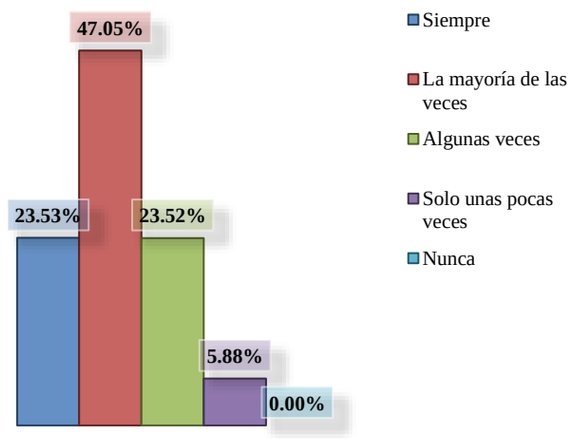
In Graph 6, in spite of the diverse activities and responsibilities of teachers, their work most of the time requires constant attention with a percentage of 52.94%, followed by 47.05% who almost always require it, and 0.00% chose the options sometimes, only a few times and never, which could indicate that they feel fatigued and tired when performing their work, since the results with their students will depend on this.



Graph 6 Does your work require constant attention?
Own Elaboration, 2022

Active Work and Skills Development Dimension

Graph 7 shows that most of the time, 47.05% of the population does have influence on the capacity of the work assigned to them, 23.53% always, 23.52% sometimes, 5.88% of the people only a few times and, finally, 0.00% never. At the highest percentage point comes the part of active work and skills development. In essence, it is about the autonomy of the worker (how much he/she can decide about schedules, pace, methods, variety, initiative, quality).

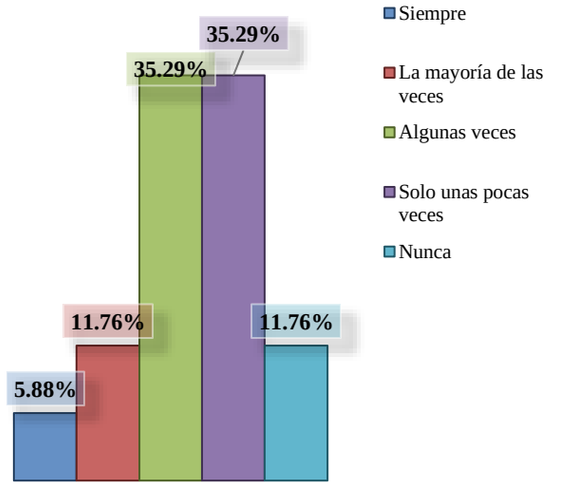


Graph 7 Do you have influence over the work capacity assigned to you?
Own Elaboration, 2022

ISSN 2523-2479

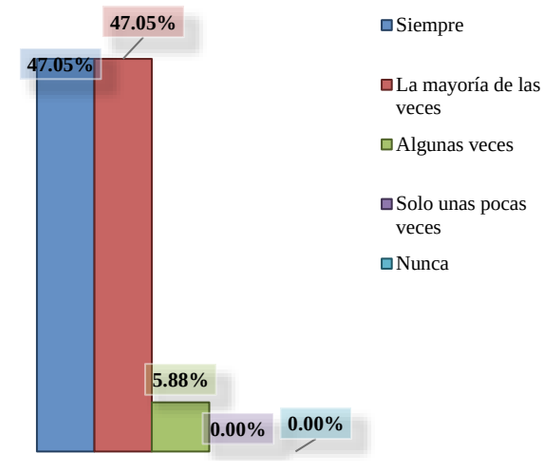
In Graph 8 we can observe that 35.29% sometimes and only a few times can leave their work for a moment to talk with a colleague, 11.76% mention that never and most of the time in other case, they can leave their work for a moment and, finally, 5.88% always.

This may refer to the fact that the levels of socialization are limited within the work, since it can only be done when it involves a collective activity, therefore, we cannot ignore that a certain level of socialization at work (with limits) is needed to de-stress a little, and also to increase the ability to relate to people younger than themselves.



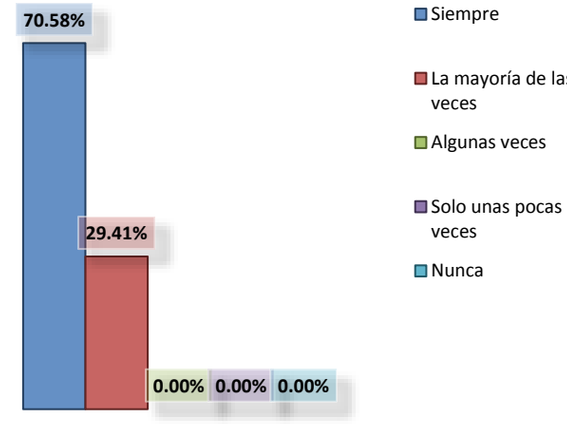
Graph 8 Can you leave your work for a moment to talk with a colleague?
Own Elaboration, 2022

Graph 9 shows that 47.05% chose always and most of the time their work allows them to learn new things, since this implies becoming aware of how the brain processes information, knowing how to use tools and resources to accelerate learning, and being able to learn more efficiently and autonomously, making professional growth possible for each one of them. 5.88% chose that sometimes and 0.00% only a few times and never their work allows them to learn something new.



