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Content Presentation

In the first article we present, *Statistical analysis of emotional pedagogy in high school students* by Hernández-Rivera, Diana, Terrazas-Medina, Tamara Isabel, Morlett-Villa, Zaida Francisca and Flores-López, Beatriz Adriana, with adscription at the Universidad Autónoma de Coahuila, as a second article we present, *Designer Role: Organizational Management* by Higuera-Zimbron, Alejandro, Rivera-Gutiérrez, Erika and Arguello, Georgina, with adscription at the Universidad Autónoma del Estado de México and Nova Southeastern University, as third article we present, *Operational Planning: Contributing to transparency and accountability in a higher education institution* by Palomares-Ruiz, María Blanca Elizabeth, Torres-Bugdud, Arturo, Bustos-Arista, Sammara Elizabeth and Báez-Villarreal, Esteban, with adscription at the Universidad Autónoma de Nuevo León, as the last article we present, *Strengthening organizational culture through faculty training in higher education: The case of UPVM*, by Echevarría-Chan, Ivonne, Flores-Azcanio, Nancy P., Carrizales-Paz, Karla I. and Avendaño-Cruz, Carlos A, with adscription at the Instituto Tecnológico de Tlalnepantla and Universidad Politécnica del Valle de México.

Content

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Article

Statistical analysis of emotional pedagogy in high school students

Análisis estadístico de la pedagogía emocional en estudiantes de bachillerato

Hernández-Rivera, Diana * [a], Terrazas-Medina, Tamara Isabel [b], Morlett-Villa, Zaida Francisca [c] and Flores-López, Beatriz Adriana [d]

[a] Universidad Autónoma de Coahuila • LUY-0164-2024 • 009-0009-1156-7014 • 2077564
[b] Universidad Autónoma de Coahuila • LUY-1018-2024 • 0000-0002-6581-190X • 929839
[c] Universidad Autónoma de Coahuila • LTE-5126-2024 • 0000-0002-8716-7473• 358580
[d] Universidad Autónoma de Coahuila • LUR-68-52-2024 • 0009-0003-6468-7702

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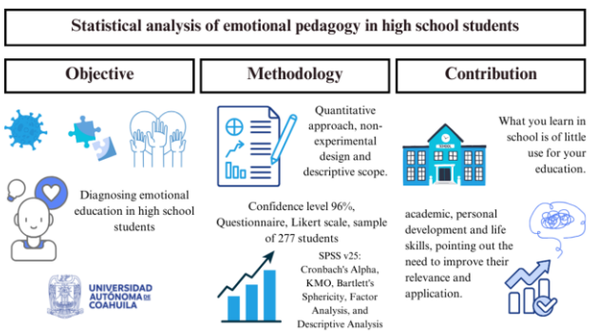
* ✉ [diana_hernandez@uadec.edu.mx]

Abstract

Emotional pedagogy is a training approach that seeks not only academic development, but also social development, integrating emotions into the teaching-learning process to prepare balanced beings for challenges. This study aimed to diagnose emotional education in high school students at the Autonomous University of Coahuila, during the January-June 2024 semester. The research had a quantitative approach, non-experimental design and descriptive scope. A sample of 277 students and a validated questionnaire with Cronbach's Alpha coefficient [0.743] were selected to measure the reliability of the scale. The data were analyzed with the IBM®SPSS®Statistics software, performing various statistical tests. The results reveal that students perceive that what they learn at school is of little use for their academic training, personal development and life skills, pointing to the need to improve its relevance and application.

Resumen

La pedagogía emocional es un enfoque formativo que busca no solo el desarrollo académico, sino también el social, integrando las emociones en el proceso de enseñanza-aprendizaje para preparar seres equilibrados ante los desafíos. Este estudio tuvo como objetivo diagnosticar la educación emocional en estudiantes de nivel medio superior de la Universidad Autónoma de Coahuila, durante el semestre enero-junio de 2024. La investigación fue de enfoque cuantitativo, diseño no experimental y alcance descriptivo. Se seleccionó una muestra de 277 estudiantes y un cuestionario validado con el coeficiente Alpha de Cronbach [0.743], para medir la fiabilidad de la escala. Los datos fueron analizados con el software *IBM®SPSS®Statistics*, realizando diversas pruebas estadísticas. Los resultados revelan que los estudiantes perciben que lo aprendido en la escuela tiene poca utilidad para su formación académica, desarrollo personal y habilidades para la vida, señalando la necesidad de mejorar su relevancia y aplicación.



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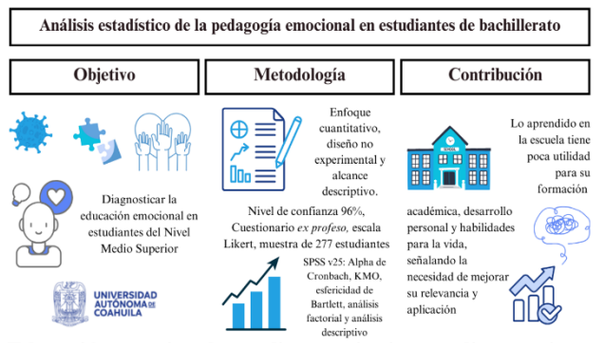

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Introduction

Emotional pedagogy has emerged as an essential field in education today, highlighting the relevance of emotions in students' learning and development. Recent research has shown that emotions significantly influence motivation, behaviour and academic performance [Damasio, 2019; Immordino-Yang and Damasio, 2011]. Emotional management by both educators and students has become fundamental to creating more effective learning environments.

Emotional intelligence, a concept proposed by Goleman [1996], is fundamental to both academic and personal success. In this sense, Social Emotional Education [SEE] programmes have been shown to be effective in improving students' well-being and academic skills [Jones and Kahn, 2017; Oberle et al., 2020]. However, the introduction of pedagogical strategies that promote the development of emotional intelligence faces challenges, including teacher training [Poulou et al., 2022]. Added to this is the impact of the COVID-19 pandemic, which has brought to the table the imperative need to study and act on students' emotional health [Weissbourd et al., 2021].

This study is part of an investigation in the state of Coahuila, Mexico, which seeks to diagnose emotional education in high school students at the Autonomous University of Coahuila, exploring how emotional practices have been integrated into the classroom to improve the learning environment and the integral development of students.

This paper includes in the rationale how emotional pedagogy integrates emotional intelligence into the curriculum, favouring the integral development of students, as well as the support of various studies that show that it elicits well-being, academic performance and social skills and how the pandemic evidenced the importance of strategies that support the emotional health of students and teachers. The framework addresses the importance of integrating emotional pedagogy and social-emotional learning in education: it highlights how emotions influence learning, motivation and academic success, according to authors such as Bisquerra et al. [2011], Goleman [1996] and Brackett [2019].

Furthermore, it highlights the relevance of training them in emotional competences in order to create positive learning environments. In the methodological design section, the statistical procedures used are specified, the selection of the sample is detailed, the instrument used with specific dimensions: emotional pedagogy, emotional education and culture of peace, the methods used to ensure validity and reliability are mentioned. And the procedure involving factorial and descriptive analysis. Finally, the findings and conclusions are presented in the results.

Justification

The increasing complexity of today's world, driven by technological and social changes, has highlighted the need to consider the emotional dimensions of learning in education. Emotional pedagogy emerges as a key response to integrate emotional intelligence into the curriculum, promoting the holistic development of students. Several studies highlight the positive relationship between emotional education and academic performance, psychological well-being and social skills [Brackett, 2019; Cipriano et al., 2020 and Osher et al., 2016].

Emotional pedagogy has a positive impact on the school environment, creating a climate of respect and empathy that facilitates learning and builds responsible citizens. The pandemic further highlighted the need to generate strategies that support students' emotional health, given the increase in anxiety and stress [García-Carrion et al., 2020]. Programmes such as SEE also benefit teachers, improving their well-being and effectiveness [Clemente et al., 2023].

Therefore, research into emotional pedagogy is crucial to develop educational strategies that respond to these needs, improve the school climate and prepare young people to face the constant changes of the 21st century with resilience and empathy.

All this leads to the proposal of the objective of diagnosing the state of emotional education in the school context of students at the upper secondary level of the Autonomous University of Coahuila, during the January-June semester of 2024.

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Reference framework

According to Bisquerra [2011], emotional pedagogy can be understood as an educational practice that integrates emotional development with academic objectives in a structured way, thus promoting the personal and social growth of students.

Bisquerra emphasises that emotions play an essential role in impulse, mnesic capacity and choice, key aspects for effective learning.

On the other hand, emotional intelligence, a concept disseminated by Goleman [1996] and revised by current authors, refers to the ability to identify, understand and manage internal emotions and those of others.

Brackett [2019] highlights that emotional intelligence is an important element that helps predict academic and personal success, underlining the importance of including SES in the educational curriculum.

Social-emotional learning

Social-emotional learning is an educational methodology focused on the development of emotional and social competences in students. According to Osher et al. [2016], SES improves school climate, reduces behavioural problems and increases academic achievement, structured around several core competencies: self-awareness, self-management, social awareness, relationship skills and decision-making [Zych et al., 2018].

A meta-analysis by Taylor et al. [2017] shows that SES have positive and long-lasting effects, improving emotional and social status as well as school performance, highlighting the importance of their continuous and systematic implementation to maximise their benefits.

The opposite is evident in the research of Ramezanzadeh & Ebadi [2025] who found that emotional lability contributes to students questioning educational structures, challenging learning methods or ways of learning and limiting their critical thinking.

Emotional pedagogy in teaching practice

The implementation of emotional pedagogy in the classroom requires a change in traditional educational practices, in order to propose a pedagogical model that hybridises with other strategies [Melguizo-Ibáñez et al., 2025] to, in this case, address the basic psychological needs of students which would help to meet fundamental needs, so as to generate a more favourable and emotionally safe environment in the classroom, for example the research of Kauppinen & Aerila [2025], who demonstrate in their study that the implementation of poetic therapy favours students to reflect on their experiences and emotions, which brings them personal growth and on the other hand, the research of Pla-Pla et al. [2025], reinforces the importance of integrating social-affective education to improve emotional well-being. Garner [2017], on the other hand, focuses on the need to train educators in emotional competencies to create safe and welcoming learning environments.

This training enables educators to manage their emotions and model healthy behaviours. According to Brito et al. [2022], emotionally competent educators are more effective in their teaching and have better relationships with students, which fosters a positive environment and better academic and social outcomes.

Ongoing training and institutional support are key to enable teachers to apply these competencies in their daily practice. Zych et al. [2018] stress the importance of developing emotional and social skills in young people, as these competences favour both interpersonal relationships and emotional regulation, which contribute to academic success and psychological well-being.

Impact of the COVID-19 pandemic

The COVID-19 pandemic highlighted, in some ways, the urgency of addressing students' emotional health, as social isolation and uncertainty have significantly increased levels of anxiety, depression and stress among young people [García-Carrion et al., 2020]. In this context, emotional pedagogy emerges as a crucial tool to help students manage their emotions and adapt to new modes of teaching, such as remote and hybrid learning.

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However, according to Weissbourd et al. [2021], the pandemic has exacerbated inequalities in access to emotional resources and psychological support, particularly affecting the most vulnerable students. In the face of these challenges, SEE can play a key role in providing tools to help students cope with the emotional and academic challenges arising from the health crisis.

However, the implementation of emotional pedagogy faces a number of obstacles, such as the lack of adequate training and resources for teachers [Cipriano et al., 2020], but also presents opportunities for innovation and improvement of the education system. In this sense, it is essential that education policies prioritise training in emotional competences, ensuring continuous training in this area. In addition, it is crucial that adequate resources are made available for the effective implementation of SES, which requires close collaboration between researchers, educators and policy makers. Such collaboration can facilitate the development of adaptable, evidence-based approaches that respond to the specific needs of students and enhance emotional and academic well-being in school settings.

This means that emotional pedagogy is a necessary performance for academic and personal achievement in the current context, and the education system must adopt approaches that recognise the impact of emotions on cognitive development.

Methodology

The research approach is quantitative, non-experimental in design, in that there is no manipulation of variables and descriptive in scope.

The population of high school students at the Autonomous University of Coahuila is approximately 10,500. A confidence level of 95% and a margin of error of 6% was established, so the sample was 277 students, whose inclusion criteria corresponds to the first or second semester of the school curriculum.

The instrument was an 89-item questionnaire, measured on a 5-point Likert-type scale: Never [0], Hardly ever [1], Sometimes [2], Many times [3], Always [4].

The Emotional Pedagogy dimension was measured with 30 items, the rest of the instrument included the study of two other dimensions: emotional education and culture of peace. Validated by means of Cronbach's Alpha, calculated with SPSS V25 statistical software, whose value yielded a coefficient of .743, which supports an adequate internal consistency, that is, that this value is useful to confirm that the theoretical model represented through the instrument applied was valid in this context.

The instrument was digitised in Google Forms, applied online in four high schools in the northern, central, southeastern and carboniferous regions of the state of Coahuila: Preparatoria Número Uno, Preparatoria 'Venustiano Carranza', Instituto de Ciencias y Humanidades 'Lic. Salvador González Lobo', Escuela de Bachilleres 'Dr. y Gral. Jaime Lozano Benavides' and Instituto 'Ejido 8 de enero'.

The average time it took the students to answer the 89 items was twenty minutes and it was carried out in a total of 15 working days to collect the total number of applications. The information collected in the research instrument was concentrated in a data matrix, which was analysed using SPSS V25.

Initially, the frequency analysis was carried out in terms of the gender and age of the students in the study population, data that were classified by groups and concentrated in a frequency table. Next, the Kaiser-Meyer-Olkin [KMO] test of sampling adequacy was performed, which is a statistical value that shows the proportion of variance in the analysed variables that can be caused by underlying factors.

Then, Bartlett's test of sphericity, which is another statistic that tests the correlation matrix for identity, in other words, it tests the hypothesis that there is some relationship between the study variables and that it is possible to detect structures against the null hypothesis [IBM, 2017].

