



Perception of Maslow's hierarchy of needs and its relation to human talent attraction and retention factors

Percepción de la jerarquía de necesidades de Maslow y su relación con los factores de atracción y retención de talento humano

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Abstract

Motivation theories were developed more than 50 years ago, as an immediate consequence of the results obtained in the Hawthorne experiment. It was basically a reaction and opposition to the classical theory of management without today's perspective regarding technology, communication, and global openings. The aim of this research, in addition to validating a scale of measurement of the factors that make up Maslow's pyramid of needs, is to identify the relationship they have with the factors of attraction of human talent in the Mexican work environment. This is quantitative research; an online questionnaire was applied using a convenience sample of 416 people. These people live in the metropolitan area of Monterrey, Nuevo León, Mexico. Amongst the findings, it can be mentioned that the needs of greatest interest are social and self-esteem, likewise it is concluded that the scales in the questionnaire are valid and reliable. In the future, it is expected to continue evaluating the scale in other contexts.

JEL Code: J24, M12, M54

Keywords: motivation theories; Maslow; human talent attraction; human talent retention; human resource management

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Resumen

Las teorías de motivación fueron desarrolladas desde hace más de 50 años, como consecuencia inmediata de los resultados obtenidos en el experimento de Hawthorne, básicamente un movimiento de reacción y de oposición a la teoría clásica de la administración y no tenían la perspectiva con la que se cuenta en la actualidad respecto a la tecnología, comunicación y aperturas globales. El objetivo de la presente investigación además de validar una escala de medida de los factores que integran la pirámide de las necesidades de Maslow, trata identificar la relación que tienen con los factores de atracción y/o retención del talento en el entorno laboral mexicano. Es una investigación cuantitativa, se utilizó un cuestionario se aplicó en formato en línea a una muestra a conveniencia de 416 personas radican en la zona metropolitana de Monterrey, Nuevo León, México, entre los hallazgos encontrados se puede mencionar que las necesidades de mayor interés son las sociales y las de autoestima, así mismo se concluye que las escalas en el cuestionario son válidas y confiables para poder estudiar el tema en otros contextos.

Código JEL: J24, M12, M54

Palabras clave: teorías de motivación; Maslow; atracción de talento; retención de talento; recursos humanos

Introduction

Management and social sciences focus mainly on the study of human behavior by defining terms and concepts such as desires, needs, instincts, impulses, etcetera, to refer to an internal force of the individual that leads him or her to have a positive or negative behavior and to be able to achieve a goal or objective previously set, as several authors do in their research in order to highlight the relevance that people have in the various fields in which they participate. Montoro, Pinazo and Tortosa (2007); Hernández (2011); Madero and Rodríguez (2018); Mejía, De la Rosa-Salazar and Huertas-Moreno (2021).

Araya-Castillo and Pedreros-Gajardo (2013) and Sekhar, Patwardhan, and Singh (2013) review the theories of motivation, highlighting the relevance and importance of studying these issues. Griffin, Phillips, and Gully (2020) define motivation as the set of forces that make people behave in a certain way and mention several theories linked to behavioral motivation, such as those of Frederick Herzberg, Abraham Maslow, David Mc Clelland, Douglas Mc Gregor, and Victor Vroom, which have mainly been developed trying to explain what drives human beings to live their day to day lives fulfilling the various activities they perform. These theories have focused on explaining behaviors based on human needs, from economic and work-related to basic survival (Koncar et al., 2022; Shannon, 2017; Kopelman, Prottas & Davis, 2008; Carson, 2005).

Although scientific administration improved organizational processes and productivity in companies, it also increased monotony at work, affecting people's initiative and preferences and causing discomfort and annoyance among them since a series of changes in working hours appeared, affecting schedules, working conditions, and salaries that were not enough to cover the basic needs of the families

of that time. Social deterioration was inevitable mainly due to automation processes, which led to the emergence of the school of human relations with the idea of studying the behavior of people and being able to humanize companies, focusing on the activities conducted in people's aspirations and motivations (Cardiel, 2015; Ahuja and Ranga, 2022; Ali and Anwar, 2021; Durado and Zambroni-de-Souza, 2020; Foncubierta-Rodríguez and Sánchez-Montero, 2019).