Graph 9 Does your work allow you to learn new things?
Own Elaboration, 2022

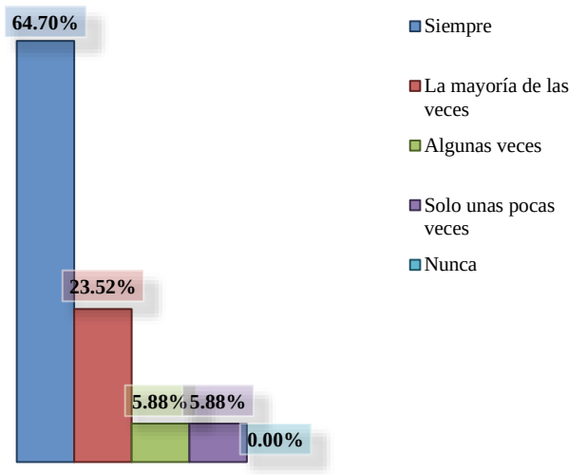
In Graph 10, the majority of respondents say that the tasks they perform always seem important, with a percentage of 70.58%, 29.41% most of the time and 0.00% sometimes, only a few times and never their tasks seem important; in this way they take into account the magnitude of what their work means and that leads to greater responsibilities.



Graph 10 Do the tasks you do seem important to you?
Own Elaboration, 2022

In graph 11, 64.70% of the personnel say that the institution where they work is always very important to them. This leads us to interpret that part of what they feel is the sense of belonging to the company, also known as work engagement, has to do, above all, with the feeling of being part of something, with feeling identified with the values of the company for which they work and with the team of which they are a part. 23.52% most of the time, 5.88% some of the time and only a few times and 0.00% of the time their institution is never important.

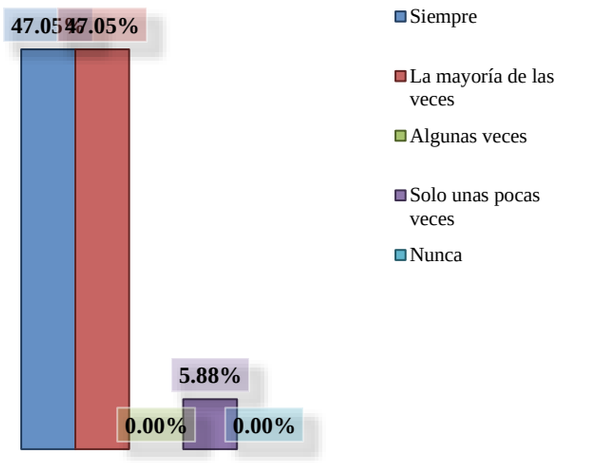
ISSN 2523-2479



Graph 11 Do you feel that your company or institution is very important to you?
Own Elaboration, 2022

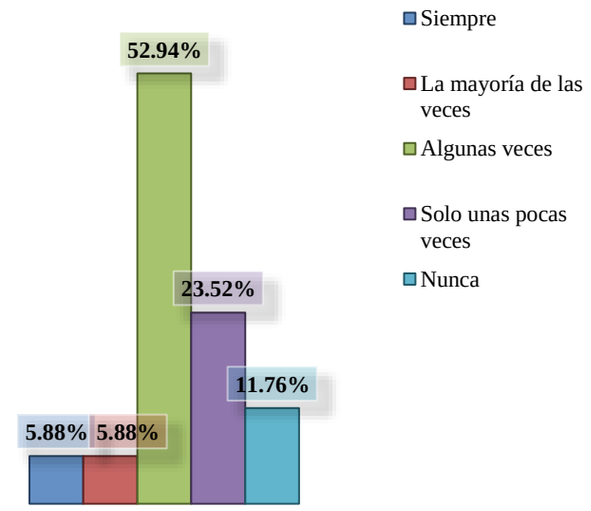
Social Support in the Company and Quality of Leadership Dimension

Graph 11 shows that there is a tie with 47.05%, where the sample refers that always and most of the time they know exactly what tasks they are responsible for, 5.88% that only a few times and 0.00% that sometimes or never know what tasks they are responsible for. This shows us that teachers have a sense of responsibility, and that it is important because it influences their abilities as leaders. These responsible leaders always watch over and protect the interests of the group, of their team, since they have placed their trust in them so that the objectives of the organization can be met.



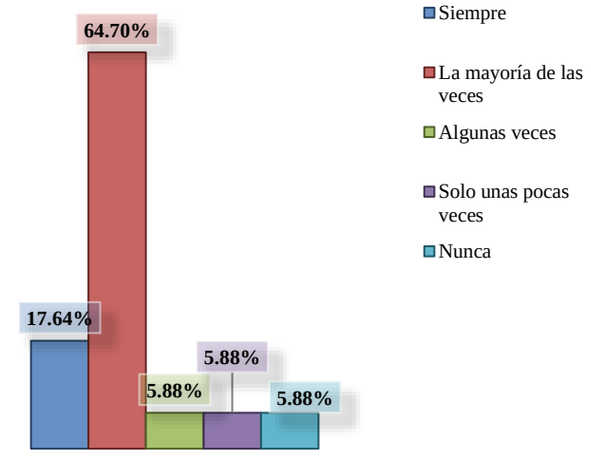
Graph 12 Do you know exactly which tasks are your responsibility?
Own Elaboration, 2022

In Graph 13, 52.94% opted for sometimes, 23.52% only a few times, 11.76% never and 5.88% always or most of the time the tasks they perform consider that they could be done differently. Here we are talking about the degree of proactivity of each employee to make decisions about alternatives in their tasks and thus accept full responsibility.



