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**Variations in the  
perception of the  
elements that constitute  
training based on  
company size,  
employee seniority,  
and company age**

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## 1. Introduction

This study aims to identify the variation in the perception of training elements based on company size, employee seniority, and company age, in order to determine whether there is a relationship between these, and based on this, to establish strategies that contribute to increasing the organization's participation in training.

A. Avalos and V. Murillo (2013) note that according to Fundes (2011), small and medium-sized enterprises (SMEs) possess a relevant role in Latin American countries, as they represent 97% of the total number of firms, create 70% of formal jobs, and account for between 30 and 60% of GDP.

Currently, SMEs are fundamental to economic growth in Mexico due to the trade agreements the country has signed in recent years and to SMEs' strong impact on job creation and national production.

According to the National Commission for the Protection and Defense of Financial Users (Condusef) (2011), SMEs predominate in Mexico, as in most countries. They number

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approximately 4.3 million (nearly 99% of the total number of firms), accounting for 52% of GDP and 72% of employment, as shown in table 1.

**Table 1. Contribution of SMEs in different countries**

Country	% of GDP	% of employment generated
Mexico	52	72
US	51	52
European Union	55	70
Argentina	60	78

**Source:** prepared by the authors based on Condusef (2011)

SMEs in Mexico “represent 99.8% of business entities, who provide 34.7% of the gross domestic product (GDP) and generate 72% of jobs (21.5 million job positions)” ProMéxico (2014, p. 24).

SMEs may exhibit two different profiles. They can possess an organization and structure with a business administration, or as family-owned enterprises, they generally do not have an organizational structure or a clear vision of investment that allows them to remain in the market.

It is important to note that, according to M.A. Palomo (2005), SMEs are areas of opportunity more so than problems. Evidence of this includes courses on how to manage company and business operations, human resource training, funding support, marketing (market studies, new product development, advertising, etc.), innovation, and systems. This is not exclusive to SMEs but applies to any organization, regardless of its size or type.

A.C.E. Méndez (2002) considers that all educational actions should be viewed as investments. This will largely depend on the adequate detection of training needs, education, and staff selection, to obtain benefits both for the company and employees. Staff growth, preparation, and development will depend on this.

According to B.R. Estrada, P.L.D. García, and T.V.G. Sánchez (2009), human resources in SMEs play a critical role in competitiveness, as in the early years owner or general manager participation is essential in the strategic and operational management of the company. Therefore, their education, training, and experience significantly influence enterprise survival, growth, and performance.

One of the main factors for the success of SMEs is training. Despite questions of time and cost, human capital is essential in the globalized world in which these enterprises operate, improving organizational productivity and resources.

The concept of resources refers to assets, processes, capabilities, information, knowledge, attributes, etc. In fact, Daft (1983, cited in Barney, 1991) affirms that resources include all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc., controlled by a firm that enable the firm to devise and implement strategies that improve its efficiency and effectiveness, emphasizing that in strategic language, resources are commonly attributes that companies can use to implement strategies.

In this context, J. B. Barney (1991) mentions that there are three types of resources: physical capital such as technology, plants, equipment, and raw materials; human capital such as training, experience, judgment, and intelligence; and organizational capital, which includes a firm's formal reporting structure, its formal and informal planning, control, and coordination systems, and informal relations among groups within the firm and between the firm and its environment. These resources are a source of sustainable competitive advantage. For this reason, it is important to note the one company resource that can grow on its own: human resources.

J. B. Barney (1991) notes that this theory was proposed in 1959 by Penrose, who explained how organizational resources affect growth, as he considered that growth is limited when resources are not adequate. Thus, the importance of employing staff with training, skills, and attitudes that further not only organizational but also personal development is explained as a key element of competitiveness.

A. A. Lado and M. C. Wilson (1994) consider that the search for competitiveness and growth in organizations strengthens the strategic position of human resources with regard to their development such as in the recognition of the mechanisms and key processes for their administration.

## 2. Stating the problem

Lack of planning and failure to solve issues as they arise considerably limit company growth and the administrator. Despite possessing a high degree of adaptability to changes in their environment, according to Conducef (2011) 65% of SMEs disappear in less than two years. Reasons include the following: limited resources to invest, a lack of or poorly trained staff, limited access to technology,

lack of knowledge of supporting incubators, lack of funding sources, and low involvement in foreign trade.

In the third report of the Ministry of Economy (Secretaría de Economía) (2015), preliminary data from the 2014 Economic Census in Mexico indicate that 407,000 companies began operations that year, representing an annual creation rate of 7.8% of the total number of companies that year. However, companies closed at a rate of 5.8% of the total number of existing companies that year, corresponding to 329,000 for 2014.