Griffin, Phillips, and Gully (2020) state that the human relations movement, also known as the human relations school, emphasizes that workers' orientations, values, and feelings are important to organizational dynamics and performance. The human relations theory is based mainly on: a) the need to humanize and democratize management, freeing it from the rigid and mechanistic concepts of classical theory; b) the development of the so-called human sciences, especially psychology and sociology; c) the ideas of Elton Mayo, who is considered the founder of the school, as well as some of his followers such as John Dewey, Kurt Lewin, Fritz Roethlisberger, and William Dickson, and finally d) the conclusions of the Hawthorne experiment, carried out between 1927 and 1932 under the supervision of Elton Mayo, which questioned the main postulates of the classical theory of management.

Currently, there is a similar problem in organizational processes as well as in human behavior, caused by a variety of factors, among which stand out the implementation and use of technology, digitalization schemes in the various production and business management processes, and the emergence of social networks, resulting in an increase in staff turnover, dissatisfaction among collaborators, physical and mental exhaustion, lack of motivation and interest in performing the assigned tasks caused by not having the required skills to do such activity, which somehow affect the processes of attraction and retention of talent in organizations.

After analyzing these aspects, the following questions have been generated and will be important to ask in order to carry out this research: Will motivation theories continue to be valid, or is it necessary to adjust due to the current dynamics of human processes, such as the evolution of work and the use of technology? Is it necessary to know which aspects people prioritize in their daily lives and professional development? Which element of Maslow's hierarchy of needs do people find more relevant nowadays? Furthermore, finally, which are the aspects of human resources processes that most influence Maslow's hierarchy of needs?

Continuing the work carried out by Madero, Rojas, and Borbolla (2021) and taking into account one of the conclusions of the work of Araya-Castillo and Pedreros-Gajardo (2013), Latham and Pinder (2005), and Rasskazova, Ivanova, and Sheldon (2016), where they mention that it is necessary to update and substantiate with new models or new measurements the aspects of human behavior, based on the classifications of motivation provided by Abraham Maslow, the present research has as objectives to analyze the hierarchy of needs that people have according to the current era considering the Mexican work

environment, as well as to design, adapt and validate a measurement scale for the motivational factors of Maslow's pyramid of needs, in addition to identifying which are the most influential factors in attracting and retaining talent from the perspective of Maslow's theory.

The rest of the study is structured as follows. First, a review of the literature on the subject is carried out. The method used in the research is established, explaining the aspects that were considered to undertake the work, followed by the analysis of the results of validity and reliability, as well as the statistical results with their corresponding analysis, and ending with the conclusions, limitations, and some reflective lessons from the business point of view.

Review of the literature

After the First World War, the study of organizational processes was oriented toward understanding the role of the various human and psychological factors, which is why in the 1920s and 1930s a team of researchers from Harvard University led by Elton Mayo, Fritz Roethlisberger, and William Dickson were asked to study the activities of the various work groups in the Hawthorne plant of Western Electric, located in Cicero, Illinois, USA, in order to evaluate various factors and the effects they had on productivity, such as prizes, bonuses, incentives, rest times, etcetera.

The researchers found that individual behaviors were modified in work groups and by themselves, noting that people improve some aspect of their behavior or performance simply because they are being observed or evaluated. In essence, employees are more motivated when they believe that their organization cares about them and is willing to listen to them. Many of these reasons have inspired additional research into the effects of social relationships, motivation, communication, and job satisfaction, among other topics (Griffin, 2022; Griffin et al., 2020; Cardiel, 2015).

According to Robbins and Judge (2017:209), motivation is "the process that determines the intensity, direction, and persistence of an individual's effort toward the achievement of a goal." In addition, they mention that intensity refers to the amount of effort that someone makes. Nonetheless, motivation must have direction, that is, the effort should be oriented toward something; finally, motivation must have persistence, which refers to how long the person can maintain that effort.

Mejía, De la Rosa-Salazar, and Huertas-Moreno (2021), Touré-Tillery and Fishbach (2011), and Fishbach and Ferguson (2007), among others, mention that motivation arises from the conscious creation of a goal since this is a mental representation of a desired state. Thus, it can be assumed that motivation is associated with satisfaction, intensity, provocation, and inspiration to accomplish a goal, as mentioned by Taylor (2007), Alonso (2008), and Naranjo (2009) in their research related to the topic.