Graph 13 Do you have to do tasks that you think should be done differently?
Own Elaboration, 2022

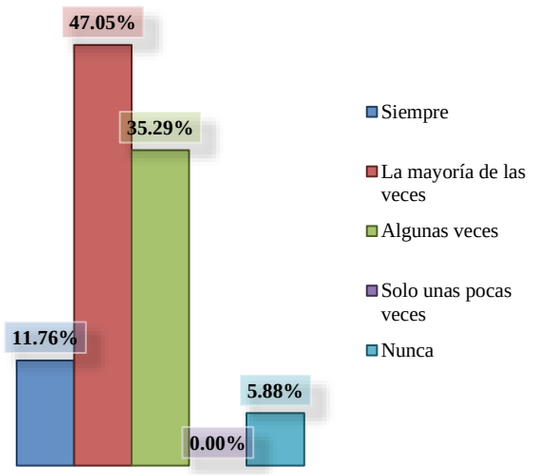
Graph 14 shows that 64.70% opted that most of the time they receive help and support from their boss or immediate superiors, 17.64% always and 5.88% sometimes, only a few times or never receive help from their superiors. This suggests that the working relationship is harmonious, despite the place they have within the hierarchy, together they make the work collaborative.



Graph 14 Do you receive help and support from your boss or immediate superior?
Own elaboration, 2022

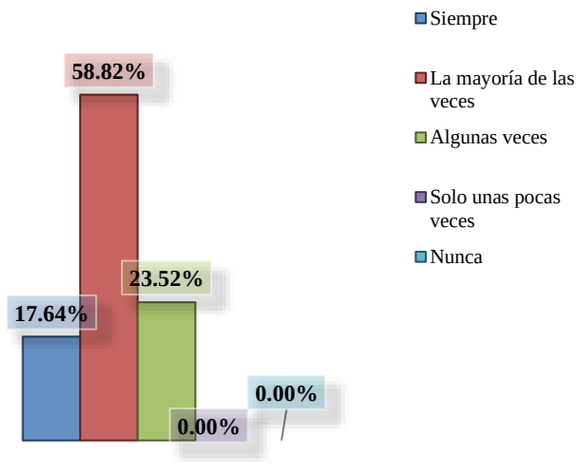
ISSN 2523-2479

Graph 15 shows that 47.05% opted that most of the time they receive help and support from their coworkers, which gives us to understand that the working relationship is harmonious, together they make the work collaborative. 35.29% sometimes, 11.76% always, 5.88% never and 0.00% only a few times.



Graph 15 Do male and female colleagues help each other at work?
Own Elaboration, 2022

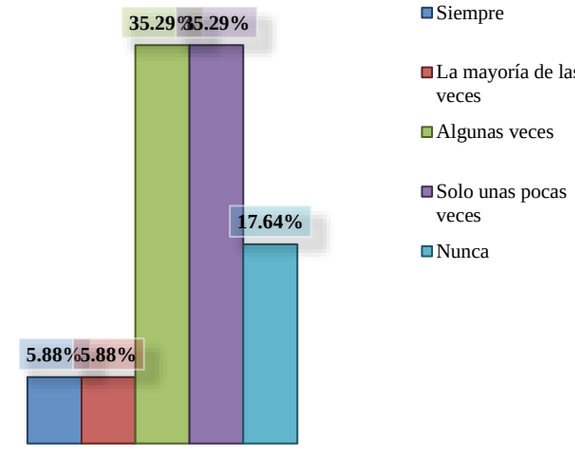
In Graph 16, 58.82% of the participants say that most of the time their immediate bosses resolve conflicts well, 23.52% sometimes, 17.64% always and 0.00% only a few times or never their immediate bosses resolve their conflicts. While it is true, labor conflicts affect the productivity of the company, therefore, if the person at the top of the hierarchy does not know how to optimally manage conflicts, this will significantly affect their employees, causing stressful levels.



Graph 16 Do your immediate bosses resolve conflicts well?
Own Elaboration, 2022

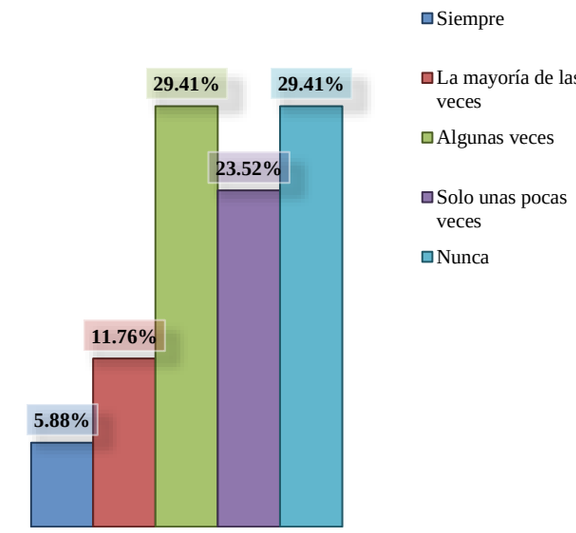
Compressions Dimension

In Graph 17, 35.29% vote for most of the time and sometimes employees feel worried about dismissal, 17.64% never and 5.88% most of the time or always are worried.



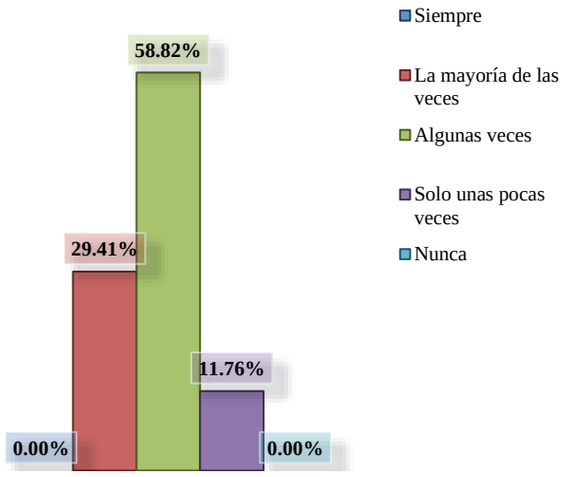
Graph 17 Are you worried about being fired or not having your contract renewed?
Own Elaboration, 2022

|In Graph 18, the data show that 29.41% of the people who work there worry sometimes or never about the change of tasks, the other 23.53% say that only a few times, 11.76% that most of the time and 5.88% that they are always worried. We could deduce that this is because each one already has a role within the school and the boss respects the responsibilities and tasks that are assigned to each one.