Exploratory factor analysis, a statistical technique used to explore with precision the underlying constructs or dimensions of the variables under study, was performed in four phases:

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[a] calculation of the matrix expressing the variability of the set, [b] factor extraction, for which the maximum likelihood was selected, which is an inferential method for estimating the most probable parameters that have produced the correlation matrix, factor solution rotation method, which in this study none was applied, [d] estimation of the score of the resulting dimensions, whose factor loadings range their value between zero and one, higher values indicate greater strength and smaller error size.

In the options for missing values, they were replaced by the mean and coefficients with factor loadings less than .70 were deleted, because they imply a weak relationship [McDonald, 1985; Guadagnoli and Velicer, 1988]. A percentage of total variance explained greater than or equal to 40% was considered. For the description of the key trends and to summarise the characteristic data of the sample, a descriptive analysis was carried out in which measures of central tendency, variability, kurtosis and Z-score, also called standard score or typical score, were calculated, which indicates the number of standard deviations above or below the population mean, as well as the level of confidence as to whether the results obtained are generalisable to other populations with similar characteristics to those of the sample analysed.

Results

According to the data in Table 1, 64% of the sample was female and 36% male.

Box 1

Table 1

Gender of students surveyed

Gender	f	%
Female	**178**	**64**
Male	**99**	**36**
Total	**277**	**100**

Source: own elaboration

Table 2 shows the age classification

Box 2

Table 2

Age of students surveyed

Age	f	%
15	127	46
16	125	45
17	25	9
Total	**277**	**100**

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The KMO test of sampling adequacy was performed to check the adequacy of the data, in relation to the proportion of variables caused by underlying factors, and a coefficient of .853 was obtained, which indicated that the data matrix was valid to continue with the factor analysis process. Bartlett's test of sphericity was also performed with a value of .000 significance, indicating the rejection of the null hypothesis of uncorrelatedness between variables.

Exploratory and descriptive factor analysis

Table 3 shows the factor loadings in order of strength, considering for this study the values equal to or greater than 0.700, of the 30 analysed, four resulted in

Box 3

Table 3

Exploratory factor analysis

Variable	f
What I learnt at school is useful for my academic education	.737
I learn life skills at school	.731
I consider that I am learning in school.	.728
What I learnt at school is useful for my personal development.	.725

Source: own elaboration

Table 4 summarises the results of the descriptive analysis.

Box 4

Table 4

Descriptive analysis

Variable	$\bar{X}$	Med	s	CV	Z
What I learnt at school is useful for my academic education	2.80	3	.882	.32	.45
I learn life skills at school	2.37	2	.942	.40	.14
I consider that I am learning in school.	2.71	3	.907	.33	.21
What I learnt at school is useful for my personal development.	2.47	2	.946	.38	.14

The above results suggest that students, in general, did not feel that the school was fulfilling its purpose of providing them with useful tools for their intellectual development and personal growth. Responses were closer to 'Never' or 'Sometimes' indicating areas for improvement in education or in the way students perceive the relevance of what they learn to their daily lives and academic futures.

The medians indicated that students moderately or negatively perceived the usefulness of what they learned in school. While in some cases they felt that what they learnt is relevant 'Sometimes'. In other aspects, such as personal development and life skills, the perception was lower, indicating that they do not feel that school provides them with useful tools in these areas.

Standard deviations were relatively high for all statements, indicating that there is a large variability in students' responses, i.e. there was no clear consensus on the usefulness of what they learnt at school in relation to academics, life skills, learning in general and personal development. Opinions were scattered, implying that some had a positive perception, while others had a negative or neutral perception.

In terms of Z-score, on average, students gave slightly above average responses.

Conclusions

The general objective of this research has been to diagnose the stage of emotional education in the school context of upper secondary students at the Autonomous University of Coahuila, in the semester January-June 2024. In order to achieve this objective, a study was conducted with a quantitative approach, non-experimental design and descriptive typology.

Derived from this analysis, it is established that the school has a fundamental role to play in the personal development of students, since what is learned in the classroom is not only curricular content, but also encompasses a wide range of life skills. This learning process is essential to enable high school students to cope with and overcome the obstacles that their future holds.

Isolation and uncertainty affected the mental health of many students, highlighting the need for greater emotional and psychological support in the educational setting. the coronavirus pandemic has put a spotlight on global education, but it has also demonstrated the importance and relevance of what is learned in school. Students have recognised the value of education not only for their academic development, but also for their personal growth and the acquisition of skills that will be useful throughout their lives.

The implications of these findings are significant, as students highlight that they perceive that what they learn at school is of limited use for their academic training, personal development and life skills. They do not feel that school education provides them with relevant or consistent tools in these areas, which points to the need to improve the application and relevance of what they learn.

It is important to analyse the extent to which school curricula align with students' requirements and aspirations for personal, academic and professional growth. It is possible to generate a line of work to explore how the teaching of abstract concepts can be more effectively connected to contextually applicable examples or exercises, allowing students to see the usefulness. And not least, to contribute to improving students' overall well-being and preparation for adulthood, including strengthening socio-emotional skills in the classroom, including activities that promote empathy, stress management, resilience and choice of alternatives.

Therefore, the need to strengthen the integration of these aspects in educational programmes is highlighted and, to the extent that the emotional state is identified at the various educational levels, it will be possible to diagnose the causes and act accordingly, in order to improve learning achievements and enhance the integral development of our students.

Declarations

Conflict of interest

The authors declare that they have no conflicts of interest. They have no known competing financial interests or personal relationships that might have appeared to influence the article reported in this paper.

Authors' contribution

Hernández-Rivera, Diana: contribution to the research design, analysis of data sources, data collection and analysis, writing of the paper and design of the article.

Terrazas-Medina, Tamara Isabel: contribution to the research design, analysis of information sources, data collection and analysis, writing of the paper and design of the article.

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Morlett-Villa, Zaida Francisca: contribution to the research design, analysis of information sources, data collection and analysis, writing of the paper and design of the article.

Flores-López, Beatriz Adriana: contribution to the research design, analysis of information sources, data collection and analysis, writing of the paper and design of the article.

Availability of data and materials

Data collected and used in the development of this study are available upon request from the authors.

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Abbreviations

KMO	Kaiser-Meyer-Olkin
SEE	Social Emotional Education

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Article

Designer Role: Organizational Management

El Rol del Diseñador en la Gestión Organizacional

Higuera-Zimbron, Alejandro * [a], Rivera-Gutiérrez, Erika [b] and Arguello, Georgina [c]

[a] Universidad Autónoma del Estado de México• AAJ-7550-2020 • 0000-0001-6966-2721• 22641
[b] Universidad Autónoma del Estado de México AAJ-7948-2020 0000-0002-7851-7531, 247442
[c] Nova Southeastern University JRW-7550-2023, 0000-0002-9524-0685

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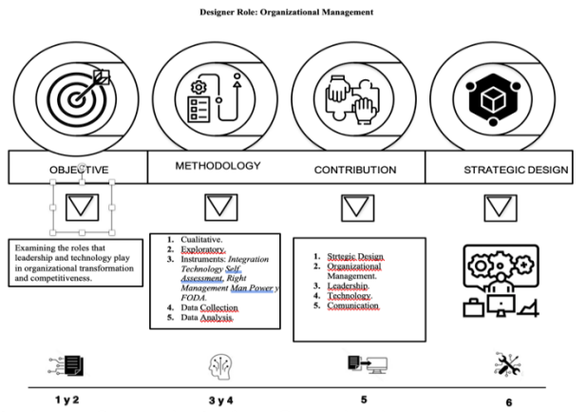
* ✉ [ahigueraz@uaemex.mx]

Abstract

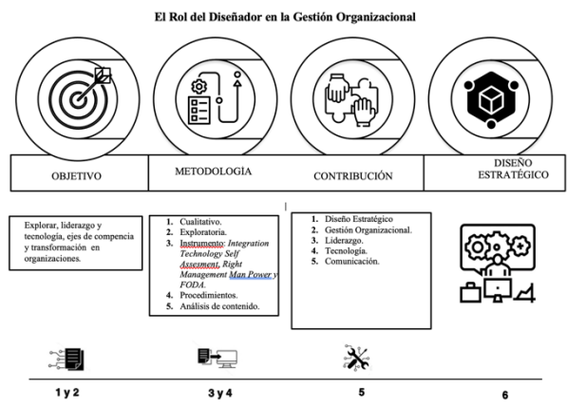
This article examining the roles that leadership and technology play in organizational transformation and competitiveness is the main goal of this article. It maybe assumed that the abilities of designers may make these organizational management axes a reality through strategic design. In order to validate these questions, the research challenge will first be outlined and clarified utilizing relevant background information. Second, a literature review of recent studies on the scientific literature review of the concepts will be analyzed, from different databases. Third, an exploratory technique forms the basis of the study. Fourth, a content analysis is conducted, and the findings are explained. Finally, the study's findings and suggestions are discussed.

Resumen

Este artículo tiene como propósito explorar cómo el liderazgo y la tecnología son ejes indispensables para la competitividad y transformación en las organizaciones. El diseño es una disciplina inmiscuida. Se considera que las competencias de los *diseñadores,* posibilitan los ejes de gestión en en las organizaciones. Para comprobar esas esas incógnitas, *primero* se planteará el problema de investigación. *Segundo*, se hará una revisión de literatura sobre el fenomeno. *Tercero*, el estudio plantea un enfoque exploratorio. *Cuarto*, los resultados se muestran y se discuten a partir de un análisis de contenido. Finalmente, se exponen las conclusiones y recomendaciones del estudio.



Designer, Strategic Design, Organizational Management



Diseñador, Diseño Estrategico, Gestión organizacional

Area: Advocacy and attention to national problems

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Introduction

Success in organisational management depends on multiple factors, one of which is the management process, primary processes and support processes. In the management process, strategic planning is framed as a pillar described in the mission to ensure the operational and strategic results of an organisation, corporation or company [Rincón, 1998]. Every organisation evolves through strategies that allow it to show competitiveness and also leadership to face markets or competitors. Both concepts are structurally linked because they are shaped by the design of a strategy that will allow it to be economically competitive in other markets. Perhaps this is achieved through a strategic plan and leadership. However, a variable that is attached to these components is technology. Technology is framed in all productive sectors through automation as a central axis in manufacturing for the development of organisations. It is for this reason that the purpose of this document is to study the role that designers play in project management, and the way in which strategic design intervenes, seen from the perspective of the competences of designers in leadership and technology.

To achieve this, first, the background of organisational management, competitiveness, leadership, technology and competences will be analysed. Second, some references will be addressed to locate the need for the study in other contexts. Third, an exploration of the behaviour of the variables competitiveness, leadership, technology and competences of designers as agents that trigger organisational management is proposed. Fourth, the results will be presented through the application of three instruments. Fifth, confronting the CLN and the results to generate discussion is one of the most interesting stages of this research process. Finally, the conclusions and results will be addressed.

The history of management in organisations reveals a permanent evolving environment especially in this constantly changing multipolar world [Velazco, 2019]. Production systems in the business world have gained strength through the use of specialisations, it is hypothetically said that humanities and philosophies were relegated in order to maximise economies through automation.

In other words, technification obeys the productivity demands of the market in a more populated world with a greater need for consumer satisfiers. However, not everything should be driven by the laws of the market, but by the needs of human survival. But that would be a discussion in another study. However, the changes brought about by the so-called Fourth Industrial Revolution are re-evaluating the needs of the production system, according to the World Economic Forum [WEF]. The WEF argues that the world is facing crucial challenges in civil society, governments and business, and therefore encourages teamwork as a strategy to find solutions for common decision-making. The challenges focus on issues of Cybersecurity, Energy and Materials, International Monetary System, Public Health Care, Nature and Climate Change, Geopolitics, Economy and Society, Urban Transformation, Fourth Industrial Revolution, Manufacturing and Supply Chains [WEF, 2024].

In this context of industrial manufacturing transformation and supply chains not only require the implementation of innovation and responsible growth as policies, but also the strengthening of leadership principles, competitiveness and technology as central axes for sustainable development. Leadership from the public and private spheres requires assessing global trends with leaders committed to economic, environmental and social progress; competitiveness proposes contemplating geopolitical strategies for leveraging the circular economy, new business models or incubators, and taking advantage of networking or partnership; and technology is a mechanism for industrial transformation, in sustainable processes, particularly in decarbonisation, zero emissions and more efficient production systems.

Scientific Literature Review

Strategic design and organisational management

Strategic design [SD] is a concept in most public and private spheres that enables innovation for transformation in organisations. Historically in the last century it developed from an individual prospective. Focused on the creation of new products for distribution in retail businesses.

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That is, a business model with a purpose, products and services. Then at the end of the last century, competitiveness was a guide to business success, through technology and innovation as manifestations of progress. And later, strategically in the induction of strategic design management practices [Gutiérrez, Higuera and Chavarría, 2022]. In the words of Hyejin, et al [2018], strategic design is a recognised tool to leverage innovation and development, which is supported by different disciplines for the achievement of public or private projects, i.e. in the application it has a more effective use in productive organisations or in organisational management. [Hyejin, 2017]

Etkin, [2000] cited in Chiang-Vela et al, [2021] mentions that an organisation is the unification of people working under an ordered structure that designates functions to fulfil tasks that must be constantly oriented by means of models established in the achievement of goals or objectives. These operating models, already determined, contribute to the creation of programmes to enhance the impact or performance of the organisation. For this reason, designing a programme to support the growth of an organisation is an activity in which some aspects are involved: factors such as knowledge of the organisation's functioning and thus understanding how the organisation can be boosted so that it can project itself globally.

The implementation of the design of appropriate strategies to detonate an organisation at the highest level requires understanding the bases to work strategically in the mission, vision and values, structuring functions with the goal to achieve the objectives. In other words, knowing how the different areas, tasks and people fit together to coherently meet the goals, working in coordination. The functions of an organisation are determined by processes, referred to by some as organisational development. Burke [1994] explains it as programmed steps, where the organisation's own tools are used: identity, skills, both technological and human, and behaviours that must be practised in the organisation. [Burke,1994].