One of the best-known theories on motivation is that of Abraham Maslow, named the theory of the hierarchy of needs. Appearing in 1943, it aims to explain what drives human behavior in satisfying various needs. The theory is conceptualized as a pyramid that prioritizes the needs of an individual. Maslow highlights five main levels that motivate the human being: physiological needs, security, social, self-esteem/recognition, and self-fulfillment. His pyramid shows that in order to satisfy a high-level need, it is necessary to satisfy lower-level needs (Maslow, 1943; Dye, Mills, & Weatherbee, 2005; Stum, 2001).

According to Maslow's theory, between 1940 and 1950, seeking survival was most people's main motivation due to the environment before, during, and after the Second World War, because of the first level proposed by Maslow, physiological needs. Among these are the need for relief from thirst and hunger, pain relief, fatigue, and sleep. Therefore, by fulfilling these needs, they could aspire to more. For example, individuals studied to have a profession that would give them an income to eat, live, have a house with adequate heating in their areas of interaction, etcetera (Arango & Ramirez, 2007).

The second level refers to security needs, which include care and protection against physical and emotional damage. People are concerned about saving and buying goods and insurance to have an orderly life without worries in the future. These needs appear once the previous ones are relatively satisfied. Next, at the third level, are the needs of belonging, that is, those seeking to enable the individual to relate to other members of society or people around them, seeking their affection, interaction, or association with each of them. They represent the will to recognize and be recognized by others, which includes affection, a sense of belonging, acceptance, identification with a group, and friendship.

The fourth group of needs in Maslow's hierarchy consists of self-esteem/recognition, i.e., the desire for fulfillment, mastery of one's activities, acquired skills, independence, autonomy, and freedom; it can also be a desire for reputation, prestige, status, and recognition. Some authors mention that it is the need to feel useful and necessary. Finally, the need for self-fulfillment occurs when there is a complete manifestation or realization of the activities performed, whether in physical, psychological, or social aspects. Nevertheless, the motivations and order of these needs in one person are currently very different than in another (Montoro, Pinazo, & Tortosa, 2007; Barnes & Pressey, 2012).

Recent evidence on the study, analysis and contributions of Maslow's theory is shown below in Table 1.

Table 1
 Applied research based on Maslow's Theory

Authors	Application
Gambrel and Cianci (2003)	Collective perspective and international application
Adams, Harris, and Martin (2015)	Small business perspective
Rasskazova, Ivanova, and Sheldon (2016)	Combination with the self-determination theory model
Gallagher <i>et al.</i> (2017)	Scale development and validation
Vargas-Hernandez and Arreola-Enriquez (2017)	Family microenterprises
Yong <i>et al.</i> (2017)	Analyzing the needs of sports consumers
Acevedo (2018)	A humanistic perspective
Tripathi and Moakumla (2018)	Aspects related to people's quality of life
Cavalcanti <i>et al.</i> , (2019)	Scale development and validation
Genkova (2021)	Macroeconomic factors of the society in general
Rojas-Rojas, <i>et al.</i> , (2021)	Human needs from an accounting perspective

Source: created by the author.

Regarding talent attraction and retention factors, Araya, Rojas, and Varas (2021), Dourado and Zambroni-de-Souza (2020), and Madero (2019) mention the relevance of designing strategies, processes, and management tools in the areas of human resources in order to ensure that people are motivated when they join a company and adapt to the current work environment. Likewise, organizations have to satisfy the preferences of the new generations in the various workplaces in order to generate an attractive value proposition so that people can continue to fulfill their functions, helping them to stay in the workplace, highlighting growth opportunities, the development of people's skills, and activities that favor work-life balance, among other activities, as a set of elements to be considered in the intrinsic and extrinsic motivational aspects of employees.

Similarly, although considering the preferences of job seekers, Ng, Schweitzer, and Lyons (2010) also mention the opportunities to advance and grow in the company, having good leaders at the head of the work areas, as well as good co-workers and attractive benefits plans. Nevertheless, it is also important to mention the relevance of monetary and non-monetary compensation as decisive motivational factors for analyzing a job alternative.

Jerome *et al.* (2014) mention the importance of flexible business policies related to the workforce. The new generations prefer activities with flexible schedules that favor work performance in a hybrid format and, therefore, maintain productivity levels, the achievement of results, and permanence. These aspects are highly relevant in the processes of human behavior, especially in terms of motivation.