Graph 18 Are you worried about having your tasks changed against your will?
Own Elaboration, 2022

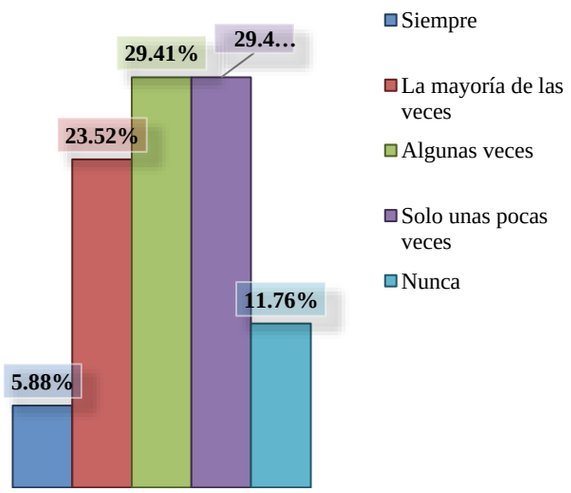
In Figure 19, 58.82% say that they are sometimes given the recognition they deserve for their effort or work, 29.41% most of the time, 11.76% only a few times and 0.00% never receive the recognition they deserve. It should be remembered that, according to Maslow, recognition is one of the needs of the human being and this greatly influences the motivation of each individual.



Graph 19 My superiors give me the recognition I deserve
Own Elaboration, 2022

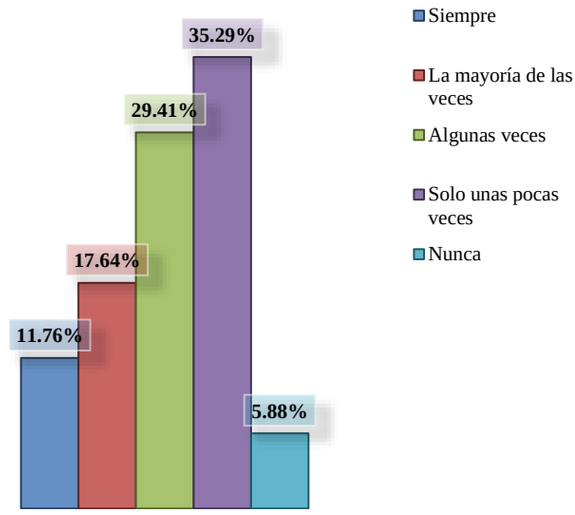
Dual Presence Dimension

In Figure 20, 29.41% sometimes and only a few times teachers are absent one day from home; those activities they already had in the day are left undone, this gives us the guideline to infer that they need to better organize the time they stay there to perform their activities or take short breaks so as not to avoid domestic activities. 23.52% mentioned that most of the time, 11.76% never and 5.88% always.



Graph 20 If you are absent from home for a day, are the household chores you do left undone?
Own elaboration, 2022

In Graph 21, 35.29% of the people say that they only rarely think about domestic and family activities while at work, implying that they concentrate on what they have to do as workers and therefore, they focus only on that, without allowing it to affect them in a significant way. 29.41% sometimes, 17.64% most of the time, 11.76% always and 5.88% never think about domestic and family demands.



Graph 21 When you are at work, do you think about domestic and family demands
Own Elaboration, 2022

3.1 Analysis

Thanks to the application of this questionnaire, we can analyze that the population is in an environment characterized by its harmony and synergy when working, since they can do the work with tranquility, despite the various activities, responsibilities that fall to teachers, their work most of the time requires constant attention, followed by the fact that it almost always requires it as well, especially in the aspect of making difficult decisions. These difficult decisions arise when we are faced with situations in which we must make a choice, the result of which could cause us certain levels of stress and anxiety, however, our population refers that this is not the case for them, this leads us to the affirmation that their work itself rarely requires excessive mental exhaustion, In this case, we are not only talking about work excesses, but also about the load that implies assuming conflicts, responsibilities or adverse emotional or cognitive stimuli, meaning that sporadic situations may arise for which they may feel this way, however, it could not be taken as a totality.

ISSN 2523-2479

Another aspect to highlight is that an emotion is an affective state that we experience, a subjective reaction to the environment that is accompanied by organic changes (physiological and endocrine) of innate origin, influenced by experience, which is why, if they want to express them, they do so, there is no need to hide them, since the environment itself welcomes them.

The teachers of this institution report that, for them, the institution where they are working is very important, this gives us the guideline to interpret that part of what they feel is the sense of corporate belonging, also known as work engagement, has to do, above all, with the feeling of being part of something, with feeling identified with the values of the company for which they work and with the team of which they are a part, Responsible leaders always watch over and protect the interests of the group, of their team, since they have placed their trust in them so that the organization's objectives can be met.

Another aspect that should not be left out is: how the relationship between bosses - workers and even in the same colleagues has a significant impact on how they perform, on their motivation, on their sense of belonging, on how they solve conflicts, on how they relate, on how they work as a team, etc.

Unemployment also plays a role to some extent in the impact of each worker, but they do not worry to an excessive level, this goes hand in hand with how often they worry about problematic situations that may arise in their homes or families.