For all these reasons, there is a conceptual symbiosis for organisational management, including the creation of a scaffolding for the achievement of goals or objectives.

A clear example is the emerging BRICS group [Brazil, Russia, India, China and South Africa], an international geopolitical bloc. The objective of this organisation is to establish a new socio-economic-cultural order that, through leadership, technology and competitiveness, aims to influence, reshape and regulate the commercial and financial practices of Western nations [Orgaz, 2024]. Another example is the Davos Forum of the World Economic Forum [WEF], mostly represented by the Big 7 [USA, UK, Italy, France, Canada, Japan and Germany], which is a platform for diverse change agents, government, civil society, industry and academia to meet to discuss actions on the mostly economic agendas of countries. In 2024, they proposed to present some challenges such as security, cooperation, growth, employment, artificial intelligence, technology, economy, society, climate, energy, the perspective or strategic foresight and leadership as tools to face challenges [Corral, Álvarez and Gidrón, 2024]. In short, the global dynamic, whether it is the BIG 7 or the BRICS, focuses on three themes for organisational management: leadership, competitiveness and technology as triggers for development, progress, growth and evolution in the world [Olvera, 1959].

Strategic design for leadership

Employees can be inspired by strategic design where leaders of organisations make sense of actions to shape goals or objectives based on the strategic plan. Overall, strategic design in leaders has a positive impact that is significant on followers and ultimately on social systems. To be strategic requires being effective and a leader. These are determining functions, which is why the leader's effectiveness involves giving the worker to understand that the effort will bring great benefits to the organisation and that everyone is working towards a common goal.

Yukl [2013] defined leadership as a process of facilitating individual and collective efforts to influence people in what and how to achieve goals or objectives through actions in a small, medium or large organisation. Chemers [2000] states that leadership is a process of social influence in which support can be obtained from others to achieve maximum organisational performance. Thus, leader effectiveness is a conditional function in the organisation, because it is a consequence of personal and interpersonal behaviour.

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Strategic design in leadership projects a high level of commitment and motivation for employees, reveals personal performance under a plan of action, and is considered to generate a desire to work with high performance [Lowe, et al., 1996]. A strategic leader has the ability to materialise a vision of the future for the organisation, ensuring that members focus on this vision, mission and values, and showing commitment to the organisation based on pre-designed tactics or strategies [Conger, 1999]. Strategic leadership is one of the most direct ways of showing the importance of a leader to the well-being of the organisation [Jacobson and House, 2001].

Strategic leadership faces challenges at global, national and local levels. Among them, competitiveness, the speed of current technological changes, make evident the need for the training of leaders to generate competences for strategic design, especially for the understanding of the reality of companies, entities or organisations from a competitive and technological perspective. The challenge, in the training of human resources with these competences, requires professional profiles with tools, communication and attraction techniques, as well as the ability to develop tactics or strategies capable of identifying signals from the environment and proposing appropriate innovative actions with high impact. These premises condition the need to promote the training of competences to lead in a transformational and transversal way the management that enhances the development of organisations.

Strategic design for competitiveness

Strategic design is a tool for competitiveness for organisations. Franco, Muñoz and Lesmes [2008], consider that the analysis of design capacity in organisations from a projective and operational perspective requires multidisciplinary construction, teamwork, process control, tactics and strategies, as well as decision-making based on the needs of users.

Multidisciplinarity is necessary for the projectual understanding of objects seen in a multidimensional perspective, where scenarios are diverse but also influenced by varied contexts. This means that approaches can operate differently in systems with different results.

Teamwork is one of the most important strategic tools, as the sum of efforts and knowledge, among others, is the key to ensuring that projects fulfil the purposes for which they were strategically designed; Controlling processes, in this sense, the literature offers a variety of answers, perhaps all encompassing maximisation in the management of resources, vision, costs, profitability, compliance and security, and communication; Tactics and strategies, which obey the lines that emerge from foresight to achieve a specific plan based on actions or objectives, as well as parameters. In this case, criteria, for decision making. Strategic thinking is influenced by facts, memories and contexts in internal awareness, information and data for decision making. The symbiosis between strategic design and competitiveness, innovation, and technology are key elements for success.

Strategic design with technology

Advances in technology empower strategic design. In the last 200 years the world moved from a first to a fifth industrial revolution, constantly innovating with machines, tools and production models. The latter change and grow with the population. With almost eight billion people in the world today, technology plays an important role for the future. Strategic design is a flattening force that together with technology enables growth in various organisations, be it educational, business, political or social.

The study Strategic design of engineering education for the flat word [2008], proposed three keys for future professionals in design programmes to emphasise in their studies: 1] Strategic engineering, 2] Personalisation, and 3] Information technology [IT] management. According to the study, the first option is due to the fact that engineering is a field of design, which is linked to complex systems, since from complexity we seek adaptation to the system; the second option refers to the personalisation of courses that must be adapted to global dynamics, students and learning models; the third option is to generate IT-enabled environments where technology can be leveraged as a central axis for problem solving [Schaefer, et al, 2008].

This raises the following research questions:

1. What are the technological competences of designers in organisational management?

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2. What are the leadership competencies of designers in organisational management?

3. A professional who is qualified with good leadership and technological skills is more competitive.

Methodology

The purpose of this study is to explore how leadership and technology are indispensable axes for competitiveness and transformation in organisations. Strategic design and designers are agents that make these axes of project management possible. To achieve this, an exploratory methodological design is proposed that allowed a detailed understanding of the phenomenon, based on the monitoring of data, experiences and meanings [Hernández-Sampieri, 2018].

For Hernández et al., this approach is determined by issues of certain research features oriented to descriptive criteria of qualities. While the questions guide the research, it can be generated that during the course of the research it is likely that the behaviour will differ and therefore be modified. It is noted that this practice is enriching as it serves to uncover the research questions, and perhaps if necessary refine and answer the questions.

Method: Exploratory/Descriptive

Research of this type makes it possible to establish common criteria, discover lines of research, contexts or realities of study, as well as to correlate variables and trends for future studies. Descriptive exploratory studies deepen and characterise the phenomena to be studied, and also seek to find out how people behave in the scenario in question, what meanings they give to their actions and what issues concern them [Hernández-Samperi, 2018].

In this study, the aim is to explore the variables leadership and technology in order to identify the competitiveness of design professionals, to describe, characterise and deepen the implications from various practical spheres to the behaviour of a professional. Perhaps to determine the degree to which designers influence the development of projects in an organisation.

Population-sample

Although the population can be defined as a set of subjects or objects, in this case the population is intended to be made up of a set of subjects, especially those students of disciplines related to design. It is for that reason that the general population could be pre-established, systematic, purposive and broad in scope [Stebbins, 2001].

The population for this study is made up of undergraduate and postgraduate students of the Faculty of Architecture and Design of the Universidad Autónoma del Estado de México. In this case a convenience sample of 30 students was selected in academic year 2024, without inclusion and exclusion criteria.

Instrument

The first instrument, Questionnaire 1, which answered the first question, is called Integration Technology Self Assessment designed by the Government of Ohio in the United States of America, whose instrumentation shows a tool that helps to identify the strengths for the integration of technology in professional development. The assessment is divided into 12 sections and each section focuses on different competencies under value scales called very low, needs improvement, good and excellent.

The second instrument Questionnaire 2, which answered the second question is called Leadership Styles and their Managerial Approaches under the project of Right Management Man Power [2016] but from the perspective of Daniel Goleman, shows a tool with six leadership styles, each style with 5 items and in total 30, serves to identify the leadership style of people. Value scale: strongly agree, agree, neutral, disagree and strongly disagree.

Now, to answer the third research question, a SWOT instrument will be used. Whose information will be obtained from C1 and C2 respectively.

Procedures [collection and analysis]

In order to achieve the purpose and answer the research questions; activities were carried out in the following order:

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1. Questionnaires one and two were used, then question three will be answered from both instruments.
2. The Google forms platform was used to fill in the surveys.
3. An email was sent to the subjects to invite students to participate in the filling out of the questionnaires.
4. A timeframe of 30 days was given.
5. The platform was monitored to see the degree of response from the participants.
6. The platform was closed and the data was collected.
7. The results are presented in graphical displays.

Results

The following is the way in which the questions posed were answered. Accordingly, some graphical visualisers were used to identify some of the data.

Results related to the research questions

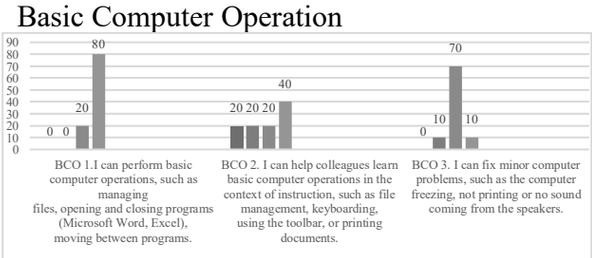
Question 1. *What are the technological competences of designers in organisational management?*

1.- Basic Computer Operation [BCO]

Box 1

Table 1

Basic Computer Operation



Approach of 3 items, related to basic computer operation software, instruction, infrastructure

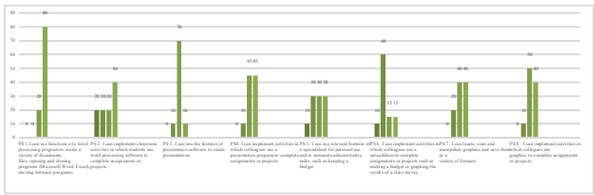
The results show in item BCO1 that in technological skills, the subjects focus their response on the fact that 80% have a good command of Word, Excel and Power Point software, among others. In item BCO2 related to supporting colleagues in the use of basic computer skills, the results show that 60% have a very poor command. In item BCO3 on basic computer repairs, 70% of the respondents considered that they are good at making minor repairs.

2.-Productivity Software [PS]

Box 2

Table 2

Software productivity



Source: Approach of 8 items, related to software operation

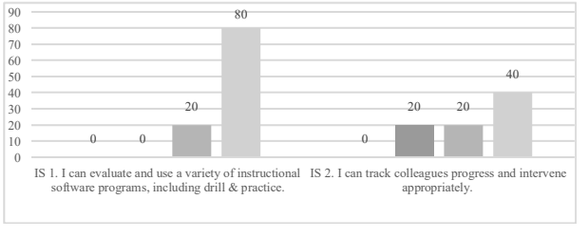
The results of table 2, on software handling, are shown as follows: item PS1 shows that 80% are excellent in the competence for handling processors to create documents. In PS2 users are good at handling software to finish their assignments or projects. PS3 70% of the respondents are excellent at handling any kind of software to make a presentation. PS4 90 % of the respondents are good at doing activities to use a software to complete projects. PS5 90 % are good at automating administrative tasks using software. PS6 60% are excellent at implementing activities in which colleagues can complete tasks using software to express results through graphs. PS7 80% are good at locating, scanning, manipulating graphs in different formats. PS8 90% of colleagues are excellent at performing activities using graphical displays to complete projects.

3.- Instructional Software [IS]

Box 3

Table 3

Instructional Software



Source: 2 items, related to the type of software for the instructions, are raised

Table 3 shows results on two items. IS1 evaluates the use of the different software where the results show that there is 100% good and excellent use of the tools. The second item IS2 asks about progress monitoring and intervention to support the use of the different software.

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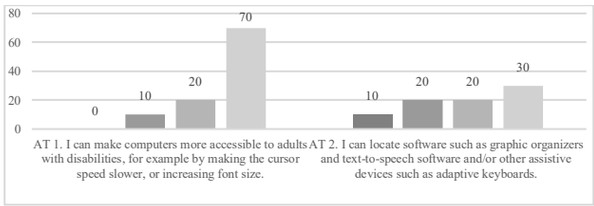
The results show that it is, in few cases, where improvement is needed, 20% of respondents consider that they need some kind of help.

4.- Assistive Technology [AT]

Box 4

Table 4

Assistive Technology



Source: Approach of 2 items, related to assistive technology

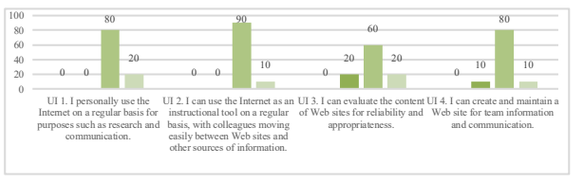
The results in table 4 show in item AT1 that 70 % of respondents are excellent at supporting colleagues who may have a disability. Also in item AT2 there are varying results e.g. 10% need training to identify software for graphic organisers or other technologies. However 50% consider themselves good and excellent in supporting these tasks.

5.- Using the Internet [UI]

Box 5

Table 5

Using the internet



Source: 4 items, related to the use of the Internet

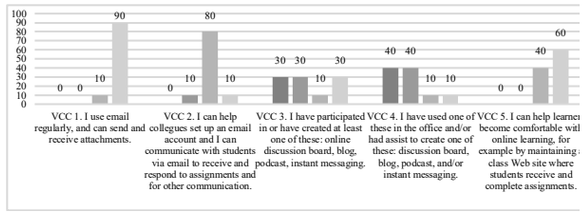
The results of table 5 on the use of the internet show, in item UI 1, that 80% of respondents are good and excellent at using the internet for the purpose of information research and communication. Item UI 2 shows that 90% are good at using the Internet as an instructional tool to easily navigate the Web. In the response to item UI 3 there is a disparity in the evaluation or handling of information according to 20% of respondents who need help in this task. In UI 4, on creating and maintaining a website to generate team information, 80% feel that they are good at this activity.

6.- Virtual Communication and Collaboration [VCC]

Box 6

Table 6

Virtual Communication and Collaboration



Source: 5-item approach, related to virtual communication and collaboration

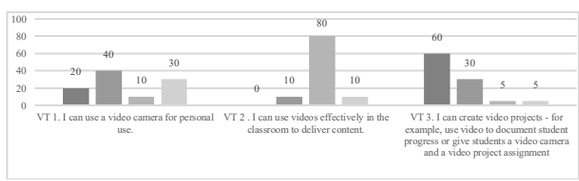
The data in table 6 show that in item VCC1 90% of the respondents have an excellent command of email and attach files on a regular basis. In the case of VCC 2 80% have a good command of tools to support colleagues in writing and managing mail or sending documents. VCC 3 shows that 30% of respondents have a very poor command of virtual platforms especially with online discussions, blogs, podcasts, or instant messaging. VCC 4 80% of respondents have very low or need help in creating discussion forums, blogs, podcasts, or instant messaging. VCC 5 60% have skills to make trainees feel comfortable in managing a website or completing tasks.