Methodology

The following is the methodology on which this non-experimental, transectional, descriptive, and correlational quantitative research is based in Monterrey, Nuevo León, Mexico.

Structure and design of the measuring instrument

In order to continue with the development of this research, an analysis of the work done by Taormina and Gao (2013) was considered since this research contains more than 600 citations and, in its original version in the English language, consists of 72 items on a 5-point Likert scale. After reviewing the text and the information related to Maslow's theory, the decision to adapt it to Spanish was made so that it could be applied in the Mexican context and to continue with the work done by Madero, Rojas, and Borbolla (2021) in order to give evidence of the results in Spanish-speaking environments.

Regarding the design of the measurement instrument, a total of 56 items were used and selected, 6 of which were used to measure physiological needs, 6 for security, 9 for social or Affiliation, 7 for self-esteem/recognition, and 8 for self-actualization (see annexes for the questions used). Concerning the aspects of attraction and retention, they were adapted from the work done by Madero (2019), Ng, Schweitzer, and Lyons (2010) and Madero (2010), obtaining a total of 20 items, using Likert-type scales in all of them, where 1 is "totally disagree," and 5 is "totally agree." Finally, 6 demographic variables related to the person answering the questionnaire were added. The final version of the questionnaire that includes the items mentioned above was developed in an electronic format using the Google Forms platform.

Considering the claims of Hernández, Fernández, and Baptista (2014), convenience sampling and a snowball technique were used to develop this research. For data collection, the link to access the questionnaire was shared individually by e-mail to the author's various contacts, who were of legal age and who were working or studying for a postgraduate degree in the metropolitan area of Monterrey in northern Mexico and they were asked to share it with their work or study colleagues. To this end, 416 questionnaires were sent out with complete information; nevertheless, despite being a statistically relevant number for the sample size, for the current research, the results are considered to be those of the participants and cannot be generalized to the entire population.

It is worth mentioning that SPSS version 24 statistical software was used to develop the corresponding analyses to perform the descriptive analyses of the data and the various multiple linear regression models presented later. Some methodological limitations found during the research are due to the measures used to collect the data since there is no evidence of information related to the companies

where the participants work, such as the sector, the size of the company, the start of operations, or the market served, among other aspects.

Analysis of the participants

The characteristics of the research participants are shown below, providing information on the people involved, highlighting that 44.7% are male, 55.3% are female, and 71.6% are under 40 years of age (see Table 2).

Table 2
Characteristics of the respondents to the questionnaire

Demographic data	N	Percentage
Gender		
Male	186	44.7%
Female	230	55.3%
Year of birth		
Before 1980 (inclusive)	118	28.4%
Between 1981 and 1996	221	53.1%
After 1997 (inclusive)	77	18.5%
Activity performed		
Work	355	85.3%
Work and Study	61	14.7%
Place within the family		
Elder	176	42.3%
Middle	98	23.6%
Minor	142	34.1%

The sample size is 416 participants

Source: created by the author.

In order to find out what plans the people participating in the research have, two points of view were considered, one related to the short term (in the next two years) and the other to the medium term, emphasizing that it refers to plans over 3 years. Among the results obtained, it is important to mention that in the short term, the most important aspects are the establishment of their own business (29.8%), occupying a management position (25.2%), and continuing to work (21.2%), identifying that these are aspects of motivation and attraction and retention of talent, while the results obtained for the medium term plans show an increase in the motivation to start and create their own business (50.5%) (see Table 3).

Table 3
 Respondents' plans for the short and medium-term

	Short term		Medium-term	
	Less than 2 years		Over 3 years	
Occupy a management position	105	25.2%	91	21.9%
Start a business of their own	124	29.8%	210	50.5%
Continue the family business	25	6.0%	24	5.8%
Continue working	88	21.2%	38	9.1%
No plans	74	17.8%	53	12.7%
	416	100.0%	416	100.0%

Source: created by the author.

Initial descriptive analysis

In order to respond to one of the research objectives, the following table shows the descriptive results of the various items of each of Maslow's needs, identifying that the needs for self-esteem and affiliation are those that show the highest average on the measurement scale (see Table 4). Nowadays, according to the results obtained, the motivations and order of these needs seem to be different from the hierarchy and order originally known.