3.2 Recommendations

After conducting this research, it is recommended that the management, teaching and service teams of the Adventist Educational System of Ixhuatlán del Sureste Veracruz (CONIHES) consider the following remedial actions to mitigate psychosocial risk factors in their teachers.

For the institution's management, it is recommended to analyze the risk factors that may be directly affecting the performance of the institution's teachers.

Provide training opportunities relevant to the teacher's area of performance, with a vision different from the Adventist one, without lowering the principles of the church's philosophy, but with a broader, innovative and active view.

It is very important to feel comfortable in the workplace, this helps to improve and expand the possibilities of performing the work correctly. Therefore, it is proposed to establish a warm atmosphere in the facilities, both classrooms and providing an adequate and equipped space where teachers spend their free time, for example, a conditioned teachers' lounge, this will greatly improve the coexistence among teachers, helping to create stronger bonds of friendship and helping to strengthen teamwork, generating that the objectives of the institution are met and reducing the work stress of workers.

Motivation on the part of the institution's directors plays a vital role in the teachers, therefore, it is proposed to follow up on the teacher's participation in the control and planning of their tasks, in order to feel more confident in their work and identify with the institution in social activities.

In order to have a high level of responsibility in the teachers, it is proposed to have a control area or committee, where teachers' work can be monitored, in order to measure their responsibility in achieving their assigned objectives.

It is proposed that in each educational level, social activities are carried out, where teachers actively participate, whether academic, spiritual retreats, such as recreational activities, in which interpersonal relationships between colleagues can be closely established and thus improve communication, in coordination with the work environment where they work, this will help to avoid generating rivalry between colleagues, helping to create healthy work environments.

To implement dialogue and reflection techniques that allow proposing changes and innovation for the improvement of the processes within the Adventist Educational System. With the participation of teachers, the management team and other levels.

ISSN 2523-2479

Conduct workshops on teamwork, employee relations and forms of communication, in order to improve communication and linkage between the staff and the management team.

It is recommended that the institution's management create a system of incentives for staff and management teams associated with the achievement of goals and objectives.

In general, it is highly recommended to value, strengthen and not neglect those dimensions that are perceived as favorable, since this will have a positive effect on the degree of commitment of the personnel, degree of satisfaction, degree of work motivation, productivity; and ultimately on the quality of the educational service provided by the personnel of the Adventist Educational System (CONIHES).

Acknowledgements

To the Universidad Tecnológica del Sureste de Veracruz, for having given us the opportunity to be part of this institution, which, without a doubt, has allowed us to acquire diverse knowledge that will be of great importance in the performance of our working life. As well as to each of the teachers who were part of each of the professional teachings.

To the Colegio Niños Héroes de Ixhuatlán del Sureste and the Administration of the Institution for giving us the authorization and making this research project possible.

Conclusions

Psychosocial risk factors have diverse repercussions in the psychological and psychophysiological areas, as well as behavioral reactions and work accidents.

Psychosocial risk factors are a reality in the vast majority of organizations, since they are generated by the workload and the execution of tasks, causing effects ranging from the well-being of individuals and even causing physical, social and psychological health problems.

At present, psychosocial risk factors have had a great impact on the performance of teachers in the private sector, even more so with the new normality.

These changes to which they have been subjected, in which most of them were not prepared for this type of teaching, have subjected them to great work pressure, since, as teachers, they are obliged to ensure that students obtain adequate knowledge to continue their next stage in their studies.

Psychosocial risk factors are probable factors of damage to health, they are negative and can affect both physical and psychological health. They are stress factors that can alter and unbalance the resources and capabilities of the person to manage and respond to the flow of activity derived from work, thus, the work performance of each worker is reflected in that behavior which in turn is aimed at achieving.

This research we carried out was done with the purpose of diagnosing psychosocial risk factors and their incidence in the work performance of the teachers of the Colegio Niños Héroes de Ixhuatlán del Sureste, Veracruz, and thanks to our applied instrument, we realize that workers work in an environment that for them is harmonious, although their activities require constant attention and this leads to making difficult decisions, which cause stress and anxiety but in very small amounts, coupled with the fact that emotion in them corrodes.

This emotion is a subjective reaction to the environment that is accompanied by organic changes (physiological and endocrine) of innate origin, influenced by experience, which teachers express without repressing them. Despite the fact that the institution is very important to them, they demonstrate a sense of belonging to the company, feeling identified with the values of the company they work for and with the team they are part of, as well as a sense of responsibility.

We conclude that psychosocial factors are a determining factor in the worker's performance, since the quality of the work that each employee contributes to their daily tasks during a certain period of time will depend on this.

ISSN 2523-2479

References

AESST. (2021). *Agencia europea para la seguridad y la salud en el trabajo.* Obtenido de Agencia europea para la seguridad y la salud en el trabajo: https://osha.europa.eu/es/themes/psychosocial-risks-and-stress

Calderón Hinojosa, F. d. (30 de Noviembre de 2012). *Secretaría del Trabajo y Previsión Social.* Obtenido de https://www.diputados.gob.mx/LeyesBiblio/ref/lft/LFT_ref26_30nov12.pdf

Candia, M., Pérez, J., & González, D. (Septiembre de 2016). *Manual del Método del Cuestionario SUSESO/ISTAS21 - Versiones completa y breve.* Obtenido de https://www.suseso.cl/606/articles-19640_archivo_01.pdf

Candia, M., Pérez, J., & González, D. (Septiembre de 2016). Manual del Método del Cuestionario SUSESO/ISTAS21 - Versiones completa y breve. Chile. Obtenido de https://www.suseso.cl/606/articles-19640_archivo_01.pdf