7.- Video Technologies [VT]

Box 7

Table 7

Video Technologies



Source: Approach of 3 items, related to virtual communication and collaboration

The results in table 7 show 3 items, related to the handling of video technologies, where item VT 1 highlights that 20% of respondents have a very low level of video competence. In contrast, in item VT 2, 80% of respondents are good at using video effectively. In the case of item VT 3, it turns out that more than 80% do not have the training to carry out video projects.

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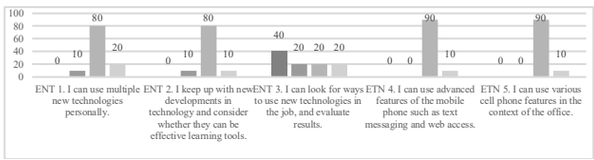
8.- Evaluating and Incorporating New Technologies [EINT]

Box 8

Table 8

Evaluating and incorporating new technologies



Source: Approach of 5 items, related to the evaluation and incorporation of new technologies

Note:

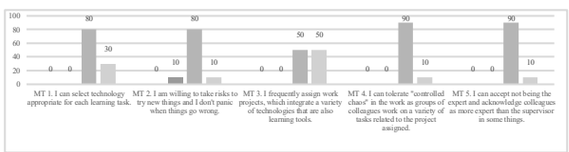
The results of the respondents in table 8 show item ENT 1 80% are good at handling new technologies. In item ETN 2 also 80% consider themselves good or efficient in the use of new tools based on developments. In item ETN 3, 40% have a poor command of the use of new technologies to evaluate results. In item ETN 4, 90% have a good command of the use of mobile tools to solve work tasks. And in item ETN 5, 10% have an excellent command of mobile phone technology.

9.- Managing Technologies [MT]

Box 9

Table 9

Managing Technologies



Source: Approach of 5 items, related to hand or technology management

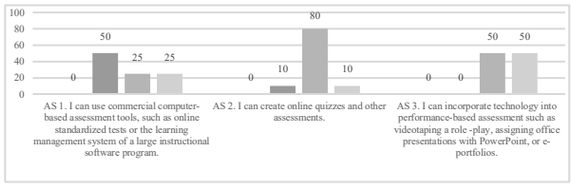
Table 9 shows the following results, item MT1 80% of respondents are good at selecting appropriate technology to cope with their activities. In item MT2 80% consider that they have good risk coping skills. In item MT3, 50% frequently have project assignments in which they integrate a wide variety of technologies. Item MT4, 90% have control and manage chaos when presented with a challenging project. Item MT5 accepts that they are not an expert or there are other colleagues who have more experience than they do.

10.- Assessment [A]

Box 10

Table 10

Assessment



Source: Approach to 3 items, related to evaluation

Table 10 shows the results on the issue of assessment. The item AS1 resulted that 50% of respondents elaborate exams in any assessment tool.

In item AS2 80% of the subjects have is good at designing online questionnaires or other assessments.

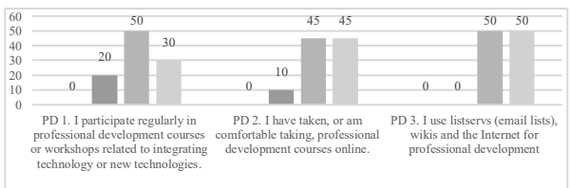
In item AS3 50% of respondents are excellent at incorporating video-based technologies, software management or electronic portfolios.

11.- Professional Development [PD]

Box 11

Table 11

Professional development



Source: Approach of 3 items, related to professional development

Table 11 shows the results for professional development. On item PD1 80% of the respondents expressed interest in courses or workshops on technology integration. On item PD2 90% of the subjects consider that it is good or excellent to participate in professional development courses or workshops. In item PD3, 90% of respondents stated that they have no problems with the use of platforms or the use of the internet for professional purposes.

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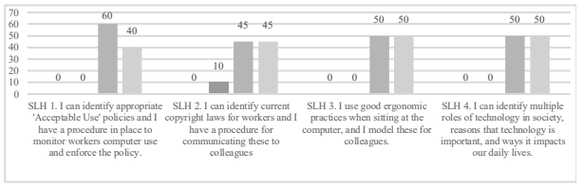
12.- Social, Legal and Health Issues [SLHI]

Box 12

Table 12

Social, Legal and Health Issues



Source: Approach of 4 items, related to professional development

The results in table 12 agree that the different items state that there should be good policies on health, legal and social issues that organisations should consider. For example, in item SLH1 100% of workers are aware of accepting good policies on acceptable use of computer work. On item SLH2 90% of respondents can identify copy right laws and have the ability to communicate this to other colleagues. Item SLH3 100% think it is a good thing to consider using ergonomic equipment for computer work. Item SLH4 100% can identify the different roles of technology in society and the impact it causes every day.

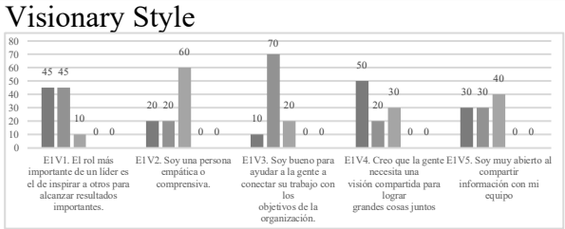
Question 2. What are the leadership competences of designers in organisational management?

Style 1 Visionary

Box 13

Table 13

Visionary Style



Source: 5-item approach, related to the leadership style, visionary

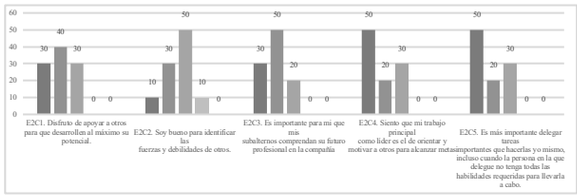
The response to item E1V1 90% of respondents agree that the most important role of this style is to inspire others. In item E1V2 more than 60% are empathetic or understanding towards colleagues. So in item E1V3 more than 70% agree with helping colleagues to connect with the work. In item E1V4 50% consider that a shared vision is needed to achieve success at work. E1V5 item plans that 40% of colleagues are neutral with the decision to share information.

Style 2 Coach - Coaching

Box 14

Table 14

Coach- Coaching



Source: 5-item approach, related to the leadership style, visionary

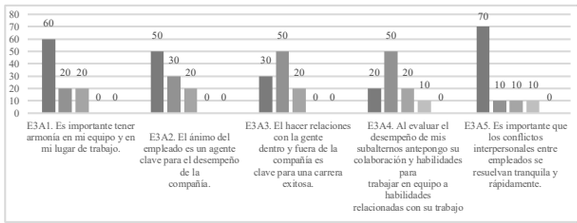
Table 2 on the coaching style shows that in item E2C2 40% of the respondents agree to support others in their tasks. In item E2C2 50% of the respondents are neutral in identifying strengths and weaknesses of others. In item E2C3 50% agree that subordinates understand the future of the company. In item E2C4 50% agree that their main function as a leader is to guide and motivate others to achieve goals. In item E2C5 50% agree that it is more important to delegate tasks than to do them.

Style 3 Affiliative

Box 15

Table 15

Affiliative



Source: 5-item approach, related to the leadership style, affiliative

The results in table 3 show the different characteristics of affiliative leadership. In item E3A1, 60% of respondents consider that they agree with having harmony at work. In item E3A2, 20% of respondents consider that it is neutral that the employee's mood is a key agent for job performance. In item E3A3 50% agree that it is important to make or create relationships inside and outside the company for the success of the company. Item E3A4 results in 10% considering that the evaluation of subordinates puts collaboration and teamwork skills first. Item E3A5 70% of respondents say that it is important that conflicts are resolved quickly.

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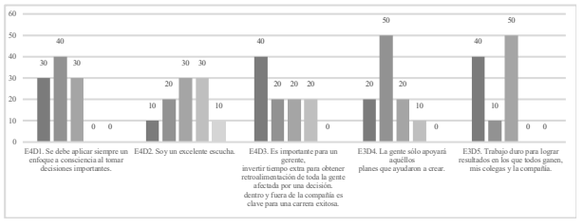
Style 4 Democratic

Box 16

Table 16

Democratic



Source: 5-item approach, related to democratic leadership style

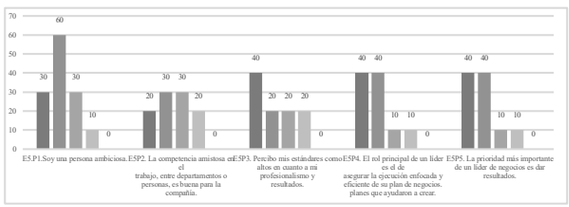
The results in table 4 show the data on democratic leadership style. Item E4D1 shows that 40% of the respondents agree that a conscientious approach to decision making should always be applied. Item E4D2 40% of the respondents think that they do not have this ability. Item E4D3 40% agree that it is important for a manager to invest extra time in feedback on decision making. Item E4D4 10% consider that only those plans that helped to create the company's objectives or goals will be supported. Item E4D5 50% think they are neutral when it comes to hard work.

Style 5 Who sets the tone

Box 17

Table 17

Who sets the tone



Source: 5-item approach, related to leadership style, sets the tone

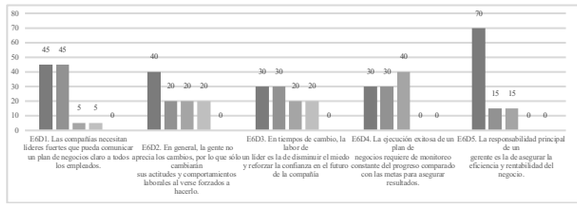
The results of this type of leadership show that in item E5P1 60% of the respondents are of the ambitious type. In item E5P2 there are 50% of the respondents who hold that there should be competition between workers and that it should be friendly. Item E5P3 40% perceive high standards based on results. Item E5P4 80 percent agree that the leader should ensure the execution of efficiency-focused business and strategic plans. Item E5P5 20% of respondents consider that the leader's priority is not necessarily to deliver results.

Style 6 Dominant

Box 18

Table 18

Dominant



Source: 5-item approach, related to the leadership style, dominant

The results in table 6 on dominant leadership show that respondents consider in item E6D1 that 90% of the companies need strong leaders to communicate the business plan. Item E6D2 states that 40% think that leaders do not appreciate change and that new attitudes or behaviours are essential. Item E6D3 20% believe that in times of crisis, leaders should help to reduce fear and reinforce confidence. Item E6D4 40% think that the successful execution of a business plan requires constant monitoring of progress. Item E6D5 70% believe that it is the leader's responsibility to ensure the profitability and efficiency of the business.

Question number 3. A professional who is qualified with good leadership and technology skills is more competitive.

Contrasting the answers of instruments one and two, based on the axes of each questionnaire, there is the possibility of using a SWOT instrument [Strengths, Weaknesses, Opportunities and Threats] to identify those qualities of competitiveness that design professionals have.

The data obtained from the application of the instruments should be confronted to determine the characteristics of the leaders or technologists of the design discipline. The matrix shows the competences in technology and leadership, particularly in the areas, the matrix is established by analysing the frequency of the results of each item [technology and leadership] versus the strengths, opportunities, weaknesses and threats [SWOT]. In that sense the results are shown as follows in the content analysis of the competences [technology and leadership] and each of the axes of instrument 1 [12 axes] and instrument 2 [6 axes].

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The contrast technique will help to identify the type of leadership and technology mastery of the professionals. This process foresees a perspective with different arguments, this technique is used to avoid a classification or analysis bias.

On the one hand, the SWOT matrix shows the area of Strengths [F], in the area of Technology, the most solid axes are the denominations of competences with BCO, AT, UI traits, now the management of these technologies plus visionary leadership makes them more competitive according to the data obtained. Likewise, in the area of Opportunities [O], the results show that the names of the competences in technology with traits of PS, VCC, MT, PD, SHL, areas related to leadership of an affiliative and democratic type. However, in the area of Weaknesses the framed axes of competences with traits in technology were IS, EINT and A, all classified in coach-oriented leadership. Finally in the area of Threats the technology management data focused on the axes VT, and the leadership type who marks the whore and dominant.

Box 19

Table 19

SWOT Matrix

Competition	Eje		F	O	D	A
Technology	1	BCO	X			
	2	PS		X		
	3	IS			X	
	4	AT	X			
	5	UI	X			
	6	VCC		X		
	7	VT				X
	8	EINT			X	
	9	MT		X		
	10	A			X	
	11	PD		X		
	12	SLH		X		
Leadership	1	Visionary	X			
	2	Coach			X	
	3	Affiliative		X		
	4	Democratic		X		
	5	Guideline				X
	6	Dominant				X

Source: Basic Computer Operation [BCO], Productivity Software [PS], Instructional Software [IS], Assistive Technology [AT], Using the Internet [UI], Virtual Communication and Collaboration [VCC], Video Technologies [VT], Evaluating and Incorporating New Technologies, Managing the Technology [MT], Assessment [A], Professional Development [PD] y Social, Legal and Health Issues [SLH].

Discussion

In this section, both theoretical and practical aspects were discussed. In other words, the contrast between what the authors proposed versus the results obtained. In this sense, the discussion starts from the research questions:

Research Question 1

1. What are the technological competences of designers in organisational management?

Respondents mostly considered that there is a high command of computer competencies, which are basic to their domain. The designers are competent to handle programs or give instructions to others, however, not all of them have the technical knowledge to solve problems of equipment failures. In relation to software productivity, most of the respondents showed programming skills in addition to the implementation of some software to solve crisis situations. Most of them are able to cope with project design, scheduling and budgeting challenges. This enables them to handle various programmes or software to assess the relevance of their use. The data showed that in use, they can support others in more complex tasks, which is a competitive advantage among other professions.