Table 4
 Relation of Maslow's needs

Most representative needs and items	Average	Std. dev.
1.- Physiological Needs	3.53	0.73
2.- Security Needs	3.77	0.71
3.- Social/Affiliation Needs	4.14	0.61
4.- Self-Esteem/Recognition Needs	4.16	0.79
5.- Self-realization needs	3.57	0.89

Source: created by the author.

It can be seen that the aspects of talent attraction and retention that somehow influence professional development are mainly focused on aspects of non-monetary remuneration. Some authors, such as Espinoza and Toscano (2020), analyze the emotional salary, highlighting that it facilitates the work environment and helps the company be a good workplace. Some of these aspects are recognition, effective feedback, attractive and challenging activities design, and a pleasant work environment (see Table 5).

Table 5
 Most representative aspects of attraction and retention

	Average	Std. dev.
1.- Having attractive activities and feeling useful	4.44	0.81
2.- Having a pleasant working environment	4.43	0.89
3.- Having a good work environment with co-workers	4.43	0.81
4.- Developing new knowledge	4.39	0.90
5.- Leveraging networks to do the job better	4.31	0.86
6.- Having positive treatment from the company's leaders (bosses)	4.31	0.97
7.- Working with challenging and interesting projects	4.30	0.89
8.- Having flexible work schedules	4.30	1.00
9.- Achieving quality and balance of life in your job	4.20	0.92
10.- Participation in decision-making	4.19	0.99

Source: created by the author.

Validity and reliability analysis

The questionnaire is one of the most widely used tools in the field of research. It is defined as an instrument that helps to collect data and information. As Arribas (2004) states, it is specifically designed to universalize and quantify all the information more simply so that it can be compared.

After creating a measurement scale, it must be ensured that the instrument is valid and reliable. Validity means that the measurement instrument created measures what it is intended to measure or for what it was created. There are multiple methods to validate an instrument since it constitutes the proper interpretations or inferences to be made from the scores obtained through the application of the test (Luján-Tangarife & Cardona-Arias, 2015). One of the validity methods used was the validity of experts, who reviewed the questionnaire on different occasions and made the corresponding modifications in the text, as well as the follow-up in the translation of the original scale in English.

The reliability of the measurement scale is the degree to which the instrument accurately measures each of the variables involved. According to Arribas (2004), reliability indicates the instrument's ability to be used multiple times and to obtain constant and truthful results.

To continue with the analysis of the data and to be able to obtain the degree of reliability of each of the constructs, various multivariate analysis statistical tests were performed, observing a KMO of 0.931, sig=0.000, which shows a high relation between the variables and that the factorial analysis test can be performed. Regarding the first validity test, the coefficients from the anti-image correlation matrix showed indicators greater than 0.5. Therefore, all the data present validity.

In order to fulfill the previously mentioned research objectives, exploratory factor analysis was carried out to determine the factor loadings of each of the items of Maslow's needs measurement scale, showing factor loadings greater than 0.5 in the rotated component matrix, confirming the convergence of each of the items of the five dimensions used in the design of the measurement instrument (see Table 6).

On the other hand, there was an adjustment in the items of the needs measurement scale for security since two of the concepts included in the need for belonging were included (items 3 and 6). This decision was considered convenient since the family, from the cultural perspective in Mexico, has an important role in professional development, as mentioned by Madero (2010).

Table 6
 Rotated component matrix

	Maslow's dimensions of needs				
	1	2	3	4	5
SelfEsteem5	841.				
SelfEsteem6	838.				
SelfEsteem2	761.				
SelfEsteem3	755.				
SelfEsteem7	740.				
SelfEsteem1	660.				
SelfEsteem4	630.				
Realization7		765.			
Realization4		762.			
Realization5		756.			
Realization8		746.			
Realization6		736.			
Realization2		612.			
Realization3		611.			
Affiliation4			809.		
Affiliation5			773.		
Affiliation2			729.		
Affiliation9			668.		
Affiliation8			628.		
Affiliation1			573.		
Safety1				796.	
Safety2				709.	
Safety3				697.	
Affiliation6				569.	
Affiliation3				533.	
Physiological7					661.
Physiological8					645.
Physiological3					605.
Physiological4					573.
Physiological2					543.
Physiological1					507.

Extraction method: major component analysis

Varimax rotation method

Source: created by the author.