Carranza, V. (28 de Mayo de 2021). onstitución Política de los Estados Unidos Mexicanos, Título Sexto del Trabajo y la Prevención Social. México. Obtenido de https://www.diputados.gob.mx/LeyesBiblio/pdf/CPEUM.pdf?fbclid=IwAR3gfdAz_dItVcm1aZqF3BvWd7cxHMIVnhiwf0-x3iU3MMiUFtVlaP85b8A

Chiavenato, I. (2007). *Administración de recursos humanos. El capital humano de las organizaciones* (Octava ed.). México: McGRAW-HILL/INTERAMERICANA EDITORES. Recuperado el 04 de Julio de 2021

CONICET. (2022). *Consejo Nacional de Investigaciones Científicas y Técnicas*. Obtenido de Consejo Nacional de Investigaciones Científicas y Técnicas: https://www.conicet.gov.ar/

Díaz Ordaz, G. (18 de Mayo de 2022). Ley Federal del Trabajo. México. Obtenido de https://www.diputados.gob.mx/LeyesBiblio/pdf/LFT.pdf?fbclid=IwAR0lTtdO0LeLM0kj-M1mj5nB5rVnT2qoExgZgp47ZixbUUTaJqFSxBwlT8M

Google Maps. (30 de Agosto de 2022). Obtenido de https://www.google.com/maps/place/Hidalgo+112,+Nuevo,+96365+Ixhuatl%C3%A1n+del+Sureste,+Ver./@18.0216636,-94.3883992,19z/data=!4m13!1m7!3m6!1s0x85e97ff2ae055b0d:0x618bfa80a9268d4e!2sHidalgo+112,+Nuevo,+96365+Ixhuatl%C3%A1n+del+Sureste,+Ver.!3b1!8m2!3d18.0

Hernández De la Cruz, G. (15 de Junio de 2022). Origen del CONIHES. (D. Santos De los Santos, & S. D. Silvia, Entrevistadores)

ISASTUR. (2010). *ISASTUR.* Obtenido de ISASTUR: https://www.isastur.com/external/seguridad/data/es/1/1_10_3.htm

Jara Paucar, Á. W. (2020). *Evaluación de Riesgos Psicosociales de los docentes en centros educativos del distrito 09D04.* Obtenido de https://dspace.ups.edu.ec/bitstream/123456789/19846/1/UPS-GT003139.pdf

Lozada, M. A. (2005). La docencia ¿un riesgo para la salud? *UNAL.EDU*.

Meza, F. (26 de Noviembre de 2019). *El dictamen.* Obtenido de El dictamen: https://www.eldictamen.mx/noticias-de-veracruz/boca-ver/veracruz-en-los-primeros-lugares-de-estres-laboral/

Monroy, A., & Juárez, A. (Diciembre de 2019). Factores de riesgo psicosocial laboral en académicos de instituciones de educación superior en Latinoamérica: una revisión sistemática. *Propósitos y representaciónes*, *VII*(3), 248 - 272. Recuperado el 4 de Julio de 2021, de http://www.scielo.org.pe/pdf/pyr/v7n3/a10v7n3.pdf

Moreno V., J. D. (Agosto de 2018). *Marco Legal de los Factores de Riesgo Psicosocial.* Obtenido de https://www.imss.gob.mx/sites/all/statics/salud/estreslaboral/1erjornada/02-Marco-Legal.pdf

Moreno, B. (2011). Factores y riesgos laborales psicosociales: conceptualización, historia y cambios actuales. *Medicina y seguridad del trabajo* , 16.

Naciones Unidas. (3 de Diciembre de 2018). *Artículo 24: derecho al descanso y al tiempo libre.* Obtenido de Naciones Unidas: https://news.un.org/es/story/2018/12/1447471#:~:text=Art%C3%ADculo%2024%3A%20Toda%20persona%20tiene,trabajadores%20y%20para%20sus%20familias.

OIT. (2019). Seguridad y salud en el centro del futuro trabajo. *Organización Internacional del Trabajo*, 86. Recuperado el 18 de Junio de 2021, de https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/publication/wcms_686762.pdf

Ramos, I. (2019). Riesgo psicosocial en México. *Expansión*.

Superintendencia de Seguridad Social. (Noviembre de 2020). Manual de uso del Cuestionario SUSESO-ISTAS 21. Chile. Recuperado el 31 de Julio de 2021, de http://www.ist.cl/wp-content/uploads/2016/08/MANUAL-breve-ISTAS-11-11-2013.pdf

Suseso. (2019). *Superintencencia de seguridad social*. Obtenido de Cuestionario de evaluación de riesgos psicosociales en el trabajo SUSESO/ISTAS21: https://www.suseso.cl/606/w3-article-19640.html

ISSN 2523-2479

[Title in Times New Roman and Bold No. 14 in English and Spanish]

Surname (IN UPPERCASE), Name 1st Author†*, Surname (IN UPPERCASE), Name 1st Coauthor, Surname (IN UPPERCASE), Name 2nd Coauthor and Surname (IN UPPERCASE), Name 3rd Coauthor

Institutional Affiliation of Author including Dependency (No.10 Times New Roman and Italic)

International Identification of Science - Technology and Innovation

ID 1st Author: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Author ID - Open ID) and CVU 1st author: (Scholar-PNPC or SNI-CONACYT) (No.10 Times New Roman)

ID 1st Coauthor: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Author ID - Open ID) and CVU 1st coauthor: (Scholar or SNI) (No.10 Times New Roman)

ID 2nd Coauthor: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Author ID - Open ID) and CVU 2nd coauthor: (Scholar or SNI) (No.10 Times New Roman)