Undoubtedly, the technology supported by the internet allows the updating of other instructional tools, apart from evaluating the contents or information of Web sites. The results showed that it is one of the competences in which design professionals excel in influencing the issue of Strategic Design of organisations. The data show that they are subjects with dynamic competences for virtual communication and collaboration. However, in the handling of video technology there are possibilities to be more effective. This may allow them to validate or incorporate better technology for organisational development. It is essential because the more the professional is prepared to face challenges, the better the possibilities for solutions. Finally, the role that should be assumed by that related as an instructor, who manages, uses and can face technology always considering ethics, laws or rights, habits as an example for society.

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Research Question 2

2. What are the leadership competencies of designers in organisational management?

The results contrasted by the CLN show that it is indispensable for design professionals to have leadership skills or traits. Most organisations work in a structured way based on business plans, strategic planning and the dynamics of the world's economies. Some of the data obtained make it evident that it is no longer considered that professionals in this discipline do not necessarily need to show leadership qualities, but it is now very relevant for professionals to show such competences. The survey data on the type of leadership that is conducive to this type of discipline was framed in a classification of the most usable, visionary, coach-oriented, affiliative, democratic, dominating and leading. Each of the questions was able to determine the most appropriate profile of the type of leadership that it is proposed designers should have, but there is a variety of profiles, because the circumstances differ in each case. It would not be possible to pigeonhole the most suitable or worst profile because the problems in the organisations differ from one to the other. One could in any case recommend or make a hybrid of qualities, but this is certainly not the most orthodox experience either. From the scenario of the designers, it can be commented from the results obtained that visionary leadership is a concept that is adequate to the dynamics of technology, who dominates some of the axes mentioned is a professional who is more competitive

Research Question 3

3. Is a qualified professional with good leadership and technology skills more competitive?

In this case, once the comparison has been made using the SWOT instrument, there are several criteria that can be outlined in terms of the results obtained. Designers by training have a good command of basic computer skills. However, the fact that in their training they handle technology-related software makes them more competitive. Technology demands innovation and currency from them, thus placing them at the forefront of professional competences.

One of these has to do with handling new software, using the internet, managing platforms, understanding artificial intelligence [AI], handling the internet of things [IoT], among others. To this extent, the role of the designer plus leadership, whatever the style, allows them to participate in decision-making in their profession.

Conclusions

In sum, this study focused on exploring how leadership and technology are indispensable axes for competitiveness and transformation in organisations. From a professional perspective, one discipline involved is Design.

The designer plays an important role in strategic planning as well as in strategic design to derive strategic or tactical alternatives that allow the organisation to position itself in other markets. When the designer has a broad command of technological and leadership competences, he/she is more likely to lead the organisation's own projects.

There are some projects under development, such as EZATECH, which is defined as AI technologies for knowledge management throughout the life cycle of workers in organisations, which will be an instrument to be used in other projects [Ruíz, et al, 2025].

Recommendations for Future Studies

The main recommendation of this study is to investigate foresight, strategic design and strategic planning and leadership.

Declarations

Conflict of interest

The authors of this article declare that they have no conflicts of interest. They have no known competing financial interests or personal relationships that might have appeared to influence the article reported in this paper.

Authors' contribution

The contribution of each researcher in each of the points developed in this research, was defined as follows:

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Higuera-Zimbrón, Alejandro: Development of the study focused on the subject matter addressed, the problem statement, context of the study, purpose, review of scientific literature, methodological design, implementation, results and discussion are defined.

Rivera-Gutiérrez, Erika: Review of scientific literature, implementation of the methodological design and discussion.

Argüello, Georgina: Data collection and analysis.

Availability of data and materials

The data obtained in this research are available.

Funding

The research did not receive any funding.

Abbreviations

WEF.	World Economic Forum
BRICS	Brasil, Rusia, India, China, Sudáfrica
BIG 7	USA, CAN, FR, GB, JAP, ITA, GER.

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Background

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Article

Operational Planning: Contributing to transparency and accountability in a higher education institution

Planeacion Operativa: Contribuyendo a la transparencia y rendición de cuentas de una dependencia de educación superior

Palomares-Ruiz, María Blanca Elizabeth * [a], Torres-Bugdud, Arturo [b], Bustos-Arista, Sammara Elizabeth [c] and Báez-Villarreal, Esteban [d]

[a] Universidad Autónoma de Nuevo León • KWU-5664-2024 • 0000-0002-4079-6969 • 339594
[b] Universidad Autónoma de Nuevo León • KYP-6935-2024 • 0000-0003-2214-9394 • 216332
[c] Universidad Autónoma de Nuevo León• MXJ-6872-2025 • 0000-0001-5181-7780 • 2122915
[d] Universidad Autónoma de Nuevo León • KYP-6942-2024 • 0009-0001-4200-6297 • 378936

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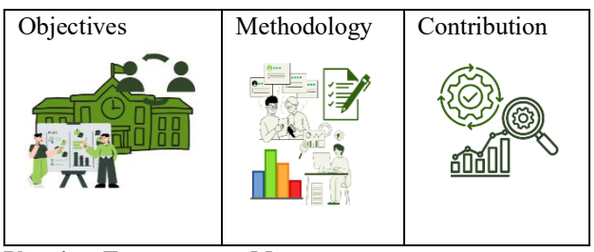
* ✉ [mbpalomares@yahoo.com.mx]

Abstract

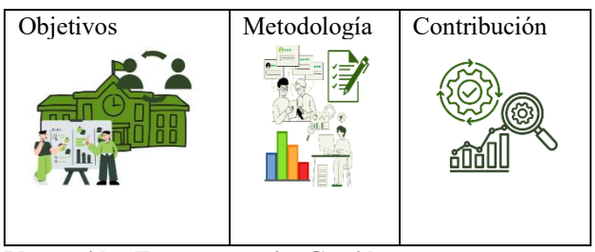
This document presents an educational intervention aimed at strengthening the culture of transparency and accountability within the school environment, in alignment with the New Mexican School model. Through case analysis, collective reflection, and the development of commitments, practices of openness, access to information, and participatory evaluation were promoted. Follow-up activities helped identify areas for improvement and reinforced the teaching staff's involvement in decision-making. The evaluation showed progress in understanding the duty to provide clear and timely information. It is concluded that these actions support a democratic school culture, although they require continuity and integration into teacher training and school planning.

Resumen

Este documento presenta una intervención educativa para fortalecer la cultura de la transparencia y la rendición de cuentas en el ámbito escolar, en línea con la Nueva Escuela Mexicana. A través del análisis de casos, la reflexión colectiva y la generación de compromisos, se promovieron prácticas de apertura, acceso a la información y evaluación participativa. El seguimiento permitió detectar áreas de mejora y reforzar la participación del colectivo docente en la toma de decisiones. La evaluación mostró avances en la comprensión del deber de informar de forma clara y oportuna. Se concluye que estas acciones favorecen una cultura democrática escolar, aunque requieren continuidad e integración en la formación docente y la planeación escolar



Planning, Transparency, Management



Planeación, Transparencia, Gestión

Area: Development of strategic leading-edge technologies and open innovation for social transformation

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Introduction

In today's world it is necessary to make well-informed decisions, to achieve goals it is necessary to analyse strengths and weaknesses, to create measures and action plans to achieve objectives, which is why it is essential to talk about planning in any organisation.

Planning has undergone a significant evolution in recent years, adapting to an increasingly dynamic and competitive environment, thereby responding to current demands.

Therefore, developing strategies and executing them with innovation leads to making the most of opportunities. This paper proposes a useful model created to respond to the needs of the budgetary requirements of a Higher Education Institution [HEI], in which a unit attached to the institution will have as input the elaboration of an operational planning that will ultimately contribute to transparency and accountability.

It starts with the definitions of planning and the background that led to the creation of the model, showing its benefits in order to adopt it and adapt it to the units that will have to generate their planning based on an Institutional Development Plan.

Background

The topic addressed in this paper arises from the need to develop tools that facilitate the accountability of a Higher Education Unit [HEU], in order to comply with the programmes that are carried out in each of the areas that comprise it, it has managed to support and justify its budget in its Annual Operational Planning [POA] while delivering in a timely manner to the corresponding bodies at the central level the information required to support the fulfilment of its priority axes in terms of accountability.

Prior to having a planning system and an AOP, there was a process that began with the Integral Programme for Institutional Strengthening [PIFI], a programme for Higher Education Institutions created by the Mexican Ministry of Public Education [SEP], with the purpose of improving the quality of educational services and programmes, receiving resources to promote priority projects.

It was a programme that integrated the processes of evaluation, accreditation, participatory and strategic planning, financing and accountability of public higher education institutions. [Comas et al., 2014] The projects were evaluated by committees of academic peers, taking into account the annual budget ceiling, as well as the fulfilment of the criteria established in the current operating rules for the institution.

Subsequent to the PIFI, the Programme for the Strengthening of Educational Quality [PFCE] was created [SEP, n.d.], which was described as a support for reflection and action to strengthen the process of academic strategic planning and institutional management, improving the educational quality and service offered by Public Higher Education Institutions, in order to contribute to the development of Mexico.

Taking into account that in the country there is a Planning Law decreed by the H. Congress of the Union of the United Mexican States [Chamber of Deputies of the H. Congress of the Union, n.d.], since 1983, which has been reformed in the course of the management of the administrations and which establishes principles of national development, guaranteeing public policies, aligned to the objectives of sustainable development, and mechanisms to coordinate the levels of an organisation in order to ensure that its planning is integrated and long term.

Based on this order, the Autonomous University of Nuevo Leon [UANL] located in the northeast of Mexico, defines its Institutional Development Plans [PDI] which have been defined according to the needs of the environment, evolving from the PDI 2022-2030 [UANL, 2022] to the PDI 2024-2040 [UANL, 2024], whose purpose is as: ‘a guiding framework that promotes the strengthening of the capacities of this, ensuring the fulfilment of its functions and achieve higher levels of development and consolidation’.

Considering the above, the Faculty of Mechanical and Electrical Engineering [FIME] attached to the UANL, sought an efficient way to manage planning, this through a Comprehensive Planning System of School Services [SPISE], which has shown a favourable evolution to become a more friendly and indispensable tool to deliver in a timely manner the planning of the areas that comprise it.

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Theoretical framework

Planning in HEIs is essential, as it is important in anticipating actions such as analysing the organisation's current position and identifying possible negative consequences that may affect it in some aspect, either in the short or long term.

On the other hand, while preparedness is carried out after identifying harmful scenarios for the organisation, specific goals are set that propose significant changes in risk areas to avoid such scenarios.

Planning, according to the Royal Spanish Academy [RAE, n.d.], is defined as: 'a general plan, methodically organised and often of great amplitude to obtain a determined object'.
While the most recent definition according to Chiavenato [2017] specifies that:

The main objective of strategic planning is to lay the necessary foundations for the manoeuvres that will allow organisations to navigate and perpetuate themselves, even in the face of dynamically changing business context conditions that are increasingly adverse and unpredictable [p.18].

Likewise, planning has different types, each with their respective characteristics and time frames, one of them being strategic planning [Chiavenato, 2017] as an essential process in the organisation that is responsible for outlining the objectives to be achieved and guidelines to define, the action plans to achieve them that generate competitive advantages and long-term sustainability.

And finally, Operational Planning emphasises the activities necessary to correctly carry out a daily or everyday activity. Cadena [2020] defines it as: 'being governed in accordance with the guidelines established by functional planning, through the formulation and assignment of detailed activities to be executed at the lowest hierarchical levels of the company'.

Operational planning also has a different characteristic for organisations, being Annual Operational Planning, according to UANL 2024 defines it as 'the process by which an organisation translates its strategic objectives into concrete short-term actions, usually within a one-year horizon.'

These concepts were established as important in organisations in the face of uncertainty and to achieve control in the face of drastic changes in the business environment, making it necessary for HEIs to remain competitive against others, seeking to develop solidly in order to adapt, innovate and use their resources effectively to achieve annual objectives, seeking long-term sustainability and success.

The National Development Plan [PND] is an important document for the country's government, where it establishes the objectives, strategies and priorities to boost the country's development during the six-year term [Government of Mexico, 2019].

It establishes a diagnosis of the current situation and goals to be achieved in the areas of education, health, employment, security and sustainability.

The NDP has four general axes: Governance with justice and citizen participation, Development with well-being and humanism, Moral economy and work, and Sustainable development.

It also has three cross-cutting axes: Substantive equality and women's rights, public innovation for national technological development, and the rights of indigenous and Afro-Mexican communities.

The State Development Plan of the state of Nuevo León [PED] has to be aligned with the PND, it delimits the priorities, objectives and goals that the governor wants to establish in his six-year term, according to García [2022], who defines that the PED establishes the vision, mechanisms, policies and programmes to be implemented for the state.

It contains three general axes: equality for all people, generation of sustainable wealth and good governance, in which the third axis in section two, called transparency, accountability and the fight against corruption, García [2022] points out that the constitutional obligation to administer economic resources under the principles of efficiency, transparency and rectitude falls.

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The Planning Law decreed by the H. Congress of the Union of the United Mexican States establishes principles of national development guaranteeing public policies aligned to the objectives of sustainable development and mechanisms to coordinate the levels of an organisation to ensure that its planning is integrated and long-term.

This is then taken into account for the PDI 2030 of the UANL [2024], whose purpose is: 'a guiding framework that promotes the strengthening of the capacities of this, ensuring the fulfilment of its functions and achieving levels of development and consolidation'.

Methodology

The methodological design of this work is focused on qualitative research and the scientific method used will be the inductive, conducting an analysis of the context through an exploratory study and field, also relying on bibliographic information, this method has been adopted according to the knowledge in previously approved studies based on strategic planning, operational planning, budgeting based on results, their functions, analyzing each of the objectives for the achievement of the methods proposed in the project.

The present research will use primary sources by means of data collection techniques such as direct observation, interviews, field work.