Results analysis

As seen in Table 6, each dimension has convergence and consistency in its items, although all items that did not have convergence and consistency or showed factor loadings lower than 0.5 had to be eliminated. The reliability indexes were subsequently obtained with Cronbach's alpha statistic, which was statistically reliable (see Table 7). Looking for a possible relation between the different needs used in Maslow's hierarchy, a correlation analysis was conducted, obtaining the following results:

Table 7

Correlation matrix

Variables/Needs	a	1	2	3	4	5
1. Physiological	698.	1.0				
2. Safety	778.	.39**	1.0			
3. Affiliation/Social	868.	.39**	.52**	1.0		
4. Self-esteem/Recognition	936.	.43**	.38**	.50**	1.0	
5. Self-realization	937.	.38**	.42**	.55**	.73**	1.0

n= 416, **p<0.01; *p<0.05

Source: created by the author.

It can be observed that all the relations show positive correlation factors, highlighting that self-fulfillment needs show the highest percentage of correlation with self-esteem needs ($R=0.73$, $\text{sign} \leq 0.01$). In other words, when people know that they do things well, that they are recognized for what they do, it makes them feel satisfied, using their capabilities to the maximum, in any role they perform. Although this research can be analyzed from a business or labor point of view, the importance of recognition, whether monetary or non-monetary, is extremely important to achieve the objectives planned in managing human resources.

Following the analysis of the results and meeting the previously mentioned objectives, regression models were developed to identify the impact of the various attraction and retention factors on Maslow's hierarchy of needs.

Taking each of Maslow's five needs as dependent variables and the various factors of talent attraction and retention as independent variables, the following results were obtained: For physiological needs, the most influential factors are challenging and interesting activities and in-kind remunerations such as benefits packages. Regarding security needs, it is observed that the treatment of colleagues and the aspects of variable remuneration are the most influential, emphasizing that, in these first two needs, it can be observed that two elements of monetary compensation do have a statistical effect and confirm the relevance that this type of practice currently has in the human resources function in companies (see Table 8).

Table 8
 Results of Maslow's Needs Models ^{a,b}

	Model 1	Model 2	Model 3	Model 4	Model 5
	Physiological ^c	Security ^c	Affiliation ^c	Self-esteem ^c	Self-realization ^c
	Challenges	TratoComp	Autonomy	BVT	BVT
	0.190	0.178	0.195	0.278	0.255
	(0.043)***	(0.043)***	(0.037)***	(0.050)***	(0.051)***
	Prest y Benef.	CoVa	BVT	Challenges	Technology
	0.163	0.153	0.142	0.155	0.130
	(0.034)***	(0.030)**	(0.039)*	(0.055)*	(0.043)*
			Technology	AmbTrab	
			0.110	-0.258	
			(0.031)*	(0.059)***	
				Contacts	
				0.153	
				(0.056)*	
R ²	0.090	0.074	0.130	0.121	0.111
R ² adj.	0.085	0.070	0.123	0.112	0.107
Variation coefficient	0.697	0.661	0.594	0.748	0.861
F-Statistical	20.383	16.541	20.486	14.102	25.800
N	416	416	416	416	416

Source: created by the author

^a - Beta coefficients presented in the regression models (standard error in parentheses)

^b - ***p< 0.001; **p<0.01; *p<0.05; one-tailed test

^c - The models were estimated using different dependent variables. Each of the variables measures Maslow's needs.

^d - Control variables were included in all estimations, but none report statistically significant coefficients different from zero. The variables are not reported to keep the table simple and focus on the results of most interest to this research. Results are available upon request from the authors.

Regarding the need for Affiliation, there is statistical evidence of three aspects of attraction and retention that are most influential: (1) autonomy in the performed activities, (2) balance between personal and professional activities, and (3) being able to use technological tools in the workplace

In the case of self-esteem needs, the evidence shows mixed results, i.e., the variables work-life balance, challenging and interesting activities, and the contact networks that exist or are established in the workplace have a positive effect and help people to do their work well and achieve their objectives. In contrast, the work environment has a negative effect, which makes people feel uncomfortable and, not having a good place that makes them feel good, they prefer to look for work elsewhere and decide to leave. Finally, for self-fulfillment needs, the balance between personal and work activities and the use of technological tools in the workplace stand out again.

According to the above, Table 9 shows how the factors of talent attraction and retention are related to the hierarchy of needs, highlighting the monetary and non-monetary aspects, complying with

the aspects of Maslow's theory. Nevertheless, it is important to note that non-monetary aspects related to social interaction in digital environments are observed, such as contact networks and the use of various existing technological tools.