ID 3rd Coauthor: (ORC ID - Researcher ID Thomson, arXiv Author ID - PubMed Author ID - Open ID) and CVU 3rd coauthor: (Scholar or SNI) (No.10 Times New Roman)

(Report Submission Date: Month, Day, and Year); Accepted (Insert date of Acceptance: Use Only ECORFAN)

Abstract (In English, 150-200 words)

Objectives
Methodology
Contribution

Abstract (In Spanish, 150-200 words)

Objectives
Methodology
Contribution

Keywords (In English)

Indicate 3 keywords in Times New Roman and Bold No. 10

Keywords (In Spanish)

Indicate 3 keywords in Times New Roman and Bold No. 10

Citation: Surname (IN UPPERCASE), Name 1st Author, Surname (IN UPPERCASE), Name 1st Co-author, Surname (IN UPPERCASE), Name 2nd Co-author and Surname (IN UPPERCASE), Name 3rd .Co-author. Paper Title. Journal of Critical Pedagogy. Year. 1-1: 1-11 [Times New Roman No.10]

* Correspondence to Author (example@example.org)
† Researcher contributing as first author.

Introduction

Text in Times New Roman No.12, single space.

General explanation of the subject and explain why it is important.

What is your added value with respect to other techniques?

Clearly focus each of its features

Clearly explain the problem to be solved and the central hypothesis.

Explanation of sections Article.

Development of headings and subheadings of the article with subsequent numbers

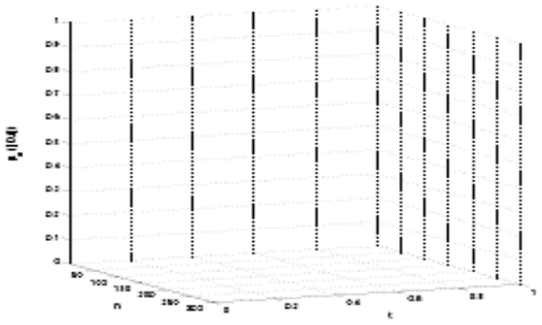
[Title No.12 in Times New Roman, single spaced and bold]

Products in development No.12 Times New Roman, single spaced.

Including graphs, figures and tables-Editable

In the article content any graphic, table and figure should be editable formats that can change size, type and number of letter, for the purposes of edition, these must be high quality, not pixelated and should be noticeable even reducing image scale.

[Indicating the title at the bottom with No.10 and Times New Roman Bold]



Graphic 1 Title and *Source (in italics)*

Should not be images-everything must be editable.

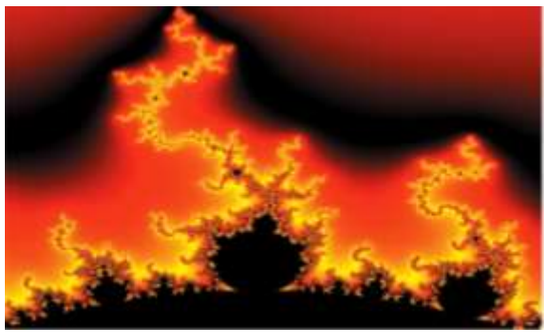


Figure 1 Title and *Source (in italics)*

Should not be images-everything must be editable.

Table 1 Title and *Source (in italics)*

Should not be images-everything must be editable.

Each article shall present separately in **3 folders**: a) Figures, b) Charts and c) Tables in .JPG format, indicating the number and sequential Bold Title.

For the use of equations, noted as follows:

$$Y_{ij} = \alpha + \sum_{h=1}^{r} \beta_h X_{hij} + u_j + e_{ij} \qquad (1)$$

Must be editable and number aligned on the right side.

Methodology

Develop give the meaning of the variables in linear writing and important is the comparison of the used criteria.

Results

The results shall be by section of the article.

Annexes

Tables and adequate sources

Thanks

Indicate if they were financed by any institution, University or company.

Conclusions

Explain clearly the results and possibilities of improvement.

ISSN 2523-2479

References

Use APA system. Should not be numbered, nor with bullets, however if necessary numbering will be because reference or mention is made somewhere in the Article.

Use Roman Alphabet, all references you have used must be in the Roman Alphabet, even if you have quoted an Article, book in any of the official languages of the United Nations (English, French, German, Chinese, Russian, Portuguese, Italian, Spanish, Arabic), you must write the reference in Roman script and not in any of the official languages.

Technical Specifications

Each article must submit your dates into a Word document (.docx):

Journal Name
Article title
Abstract
Keywords
Article sections, for example:

1. Introduction
2. Description of the method
3. Analysis from the regression demand curve
4. Results
5. Thanks
6. Conclusions
7. References

Author Name (s)
Email Correspondence to Author
References

Intellectual Property Requirements for editing:

-Authentic Signature in Color of Originality Format Author and Co-authors.

-Authentic Signature in Color of the Acceptance Format of Author and Co-authors.

-Authentic Signature in Color of the Conflict of Interest Format of Author and Co-authors.

ISSN 2523-2479

Reservation to Editorial Policy

Journal of Critical Pedagogy reserves the right to make editorial changes required to adapt the Articles to the Editorial Policy of the Research Journal. Once the Article is accepted in its final version, the Research Journal will send the author the proofs for review. ECORFAN® will only accept the correction of errata and errors or omissions arising from the editing process of the Research Journal, reserving in full the copyrights and content dissemination. No deletions, substitutions or additions that alter the formation of the Article will be accepted.