Research problem

Given the need for an internal and external control mechanism that contributes to the implementation of policies of transparency in accountability, it is necessary to create a tool to improve the efficiency and effectiveness of the operational planning of a Higher Education Unit.

Research questions

- What tools can be implemented to improve transparency and facilitate access to information?

- What internal and external control mechanisms are necessary to ensure that the proposed model is effective and sustainable in the long term?

Hypothesis

The creation of a utility model facilitates budget allocation that contributes to government transparency.

Research Objectives

- Improve Accessibility to Information: Facilitate access to relevant data on administrative and financial management, allowing all users [administrative staff and teachers] to consult information in a clear and timely manner.
- Strengthen Transparency: Establish a system that guarantees the proactive disclosure of information on budgets, expenditures, administrative decisions and results, promoting a culture of transparency within the unit.

Development

The UANL has the General Directorate of Planning and Strategic Projects [DGGPE] which is responsible for providing institutional services of excellent quality that allow:

1. Institutional planning.
2. Studies for a pertinent decision making.
3. The design of far-reaching institutional projects.
4. Updating institutional statistics.
5. Supporting academic staff in the efficient performance of their duties.

The services described above are aimed at comprehensive strategic management aimed at optimising the university's institutional performance.

From the elaboration of projects to access federal resources, to the monitoring and evaluation of the PDI, guaranteeing efficient planning, the appropriate use of resources and continuous improvement in all key areas, of which the PDI contains different general axes, which have evolved over time, the current one being from 2040 speaks in axis seven about Collegiate Bodies. Governing and consultative bodies, while axis eight talks about Fundraising. Platform of opportunities, these axes are linked to the theme in development of this work, in general, this being Government Transparency, which is shown in Table 1 below.

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Box 1

Table 1

Axes of the IMP 2030 and 20240

	PDI 2030	PDI 2040
1	Relevant and quality education	Academic excellence. Training for successful development
2	Scientific research and technological development	Teacher professionalisation. Academic improvement and human development
3	Institutional development and sustainability	Forging researchers. Strengthening research
4	Cultural and human development	Community and strategic linkage. Dissemination and university outreach
5	Health and well-being	Healthy living and wellbeing of university students
6	Financial responsibility	Managing for success with humanism university
7	University governance and management	Collegiate bodies. Governing bodies and consultation
8	X	Fundraising. Platform for opportunities

Source: Coordination of Strategic Planning

While FIME's axes are linked to the axes of the PDI of the UANL, to address these axes there is the Subdirection of Planning and Liaison, with its Coordination of Strategic Planning that makes operational and tactical plans that contribute to enhance the faculty, making there is an improvement in the quality of the institution, this to give the student every opportunity for development both academic, social, cultural and sporting, with programmes to ensure educational excellence and innovation. The Coordination of Strategic Planning developed a programme called SPISE, being a system created to facilitate the academic and administrative users who perform tactical and operational planning mentioned above, which has evolved over time to facilitate the use of users which is shown in Figure 1.

Box 2

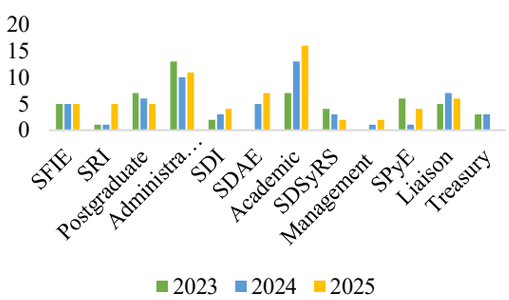

Figure 1

SPISE login

Source: Strategic Planning Coordination

Once the users have completed their operational planning, they will have to prepare an annual budget that will support the necessary resources for the fulfilment of their goals and will be validated by FIME's sub-directorates.

In response to the DGGPE, he suggested the need to create the Annual Operational Planning Utility Model [MTCPO] tool, which aims to be a model of resource efficiency, project execution, goal monitoring, control follow-up, promote continuous improvement and facilitate decision making to achieve the objectives established in accordance with the Institution.

This is due to the problem of the limited resources that the HEIs have, having the inconvenience of being able to cover the goals established for the year, another problem is the constant progress in the HEIs, looking for long-term strategic plans, in order to establish themselves over time in the institution.

To this end, the UANL [n.d.] has a programme known as SIASE Finance, which: "allows the accounting registration of the financial operations of the UANL under the law of governmental accounting, allowing the issuance of the financial statements of the UANL under the law of governmental accounting, allowing the issuance of the financial statements of the UANL".

Governmental accounting law, allowing the issuance of financial statements, focusing on the central administration and complying with the manual of policies and procedures of the UANL".

After that it is explained in Figure 2 about the elaboration of the POA this with the objective of being a model of resource efficiency, project execution, goal monitoring, control follow-up and decision making facilitator to reach the established objectives.

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Box 3

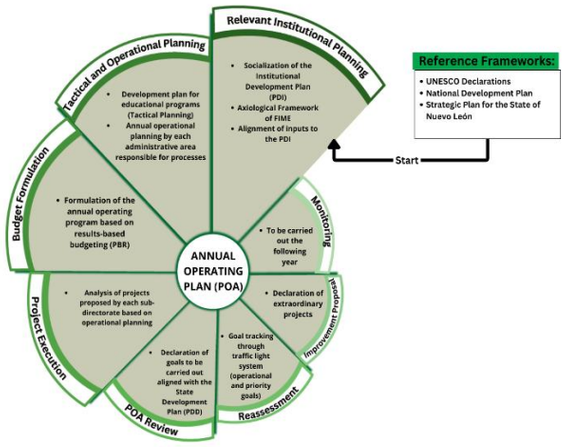

Figure 2

Diagram of the Annual Operational Plan

Source: Subdirección de Planeación y Enlace, FIME-UANL Mexico

Addressing the planning provisions of government agencies and transparency as outlined by UNESCO [n.d.] as: 'The focus is on building strong governance, regulatory and ethical frameworks, which are consolidated through training on quality assurance, anti-corruption, academic integrity and teacher codes of conduct'.

First, it is necessary to have a base of reference frameworks, being the UNESCO declaration, the National Development Plan and the Strategic Plan for the state of Nuevo León [of the state in the case of the institution].

Subsequently, with the stage of Relevant Institutional Planning, this phase includes the socialisation with the PDI, the creation of the axiological framework of the unit and the alignment of its inputs according to the PDI.

Once this stage has been completed, the development plan for the educational programmes [Tactical Planning] and the annual planning for each administrative area responsible for the process [Operational Planning] continue.

After the period of tactical and operational planning, the formulation of the annual operational programme is carried out in function of the Results Based Budget [PBR]. Taking into account the budget with the treasury of the unit, the projects proposed by each sub-directorate are analysed in the project realisation stage.

The subdirectors declare the projects to be carried out, these goals have to contain as previously mentioned, their general and specific objective, the goal for the project, strategy, action and resources to complete the goal, these must be aligned to the Unit's Development Plan [PDD], once this is done the POA is revised.

If changes need to be made, a traffic light of operational and priority goals is made, this in the rethinking stage, in order to know the order of importance of goals for each project.

After modifying the AOP goals in general, the extraordinary projects are declared in the improvement proposal stage. In order to finish with the quarterly monitoring of the goals by sub-directorates, this AOP process is done every year and the previous one is taken into account.

The model is related to governmental transparency, and this is related to the seven axes called 'Cuerpos Colegiados' [Collegiate Bodies]. Governing Bodies and Consultation, with the objective of 'strengthening the operation of collegiate and governing bodies to ensure effective feedback, proactive consultation and strategic decision-making', as defined by the PDI. [UANL, 2024].

While the eight named Procuración de Fondos. Platform of opportunities, with the objective of 'generating a scheme for the diversification of alternative sources of resources that guarantees the fulfilment of the aims of the university itself,' defined in the PDI. [UANL, 2024]

Both guiding axes address the thematic area 11 of the paper called higher education and science, technology and innovation, with respect to point 3, known as Planning, financing, transparency and accountability in higher education.

In this way Herrera and Mahecha [2018] define government transparency as:

Transparency is to illuminate the rules, plans, processes and actions, as well as to know the why, how, what and how much of decisions, in order to ensure that public officials, managers and entrepreneurs act reasonably and visibly in the reporting of their activities. Inherent in transparency is the act of accountability [p. 42].

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Results

In 2024 meetings were held with those responsible for each position to carry out their planning, of which in tactical planning 32 attendees were obtained and operational 48 attendees were obtained, this with the objective that attendees can prepare for the proper implementation of projects, and as can be seen has been done three consecutive years the POA of which all projects can be seen in Figure 3, which can be seen that it has increased in 2023 53 projects were carried out, 2024 58 projects were carried out and 2025 with 67 ordinary and extraordinary projects.

Box 4

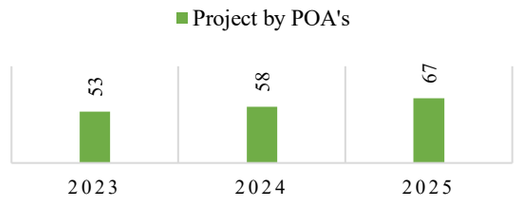

Figure 3

Projects by POA's

Source: Subdirección de Planeación y Enlace, FIME-UANL México.

Once this has been seen, each POA contains projects that each sub-directorate has proposed for the year, with the objective of organising and planning the areas of the faculty to achieve the specific objectives in an efficient way with the resources that the unit has, obtaining the expected results in a year and fulfilling each one of the goals. Three editions of the POA were carried out at FIME, each of the areas of the faculty contributed projects, as can be seen in Table 2, there was an increase in projects by sub-directorate, while others remained the same.

Box 5

Table 2

Projects carried out by sub-directorate

	2023	2024	2025
SFIE	5	5	**5**
SRI	1	1	**5**
Postgraduate	7	6	**5**
Administration	13	10	**11**
SDI	2	3	**4**
SDAE	0	5	**7**
Academic	7	13	**16**
SDSyRS	4	3	**2**
Management	0	1	**2**
SPyE	6	1	**4**
Linking	**5**	**7**	**6**

To achieve the POA projects it was necessary that each sub-directorate and their respective positions are prepared through planning throughout the year, then through the coordination of strategic planning formats are sent for data collection by sub-directorate, thus being the most orderly and direct way for feedback if necessary, this specified as the sixth step in the MTCPO.

FIME has 13 sub-directorates of which each one has contributed with projects for the POA, as shown in Figure 3, the participation of the sub-directorates was determinant to achieve the increase of the results-based planning, this according to the following sub-directorates:

- Sub-directorate of Integral Student Education [SFIE].
- International Relations Secretariat [SRI]
- Sub-Directorate for Postgraduate Studies [Subdirección de Posgrado]
- Administrative Sub-Directorate
- Secretariat for Institutional Development [SDI]
- Secretary's Office for Student Development and Support [SDAE]
- Academic Sub-Directorate
- Sustainable Development and Social Responsibility Sub-Directorate [SDSyRS]
- Administration
- Sub-Directorate for Planning and Liaison [SPyE]
- Liaison
- Treasury.

Conclusions

Each year, the DGPPE requires accurate and updated information on the fulfilment and monitoring of the indicators established in the University's Institutional Development Plan as well as in the specific plans of each unit.

These plans, which guide the strategic direction of the institution, have undergone several modifications over time, with major updates in 2006, 2012, 2020 and, more recently, in the projection towards 2040. These revisions reflect not only a natural evolution in institutional priorities, but also a constant effort to ensure that objectives remain aligned with the changing social, academic and technological contexts.

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Once the 2040 Development Plan has been revised and approved, the next step is the allocation of budget to the different strategic axes that compose it. Among these, the priority axis related to transparency stands out, which is conceived not only as a regulatory obligation, but also as a guiding principle to consolidate an institutional culture based on openness, accountability and the active participation of the university community.

Within this framework, the implementation of tools that facilitate the collection of data and the generation of feedback takes on central relevance. These instruments make it possible to identify more clearly the areas in need of improvement within institutional management. Thus, the systematic analysis of the information collected not only makes it possible to assess the degree of progress in the commitments undertaken, but also to reorient actions, strengthen processes and adapt administrative and academic practices to the demands of the environment.

Declarations

Conflict of interest

The authors declare that they have no conflicts of interest. They have no known competing financial interests or personal relationships that might have appeared to influence the article reported in this paper.

Authors' contribution

Palomares-Ruiz, María Blanca Elizabeth: Contributed to the project idea, research method and technique.

Torres-Bugdud, Arturo: Contributed to the project idea, method and research technique.

Bustos-Arista, Sammara Elizabeth: Contributed to the project idea, research method and technique.

Báez-Villarreal, Esteban: Contributed to the project idea, research method and technique.

Availability of data and materials

Public domain.

Funding

The research was carried out independently and on the merit of the data developers.