Table 9
 Analysis of Maslow's hierarchies of needs and the attraction and retention factors

Hierarchy of Needs	Talent attraction and retention factors		
	Monetary aspects	Non-monetary aspects	Digital interaction
Self-realization		Integral well-being (Work-Life Balance)	
Self-esteem/Recognition		Challenging and interesting activities	Networking
Social/Affiliation		Integral well-being (Work-Life Balance)	Use of technological tools
Security	Variable Compensation	Work Environment	Access to connectivity in the workplace
Physiological	Allowances and Benefits	Challenging activities	

Source: created by the author.

Considering the results mentioned above and taking into account the current reality due to the aspects of communication and the use of electronic and technological equipment, according to INEGI (Spanish: Instituto Nacional de Estadística y Geografía) (2021) in Mexico, 78.3% of the population are cell phone users, and 75.6% of the Internet, so it is required to analyze the hierarchy of needs, including virtual processes, as Barnes and Pressey (2012) mentioned. On the other hand, Vélez (2017) indicates that the digital world has entered the lives of human beings and somehow has had an impact on the topics of the research that has been conducted. The use of technology is increasingly frequent in daily life, so it is proposed to analyze Maslow's needs according to the needs of infrastructure, connectivity, applications, approval, and interrelation. (see Table 10).

Regarding the person's basic needs, such as physiological needs, food, water, and clothing, today, having the necessary infrastructure can be considered a new need. Examples include having a cell phone, internet access, or a computer to perform various personal, professional, or academic activities. It can even be considered that to satisfy hunger, people can order at the restaurant of their choice by simply picking up their cell phones. In the case of clothing, it is possible to shop online and, in this way, satisfy some basic needs through various services offered using some technological tool as a support. In terms of

security needs, which could be called connectivity, the skills to be able to use multiple existing applications such as Google, Amazon, Cornershop, Uber, Uber Eats, Rappi, Waze, Google Maps, and Airbnb, among others, could be considered, since they are useful for enabling users to locate immediate information, and are easy to use, developing skills and knowledge in people in terms of their functionality in their use.

For social or Affiliation needs, the applications and internet access to use various social networks known today, such as YouTube, WhatsApp, Snapchat, Facebook, Instagram, Twitter, or some others that have recently appeared with similar applications, can be considered, as they keep people united and in communication through a network of contacts that can be increased 24 hours a day. Regarding self-esteem or recognition needs, these can relate to using photographs, editing, sending videos, and following influencers or YouTubers, or using platforms such as Facebook, Instagram, Telegram, and Spotify. People receive positive and negative comments on the information they share, favoring feeling recognized by being accepted in that aspect and favoring acceptance or approval in social networks. Finally, self-realization needs can be related to those activities in which social networks are used to the maximum and in which people's competencies or skills to conduct a certain activity are demonstrated, both personally and professionally, for example, Tik-Tok, Pinterest, and LinkedIn, which favor the creation of new contact networks and maintain that connectivity and interrelation that is required in a globalized environment.

Table 10
Proposed scale for measuring Maslow's needs and the use of social networks

Physiological or infrastructure needs
1. Knowing about the use and application of a cell phone
2. Having the conditions to use the technology
3. Having a cell phone with various uses
4. Having a computer for various activities, whether for personal use, work, or school
Security or Connectivity needs
1. Giving and receiving good treatment from others is a source of security
2. How safe/secure I feel using my social networks
3. Knowing how to use applications on mobile devices
4. The space available to use different applications
5. My ability to use the applications for personal, work, and school purposes
Social needs or Application needs
1. The quality of access to social networks
2. Having a WhatsApp, Telegram, or Snapchat account to maintain my contacts
3. Have applications such as Rappi, Uber, or Cornershop on the cell phone
4. Being able to access the Internet from anywhere and stay connected
5. The quality of the Internet available, whether for personal use, work, or school
Self-esteem/recognition or approval needs
1. I feel self-confident on getting a "like" when I post something on social networks
2. The qualities I have are thanks to social networks
3. Much of the recognition is achieved through social media
4. I like to receive approval for the posts I make on my social networks

5. The social networks I have are the emotional support I receive from my friends

Self-fulfillment needs or Interrelation needs

1. I enjoy using the social networks I have
 2. I use social networks as I see fit, whether for personal use, work, or school
 3. Taking advantage of the contact networks, I improve my activities
 4. I do the things I like to do, taking advantage of social networks
 5. The quality of the contact networks I have
-

Source: created by the author.