Code of Ethics - Good Practices and Declaration of Solution to Editorial Conflicts

Declaration of Originality and unpublished character of the Article, of Authors, on the obtaining of data and interpretation of results, Acknowledgments, Conflict of interests, Assignment of rights and Distribution

The ECORFAN-Mexico, S.C. Management claims to Authors of Articles that its content must be original, unpublished and of Scientific, Technological and Innovation content to be submitted for evaluation.

The Authors signing the Article must be the same that have contributed to its conception, realization and development, as well as obtaining the data, interpreting the results, drafting and reviewing it. The Corresponding Author of the proposed Article will request the form that follows.

Article title:

– The sending of an Article to Journal of Critical Pedagogy emanates the commitment of the author not to submit it simultaneously to the consideration of other series publications for it must complement the Format of Originality for its Article, unless it is rejected by the Arbitration Committee, it may be withdrawn.

– None of the data presented in this article has been plagiarized or invented. The original data are clearly distinguished from those already published. And it is known of the test in PLAGSCAN if a level of plagiarism is detected Positive will not proceed to arbitrate.

– References are cited on which the information contained in the Article is based, as well as theories and data from other previously published Articles.

– The authors sign the Format of Authorization for their Article to be disseminated by means that ECORFAN-Mexico, S.C. In its Holding Republic of Peru considers pertinent for disclosure and diffusion of its Article its Rights of Work.

– Consent has been obtained from those who have contributed unpublished data obtained through verbal or written communication, and such communication and Authorship are adequately identified.

– The Author and Co-Authors who sign this work have participated in its planning, design and execution, as well as in the interpretation of the results. They also critically reviewed the paper, approved its final version and agreed with its publication.

– No signature responsible for the work has been omitted and the criteria of Scientific Authorization are satisfied.

– The results of this Article have been interpreted objectively. Any results contrary to the point of view of those who sign are exposed and discussed in the Article.

Copyright and Access

The publication of this Article supposes the transfer of the copyright to ECORFAN-Mexico, S.C. in its Holding Republic of Peru for its Journal of Critical Pedagogy, which reserves the right to distribute on the Web the published version of the Article and the making available of the Article in This format supposes for its Authors the fulfilment of what is established in the Law of Science and Technology of the United Mexican States, regarding the obligation to allow access to the results of Scientific Research.

Article Title:

Name and Surnames of the Contact Author and the Co-authors	Signature
1.	
2.	
3.	
4.	

Principles of Ethics and Declaration of Solution to Editorial Conflicts

Editor Responsibilities

The Publisher undertakes to guarantee the confidentiality of the evaluation process, it may not disclose to the Arbitrators the identity of the Authors, nor may it reveal the identity of the Arbitrators at any time.

The Editor assumes the responsibility to properly inform the Author of the stage of the editorial process in which the text is sent, as well as the resolutions of Double-Blind Review.

The Editor should evaluate manuscripts and their intellectual content without distinction of race, gender, sexual orientation, religious beliefs, ethnicity, nationality, or the political philosophy of the Authors.

The Editor and his editing team of ECORFAN® Holdings will not disclose any information about Articles submitted to anyone other than the corresponding Author.

The Editor should make fair and impartial decisions and ensure a fair Double-Blind Review.

Responsibilities of the Editorial Board

The description of the peer review processes is made known by the Editorial Board in order that the Authors know what the evaluation criteria are and will always be willing to justify any controversy in the evaluation process. In case of Plagiarism Detection to the Article the Committee notifies the Authors for Violation to the Right of Scientific, Technological and Innovation Authorization.

Responsibilities of the Arbitration Committee

The Arbitrators undertake to notify about any unethical conduct by the Authors and to indicate all the information that may be reason to reject the publication of the Articles. In addition, they must undertake to keep confidential information related to the Articles they evaluate.

Any manuscript received for your arbitration must be treated as confidential, should not be displayed or discussed with other experts, except with the permission of the Editor.

The Arbitrators must be conducted objectively, any personal criticism of the Author is inappropriate.

The Arbitrators must express their points of view with clarity and with valid arguments that contribute to the Scientific, Technological and Innovation of the Author.

The Arbitrators should not evaluate manuscripts in which they have conflicts of interest and have been notified to the Editor before submitting the Article for Double-Blind Review.

Responsibilities of the Authors

Authors must guarantee that their articles are the product of their original work and that the data has been obtained ethically.

Authors must ensure that they have not been previously published or that they are not considered in another serial publication.

Authors must strictly follow the rules for the publication of Defined Articles by the Editorial Board.

The authors have requested that the text in all its forms be an unethical editorial behavior and is unacceptable, consequently, any manuscript that incurs in plagiarism is eliminated and not considered for publication.

Authors should cite publications that have been influential in the nature of the Article submitted to arbitration.

Information services

Indexation - Bases and Repositories

LATINDEX (Scientific Journals of Latin America, Spain and Portugal)
EBSCO (Research Database - EBSCO Industries)
RESEARCH GATE (Germany)
GOOGLE SCHOLAR (Citation indices-Google)
MENDELEY (Bibliographic References Manager)
HISPANA (Information and Bibliographic Orientation-Spain)

Publishing Services

Citation and Index Identification H
Management of Originality Format and Authorization
Testing Article with PLAGSCAN
Article Evaluation
Certificate of Double-Blind Review
Article Edition
Web layout
Indexing and Repository
ArticleTranslation
Article Publication
Certificate of Article
Service Billing

Editorial Policy and Management

1047 La Raza Avenue -Santa Ana, Cusco-Peru. Phones: +52 1 55 6159 2296, +52 1 55 1260 0355, +52 1 55 6034 9181; Email: contact@ecorfan.org www.ecorfan.org

Journal of Critical Pedagogy

2523 2479
ISSN 2523-2479

www.ecorfan.org