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Abbreviations

IES	Higher Education Institution
DES	Higher Education Unit
POA	Annual Operational Planning
PIFI	Integral Programme for Institutional Strengthening
SEP	Ministry of Public Education
PFCE	Programme for the Strengthening of Educational Quality
UANL	Autonomous University of Nuevo León
PDI	Institutional Development Plans
FIME	Faculty of Mechanical and Electrical Engineering
SPISE	Integral Planning System for School Services
RAE	Royal Spanish Academy
PND	National Development Plan
PED	State Development Plan
DGGPE	Planning and Strategic Projects General Directorate
MTCPO	Annual Operational Planning Utility Model
PBR	Results Based Budgeting
PDD	Unit Development Plan
SRI	Secretariat of International Relations
SDI	Secretariat for Institutional Development
SDAE	Secretariat for Student Development and Support
SDSyRS	Sustainable Development and Social Responsibility Sub-Directorate
SPyE	Sub-Directorate for Planning and Liaison

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Article

Strengthening organizational culture through faculty training in higher education: The case of UPVM

Fortalecimiento de la cultura organizacional a través de la capacitación docente en educación superior: El caso de la UPVM

Echevarría-Chan, Ivonne * [a], Flores-Azcanio, Nancy P. [b], Carrizales-Paz, Karla I. [c] and Avendaño-Cruz, Carlos A. [d]

[a] Instituto Tecnológico de Tlalnepantla • JYQ-0277-2024 • 0000-0002-6475-7438 • 993505
[b] Universidad Politécnica del Valle de México • LNQ-5488-2024 • 0009-0009-3799-1075 • 673888
[c] Instituto Tecnológico de Tlalnepantla • NIU-3087-2025 • 0009-0005-6497-7640 • 2130316
[d] Instituto Tecnológico de Tlalnepantla • NHQ-2618-2025 • 0009-0003-2424-2418 • 2129145

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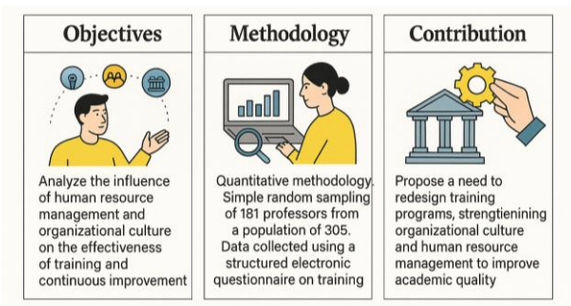
* ✉ [ivonne.ec@tlalnepantla.tecnm.mx]

Abstract

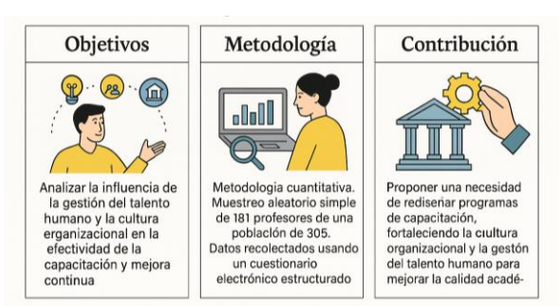
Influence of human talent management and organizational culture on the effectiveness off training al the Universidad Politécnica del Valle de México [UPVM]. Objetive, analyze these factors in the effectiveness of training and continuous improvement. Quantitative methodology. Population, 305 teachers, simple random sampling of 181. Data collection, structured electronic questionnaire, evaluated participation in training courses. Original value is provided by proposing an integrated approach due to the need to redesign training program, strengthening culture and human talent management to improve academic quality. With a focus on promoting frontier research and basic science in all fields of knowledge.



Training, organizational culture, continuous improvement

Resumen

Influencia de la gestión del talento humano y la cultura organizacional en la eficacia de la capacitación en la Universidad Politécnica del Valle de México [UPVM]. Objetivo, analizar estos factores en la efectividad de la capacitación y la mejora continua. Metodología cuantitativa. Población, 305 profesores, muestreo aleatorio simple de 181. Recolección de datos, cuestionario electrónico estructurado, evaluó la participación en los cursos de capacitación. Se aporta valor original al proponer un enfoque integrado por la necesidad de rediseñar los programas de capacitación, fortaleciendo la cultura organizacional y la gestión del talento humano para mejorar la calidad académica. Con eje en Impulso a la investigación de fronteras y la ciencia básica en todos los campos de conocimiento



Capacitación, cultura organizacional, mejora continua

Area: Promotion of frontier research and basic science in all fields of knowledge

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Peer review under the responsibility of the Scientific Committee MARVID®- in the contribution to the scientific, technological and innovation Peer Review Process through the training of Human Resources for continuity in the Critical Analysis of International Research.

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Introduction

Problem Statement

Human talent management and organizational culture are essential pillars for the success and sustainable development of the Universidad Politécnica del Valle de México [UPVM], particularly within the context of public higher education institutions. In an increasingly competitive and dynamic educational environment, UPVM's ability to adapt and engage in continuous improvement largely depends on how it manages its human resources and the organizational culture it fosters. These elements are fundamental to driving innovation and organizational learning, which are critical in a landscape where academic and technological demands are constantly evolving.

At UPVM, human talent management goes beyond simple hiring and retention; it also entails the creation of professional development opportunities that enable faculty members to stay up-to-date in their fields of specialization. A strategic approach to talent management can significantly transform the institution, fostering an environment in which employees feel valued and motivated to contribute to institutional goals.

Within this framework, organizational culture also plays a crucial role at UPVM. A positive culture oriented toward continuous learning can facilitate the effective implementation of professional development programs. This synergy between human talent management and organizational culture is vital for creating an environment where innovation and the adaptation to new technologies become integral to daily institutional life. Institutions that cultivate a strong organizational culture—characterized by collaboration and mutual support—are better positioned to face the challenges of today's educational landscape.

To address these challenges, a study was conducted at UPVM that revealed the critical need to implement new professional development strategies for faculty. This analysis showed that continuous professional updating is essential to improve educational quality and adapt to changes in the environment. It is fundamental to maintaining high academic standards and ensuring that the university can offer an education aligned with current societal needs.

The study's findings suggest that good practices, combined with well-designed professional development strategies, can lead to significant improvements in teaching and learning. Professional development programs aligned with faculty needs and goals not only enhance their performance but also positively impact students by increasing their academic achievement and overall satisfaction with the educational experience.

Within this framework, the training courses offered at UPVM stand as a concrete example of how the institution can implement effective professional development programs. These programs are designed to improve the technical and pedagogical competencies of teaching staff, ensuring alignment with technological advancements and labor market demands. Continuous training programs in educational institutions are essential to maintaining relevance and competitiveness in a globalized environment.

UPVM has implemented various strategies to ensure the effectiveness of its training programs, including the offering of diplomas, workshops, online courses, and seminars covering topics ranging from the use of new technologies to innovative pedagogical methodologies. The effectiveness of these programs is assessed through satisfaction surveys and impact analysis on teaching performance, enabling the institution to continuously adjust and improve its training offerings. This aligns with quality assurance policies that aim not only to enhance individual competencies but also to contribute to institutional development and the achievement of strategic goals.

Despite these advances, UPVM faces the ongoing challenge of adapting its training programs to the evolving demands of the educational and technological environment. This includes integrating new areas of knowledge, such as artificial intelligence and distance education, into its training programs. UPVM's ability to respond to these emerging trends and provide training in cutting-edge areas is crucial to its long-term sustainability and success.

Human talent management and organizational culture are essential components for UPVM's development and continuous improvement.

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Through the implementation of effective training programs, the institution can ensure that its staff is equipped with the skills and knowledge needed to meet the challenges of the contemporary educational environment. The synergy between strategic human talent management and a positive organizational culture is, therefore, crucial to ensuring the excellence and competitiveness of UPVM as a public institution of higher education.

Theoretical Framework

Human Talent Management in Education

Human talent management is a fundamental pillar for the development and sustainability of higher education institutions, particularly in public contexts such as the Universidad Politécnica del Valle de México [UPVM]. According to Gómez-Mejía et al. [2020], effective talent management goes beyond mere hiring and retention; it also involves the creation of professional development opportunities that allow employees to adapt to constant changes in their fields of specialization. In this context, it means implementing strategies that not only enhance the staff's technical skills but also promote an environment of continuous learning and collaboration.

Recent literature highlights the importance of inclusion and accessibility in higher education environments as fundamental components in the strategic management of human talent. These factors play a crucial role in transforming educational institutions, fostering a work environment where employees feel valued and motivated to contribute to organizational goals [Bermeo-Loor & Mendieta-Vivas, 2025]. This is particularly relevant at UPVM, where the institution's ability to adapt to a dynamic educational environment greatly depends on how it manages its human resources.

Organizational Culture and Its Impact on Continuous Improvement

Organizational culture is defined as the set of values, beliefs, and norms that guide the behavior of members within an organization [Schein, 2016]. At UPVM, a strong organizational culture is essential to foster an environment where continuous improvement and innovation are integral to daily operations.

As Schein [2016] notes, institutions that cultivate a positive organizational culture—characterized by collaboration and mutual support—are better positioned to address the challenges of the contemporary educational landscape.

The synergy between human talent management and a strong organizational culture is crucial for the successful implementation of continuous improvement programs at UPVM. This relationship between organizational culture and talent management has also been evidenced in recent studies that analyze key structural variables in the performance of public higher education institutions, highlighting the importance of strategically aligning both factors [Bermeo-loor, b. K., & mendieta-vivas, R. J., 2025].

Training as a Tool for Continuous Improvement

Training is a key tool for continuous improvement in educational institutions. At UPVM, training programs are designed to enhance the technical and pedagogical competencies of academic and administrative staff, ensuring alignment with technological advances and labor market demands [Jiménez, Pérez, Cevallos, & Santillán, 2025].The effectiveness of these training programs not only improves individual performance but also contributes to institutional development and the achievement of UPVM's strategic goals.

Recent studies have shown that professional development programs aligned with the needs and goals of teaching staff have a significant impact on improving educational quality [Pupo Kairuz, Castro Núñez, & Coronel Piloso, 2021]. At UPVM, this translates into an ongoing need to adapt training programs to adequately respond to the evolving demands of the educational environment.

Continuous Improvement and Competitiveness in Higher Education

Continuous improvement is a process aimed at the constant optimization of organizational processes and outcomes. In the context of UPVM, continuous improvement is achieved through the integration of a strong organizational culture and strategic human talent management [Hogg et al., 1995].

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UPVM's ability to remain competitive in a globalized environment depends on its capacity to adapt to new trends and provide training in emerging areas such as artificial intelligence and distance education.

According to Luque Suárez, Mohamed Mohand, and Olmos Gómez [2022], educational institutions that integrate continuous improvement as part of their organizational culture are better prepared to meet the demands of an ever-changing educational environment. This is especially relevant for UPVM, which must ensure that its training programs are aligned with the latest technological and pedagogical innovations to maintain its relevance and competitiveness.

Methodology

This project was conducted at the Universidad Politécnica del Valle de México [UPVM] using a quantitative approach, which allowed for the systematic and objective collection and analysis of data to understand perceptions and practices related to human talent management and organizational culture within the framework of continuous improvement through faculty training. The target population included UPVM faculty members, who in 2022 totaled 305 professors. To obtain a representative sample, 181 participants were selected through simple random sampling, covering various academic departments and levels of experience.

A structured questionnaire was designed and validated, and it was distributed electronically. The questionnaire included closed-ended questions and Likert-scale items to assess participation in training courses, as well as perceptions regarding organizational culture and the impact of human talent management on academic quality. The data collected were analyzed using descriptive statistical techniques to identify patterns in faculty perceptions and practices. Voluntary participation, anonymity, and confidentiality of the respondents were guaranteed, and results are presented in aggregate form to protect participants' privacy.

Findings

Based on the responses from the surveyed faculty members, a descriptive analysis was conducted for each section of the data collection instrument. The following information was generated from this analysis.

Box 1

Table 1

Section 1: Human talent management

Section 1: Human Talent Management							
	Reaction	1. The institution offers sufficient training opportunities for faculty members.	2. The training programs are aligned with my professional needs.	3. I feel that the training I have received has improved my teaching performance.	4. The institution promotes the continuous development of faculty skills.	5. The feedback received after the training sessions is helpful and constructive.	6. The institution encourages participation in external professional development.
1	Strongly disagree	13.81	12.71	13.81	2.21	17.13	19.34
2	Disagree	19.89	33.70	35.91	41.99	16.02	25.97
3	Neutral	27.62	31.49	34.81	47.51	38.67	26.52
4	Agree	29.83	18.78	14.36	8.29	25.41	27.62
5	Strongly agree	8.84	3.31	5.75	0.00	2.76	0.55
	mean	20	20	20	20	20	20
	Standard deviation	8.88	11.59	12.2	22.88	13.22	11.34

Source: Own source.

Box 2

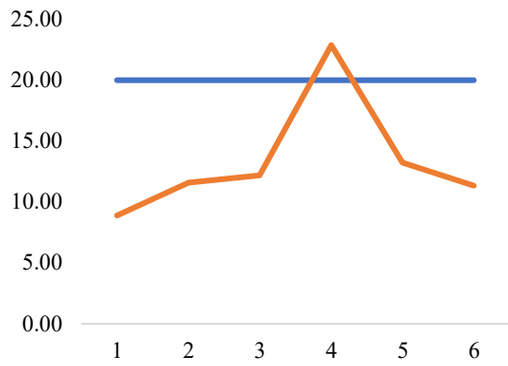

Figure 1

Mean and standard deviation of Section 1

Source: Own source

The analysis conducted on the frequency data in the human talent management section, as shown in Table 1, provides key information regarding faculty perceptions in various areas related to training and professional development within the institution. The mean of the responses is balanced across all items, with a result of 20.00%, indicating a generally stable evaluation.

The standard deviation, ranging from 8.88% to 22.88%, reveals variability in the responses, particularly in the perception of continuous skills development, which shows the highest dispersion [22.88%], suggesting a diversity of opinions among respondents, as illustrated in Figure 1.

Overall, these findings suggest that although training and professional development initiatives are valued, there is room for improving consistency and positive perception in these areas—particularly in promoting continuous skills development and aligning training programs with the specific needs of faculty members.

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Box 3

Table 2

Section 2. Organizational culture

	Section 2: Organizational Culture						
	Reaction	7. The institution's organizational culture fosters continuous learning.	8. The institution values and recognizes faculty efforts in their professional development.	9. There is a culture of collaboration and support among faculty members to improve educational quality.	10. The institution is open to new ideas and innovative teaching methods.	11. Communication between the administration and faculty is clear and effective.	12. The organizational culture promotes a proper work-life balance.
1	Strongly disagree	19.34	9.39	16.57	1.66	13.26	0.55
2	Disagree	53.59	38.67	13.26	39.78	30.94	32.60
3	Neutral	27.07	51.38	44.75	44.20	44.75	31.49
4	Agree	0.00	0.55	24.31	13.81	11.05	35.36
5	Strongly agree	0.00	0.00	1.10	0.55	0.00	0.00
	mean	20	20	20	20	20	20
	Standard deviation	22.32	21.57	16.16	14.28	14.69	13.82

Source: Own source

Box 4

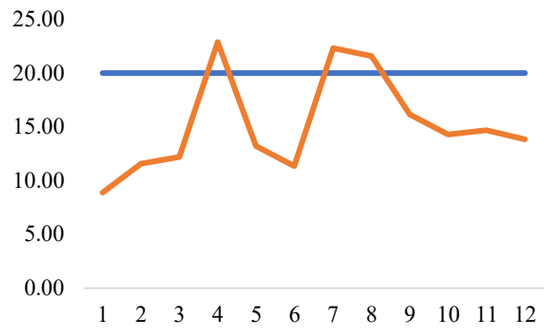

Figure 2

Mean and standard deviation of Section 2

Source: Own source

The analysis of the frequency selection for organizational culture indicates that the responses from the 178 participants vary significantly across the six evaluated questions.