Conclusions

The empirical results of this study lead to a series of interesting conclusions. One of them is that the hierarchy of Maslow's various needs is sensitive to each participant's perception and may vary according to the context in which they operate. Nevertheless, a pyramidal behavior is not shown, but rather the needs for recognition and social needs are the most predominant. It should be noted that motivational theories require further research to analyze and identify changes and possible adjustments that must be conducted according to the current processes and situations.

In the case of the measurement instrument used to identify Maslow's hierarchy of needs, the process of designing and adapting the scale was very useful because, according to the statistical results obtained, it can be concluded that it is a valid and reliable instrument for the participant sample. This instrument enabled the development of a scale to measure the current needs considering the technology and social network environment.

According to Maslow's scale of needs, talent attraction and retention are motivational aspects. Physiological and security needs maintain a positive relation with the monetary components of compensation, while social, recognition, and self-fulfillment needs have a relation with non-monetary aspects.

One of the limitations that can be considered for the present research is related to the analysis of the information from the perspective of demographic data and its inclusion in the measurement instrument. Nevertheless, the advances shown so far meet the objectives set and are considered relevant and interesting in the measurement of Maslow's hierarchy of needs as well as its relation with the factors of attraction and retention of talent since there is little evidence of these research works. In the future, it is intended to continue revising the structure of the instrument and the wording of the items to improve reliability, in addition to applying it in other work contexts, regions of Mexico, and, if possible, in other countries to make comparative studies with the information obtained, as well as to apply the proposed scale according to Maslow's needs and the use of social networks.

This option provides a basis for new research in the future to analyze the various concepts proposed by Maslow that have continued to evolve in today's society, as well as to consider whether a different need may have arisen in recent years due to the connectivity environments or the use of social networks that have increased considerably, as well as the design of workplaces, as mentioned by Frankó and Dúll (2020).

It is also recommended to continue this project with the following research questions:

What are people's new needs or motivators in their activities, regardless of the context in which they find themselves?

How do the various needs of Maslow's hierarchy relate to the current work context?

How have aspects of motivation evolved in people before, during, and after the COVID-19 pandemic?

Can workplace design and a flexible work environment be a motivating element?

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Annex

The items of Maslow's hierarchy of needs used in the measurement scale adapted to the present research are shown below.

Table A1
Physiological needs

-
- | | |
|----|---|
| 1. | The quality of the food I eat each day |
| 2. | The amount of food I eat per day |
| 3. | The amount of warmth I get when it is cold |
| 4. | The amount of cooling I get when it is hot |
| 5. | The amount of sleep I have to be relaxed |
| 6. | The quality of sleep I get to feel completely refreshed |
-

Table A2
Safety needs

1. The quality of the house/apartment I live in
 2. The free space for me in my house/apartment
 3. How safe I feel in my home/apartment
 4. My financial security
 5. My ability to get money when I need it
 6. The money I set aside for myself to have a secure retirement
-

Table A3
Affiliation/Social Needs

1. The amount of mutual understanding I share with the people I meet
 2. The quality of the relationships I have with my friends
 3. The intimacy I share with my immediate family
 4. The affection my friends show me
 5. The emotional support I receive from my friends
 6. The feeling of bonding I have with my family
 7. How much my partner cares about me
 8. The happiness I share with the people who accompany me
 9. The closeness I feel with the people with whom I interact
-

Table A4
Self-Esteem/Recognition Needs

1. How much I like the person I am
 2. How confident I am in myself
 3. How much respect I have for myself
 4. All the good qualities I have as a person
 5. My sense of self-worth
 6. The amount of esteem I have for myself
 7. How positive I feel about myself as a person
-

Table A5
Self-realization needs

1. I feel that I'm completely self-realized
 2. I'm now being the person I always wanted to be
 3. I indulge myself as much as I want
 4. I'm now enjoying everything I have always wanted in my life
 5. I'm living my life the way I want to live it
 6. I do the things I like to do when I want to do them
 7. I'm living to the fullest of my capabilities
 8. I'm living my life to the fullest
-