The mean for all items centers around 20, suggesting a general perception of moderate approval in these areas. However, the standard deviations, which range from 13.82 to 22.32, indicate notable differences in participants' opinions.

Specifically, in questions such as number 7, which asks whether the institution's organizational culture promotes continuous learning, the highest standard deviation [22.32] was observed.

This implies a wide dispersion in responses and suggests that while some participants positively value this aspect, others may not perceive it in the same way. Similarly, question 8, which assesses whether the institution values and recognizes faculty members' efforts in their professional development, also shows high variability [21.57].

Questions regarding clear and effective communication, as well as work-life balance, show less dispersion by comparison, though they still indicate that not all respondents share the same perception. These results suggest that, although there is a general acknowledgment of organizational cultural practices, there is significant variability that points to potential areas for improvement—especially in fostering continuous learning and recognizing faculty efforts.

Box 5

Table 3

Section 3. Continuous improvement through training

		Section 3: Continuous Improvement through Training					
	Reaction	13. The training courses offered contribute to the improvement of academic quality.	14. The training I have received has enabled me to incorporate new teaching methodologies.	15. I believe that continuous training is essential for my professional growth.	16. The training courses help the institution remain competitive in the educational environment.	17. The training courses help the institution stay competitive in the educational environment.	18. The training sessions have helped me better adapt to changes in the educational sector.
1	Strongly disagree	17.13	15.47	7.73	1.66	17.13	3.8
2	Disagree	39.78	37.02	18.78	18.23	44.20	14.9
3	Neutral	30.94	30.94	36.46	43.09	12.71	35.1
4	Agree	8.29	16.57	30.94	34.25	25.41	41.9
5	Strongly agree	3.87	0.00	6.08	2.76	0.55	3.2
	mean	20	20	20	20	20	2
	Standard deviation	11.51	14.48	12.9	14.69	7.22	12.7

Box 6

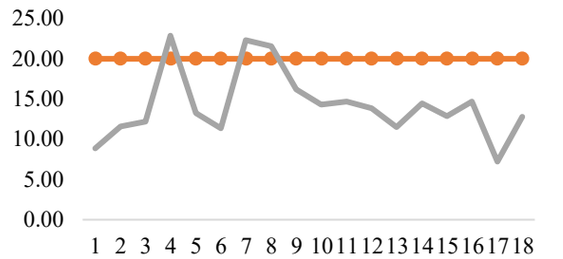

Figure 3

Mean and standard deviation of Section 3

Source: Own source

In Section 3, continuous improvement through training is addressed. Table 3 reveals participants' perceptions regarding the impact of professional development on academic quality and institutional competitiveness. In question 13, *"Do the training courses offered contribute to the improvement of academic quality?"*, 38.67% of respondents maintain a neutral stance, while 19.34% disagree and 18.78% agree. These results indicate that, although most faculty members remain neutral regarding the effect of training on academic improvement, a significant portion does not perceive a clear impact.

Similarly, in question 14, *"Has the training received enabled me to incorporate new teaching methodologies?"*, 37.22% of respondents express disagreement, suggesting that the training has not been effective in enhancing pedagogical practices.

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However, 30.56% remain neutral, which may reflect variability in the application of these methodologies.

Regarding question 15, *"I believe continuous training is essential for my professional growth,"* the majority of respondents [33.15%] remain neutral, although 30.94% express disagreement. Considering the overall results for this section, the average score is the same as in Section 2, at 20.00%, but the standard deviation shows greater dispersion—particularly in question 17—indicating significant variability and considerable opportunities for improvement.

These findings suggest that while continuous training is valued, there may be a disconnect between the training provided and the perceived needs for professional growth.

The results highlight a predominantly neutral perception, with many areas of opportunity to improve the alignment of training programs with faculty needs.

Box 7

Table 4

Section 4: General perception and satisfaction

section 4: General perception and satisfaction				
	Reaction	19. I am satisfied with the professional development opportunities offered by the institution	20. I believe that human talent management at the institution is efficient.	21. I would recommend this institution's training programs to other faculty
1	Strongly disagree	1.66	16.57	0.00
2	Disagree	40.33	17.13	46.96
3	Neutral	9.94	34.81	21.55
4	Agree	38.67	17.68	30.94
5	Strongly agree	9.39	71.83	0.55
	mean	20	14.81	20
	Standard deviation	20.02	7.22	20.07

Source: Own source

Box 8

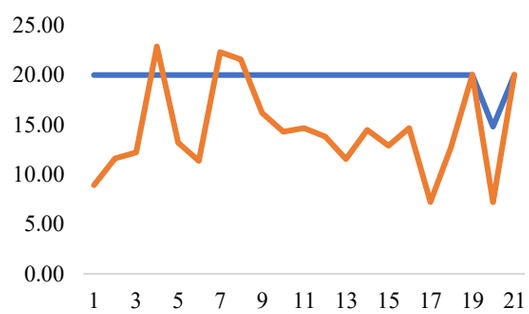

Figure 4

Mean and standard deviation of Section 4

Source: Own source

The fourth section relates to overall perception and satisfaction, presenting a statistical analysis of faculty members' views regarding professional development opportunities and human talent management within the institution. The data show that 52.49% of respondents are satisfied with the professional development opportunities offered by the institution, reflecting a generally positive evaluation. However, 25.41% of faculty members express dissatisfaction, indicating moderate opportunities for improvement. The lowest proportion, 2.21%, represents minimal dissatisfaction on the topic.

Results

Based on the statistical analysis conducted for each of the evaluated sections, the following results were determined:

Box 9

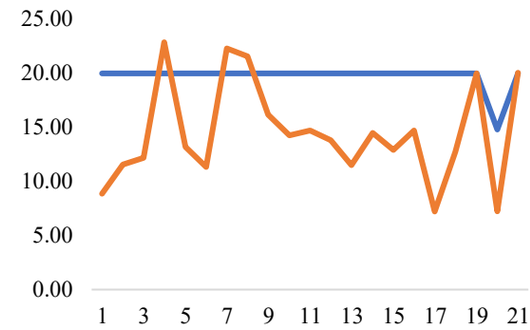

Figure 5

Overall mean and standard deviation of the 4 sections

Source: Own source

Based on the data generated from the results of each section comprising this analysis, a consistent mean was observed across all questions, indicating a homogeneous average in participants' responses. However, the fact that responses average around this value does not necessarily imply a uniform opinion among respondents, but rather a central tendency within the scale used in the survey. That is, while the mean reflects the average value, it does not provide sufficient information about the variability or dispersion of the responses. In this context, the analysis of standard deviation becomes crucial, as it allows us to observe how responses vary among participants and reveals specific areas where perceptions are more polarized or, conversely, where there is greater consensus.

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Echevarría-Chan, Ivonne, Flores-Azcanio, Nancy P., Carrizales-Paz, Karla I. and Avendaño-Cruz, Carlos A. [2025]. Strengthening organizational culture through faculty training in higher education: The case of UPVM. Journal of Critical Pedagogy. 9[20]1-9: e4920109.
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Questions with a high standard deviation—above 20—demonstrate significant variability in faculty opinions. These include topics such as the promotion of continuous development, recognition of faculty efforts, and satisfaction with professional development opportunities. The dispersion of responses in these areas suggests that some faculty members perceive a lack of institutional support, while others believe the institution is adequately fulfilling these aspects. This divergence could reflect individual experiences depending on specific work areas or relationships with institutional administration. It is essential for the institution to conduct a detailed analysis of these points, as varied perceptions on such relevant issues may influence faculty satisfaction and commitment. Moreover, these results may highlight areas where it is necessary to improve the communication of institutional policies or make adjustments in the implementation of development programs.

On the other hand, items with moderate to low standard deviation reflect more homogeneous opinions, which can be interpreted as a consensus among respondents on certain topics—such as the number of training opportunities offered, the competitiveness that training provides within the educational environment, and the efficiency of human talent management. This consensus suggests that, in these areas, faculty expectations are being adequately met and that institutional policies in these aspects are perceived as satisfactory and effective. For the institution, these points represent strengths that should be maintained and further promoted. However, it is equally important that they are monitored periodically to ensure they remain aligned with the evolving expectations and needs of the faculty.

This analysis suggests that, although there are areas of consensus, the institution could focus on improving aspects related to recognition and continuous professional development in order to achieve greater cohesion in faculty perceptions.

Conclusions

The analysis reveals that although faculty members value training and professional development initiatives, there is considerable variability in their perceptions.

The dispersion in opinions—particularly regarding continuous skills development—suggests a need to better align training programs with the specific needs of academic staff in order to achieve a more uniform and positive perception.

Perceptions of organizational culture also vary significantly, despite a general level of approval around the mean. The high standard deviations, particularly in areas such as the promotion of continuous learning and the recognition of faculty efforts, indicate that while some educators value these elements positively, others do not perceive them in the same way. This highlights the importance of fostering a more consistent organizational environment. As noted by Agudelo Ceballos and Valencia Arias [2018], knowledge management as an organizational policy plays a crucial role in promoting coherence and alignment of institutional values, which contributes to improved internal cohesion and institutional development.

Although most faculty members acknowledge the value of training for improving academic quality and institutional competitiveness, areas of opportunity remain. The variability in responses indicates that not all faculty perceive a clear impact, suggesting the need to strengthen the connection between the training provided and perceived professional growth needs. According to Mezentseva, Gracia, Silla, and Martínez-Córcoles [2023], reinforcing this connection can enhance the effectiveness and perceived value of training, resulting in substantial improvements in educational quality. This insight is particularly relevant for institutions like UPVM, where aligning training programs with evolving academic needs is essential to maintaining educational standards and institutional competitiveness.

The data reflect a generally positive perception of professional development opportunities, with 52.49% of faculty reporting satisfaction. However, 10.50% indicate moderate satisfaction, signaling a need for improvement. Regarding human talent management, opinions are divided, highlighting the need to develop targeted improvement strategies in this area. According to Van der Merwe [2024], effective human talent management is fundamental to ensuring employee satisfaction and engagement, which in turn impacts the quality of educational services.

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The evaluation results reflect significant diversity in faculty perceptions on key issues related to professional development and recognition of their efforts. The high variability in certain areas, such as organizational support and the promotion of continuous development, suggests that faculty experiences in these domains differ—likely due to variations in resource access or internal policy implementation. In contrast, areas with low dispersion reflect a consensus, either positive or negative, indicating that most faculty members perceive institutional policies uniformly in those topics. This suggests that practices in these areas are generally aligned with the expectations and experiences of respondents.

To optimize the work environment and faculty satisfaction, it is recommended that items with high variability be examined more closely to identify the underlying causes of discrepancies. This will allow the institution to adjust its policies and practices, promoting a more consistent and satisfactory experience. At the same time, it is essential to preserve and reinforce best practices in areas with low dispersion, ensuring they continue to meet the expectations of the majority. With these adjustments, the institution can strengthen its organizational environment, fostering a culture of support and continuous development that benefits both faculty members and overall educational quality.

Declarations

Conflict of interest

The authors declare that they have no conflicts of interest. They have no known competing financial interests or personal relationships that might have appeared to influence the article reported in this paper

Author contribution

Echevarria-Chan Ivonne: Conceptualization, methodology, validation, analysis, research, resources, writing-drafting, writing revising and editing, visualization.

Flores-Azcanio, Nancy P: Analysis and research.

Carrizales-Paz, Karla I. and *Avendaño-Cruz, Carlos A.*: Writing and revision

Availability of data and materials

The datasets generated during the current study are available from the corresponding author on reasonable request.

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Abbreviations

UPVM Polytechnic University of the Valley of Mexico

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Gómez-Mejía, L. R., Balkin, D. B., & Cardy, R. L. [2020]. Managing Human Resources [9th ed.]. Pearson Education.

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Basics

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Supports

Pupo Kairuz, A. R., Castro Núñez, W. E., & Coronel Piloso, J. E. [2021]. La formación continua de docentes en la educación superior. *Revista Conrado, 17*[80], 55–60.

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Discussions

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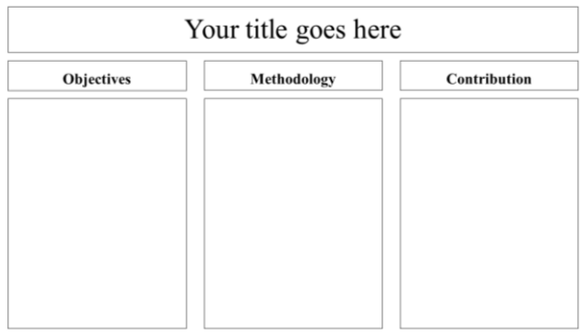

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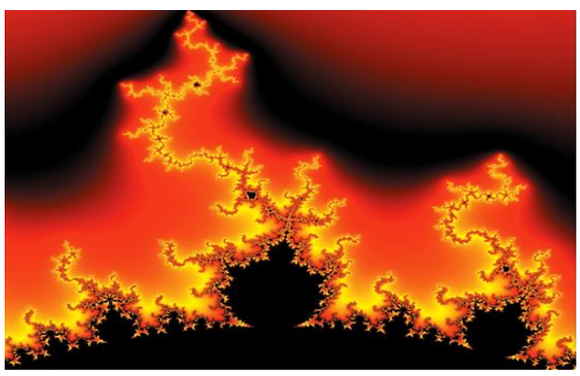

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