In this regard, Condusef (2013) mentions mismanagement as well as the economic environment and insufficient bank financing as responsible for the short life of SMEs. Indeed, 43% of companies fail due to errors, and only 2 out of every 10 companies are able to manage their business. Furthermore, Condusef notes that one mistake made by young companies is to centralize power, as family ties cause the disappearance of companies.

For G.M.A. Palomo (2005), the main challenges facing SMEs are the lack and/or inadequacy of staff training and the lack of a culture of innovation and technological development.

V.J. Bartels (2007), in his study performed in Costa Rica, found that 10.5% of the companies that responded allocated a maximum of 5% of their budgets to training. Only 2.9% of companies allocated 16% of their budget to employee training. Alarmingly, however, 80.8% did not allocate any budget to this area. In his findings, it is observed that training was mainly aimed at managers and directors, representing 17.7%. It is most noteworthy that 57.2% of organizations did not conduct training activities, reinforcing what was previously stated regarding the small budget allocated to this area.

Therefore, the main objective of this research is to determine whether there are differences in the perception of managers of industrial enterprises with regard to the elements that determine training based on 1) company size, 2) seniority of management position, and 3) company age or permanence in the market. Thus, the following research question emerges:

Is there a difference in the perception of managers of industrial enterprises with regard to the elements that constitute training based on company size, job seniority, and company age?

Furthermore, the following hypotheses are proposed:

(1) The perception of managers with regard to the elements that constitute training varies depending on company size.

(2) The perception of managers with regard to elements that constitute training varies depending on manager seniority in the position.

(3) The perception of managers with regard to the elements that compose training varies depending on company age or permanence in the market.

### **3. Justification**

As mentioned by B.R. Estrada, P.L.D. García, and T.V.G. Sánchez (2009), human resources always represent a key factor in the competitiveness of SMEs. When staff are trained and possess greater professional education and experience, they are likely to make better decisions.

Likewise, the authors note the key advantages of SMEs, such as being a driving force in the development of the country, their flexibility in terms of expanding or contracting, their mobility and ability to perform modifications in technical processes, their potential for growth and for becoming a large organization, their employees who represent a significant proportion of the economically active population due to SMEs' ability to generate jobs, their ease of adaptation to new technologies, and their active contribution to regional and country development.

V.J. Bartels (2007) mentions that when adequate training is provided, the results in terms of the staff include superior job preparedness compared with new workers, a balance between the requirements of the position and actual performance, greater productivity, lower staff turnover, up-to-date performance, elimination of poor work habits, and promotion of organizational culture.

### **4. Objective**

The objective of this study is to identify whether there are variations in the perception of the elements that constitute training based on company size, employee seniority in the position, and company age or permanence in the market.

### **5. Theoretical framework**

SMEs, according to Conducef (2011), are defined as an "economic unit that is operated by a person or entity, in any form of legal organization or business management, that develops any kind of activity, whether it be production, marketing, or provision of services" (p. 4).

According to the Latin American Economic Outlook (2014), SMEs worldwide share characteristics that include not only number of employees but also the following: capital is provided by up to a maximum of three people, usually

informally; company management is led by the investors, who are rarely trained; growth is maintained between a micro and medium-sized enterprise; growth tends to proceed from micro to small and from small to medium, although not always; they face the challenge of remaining in the market; and they may be subject to special and occasionally preferential treatment with regard to tax issues.

Llinares, Montañana, and Navarro (2001) define an enterprise as “a set of human, material, financial, and technical factors organized and promoted by the management that attempts to reach goals that are consistent with the previously assigned purpose” (p. 181).

S.L. Dolan, C.R. Valle, S.E. Jackson, R.E. Schuler, (2003) define training as education and development and mention that it is the drive to improve productivity or performance in the present or future, enriching workers’ capabilities through learning, which can be achieved by changing employee attitudes, skills, or knowledge.

V.R. Pinto (1997) mentions that training is supported by a “philosophy that rescues the value of the human being within the company and that responds to a way of thinking and understanding the social, work, and family environment in which this unfolds” (p. 13).

According to V.J. Rodríguez (2007), training is considered to be “an intentional act that provides the means to make learning possible. Learning is an internal phenomenon that motivates the individual” (p. 248).

For S. Snell and G. Bohlander (2013), training and development are “the combination of activities that organizations use to increase the skill base of their employees” (p. 292). The main objective is to contribute to organizational goals. Therefore, training programs must be developed accordingly.

For W.B. Werther, K. Davis, and B.M.P. Guzman (2014), training is the “development of technical, operational and administrative skills of all levels of auxiliary staff members of the organization to perform their current job,” providing benefits that can extend throughout an employee’s working life and contribute to personal development for subsequent responsibilities.

V. J. Rodríguez (2007) describes training as an open system, composed of inputs, conversion processes, output, and feedback. Inputs include training needs, organizational resources, information, and guidelines (LFT). Conversion processes involve training programs, educational technology, and the individual learning process. Output consists of knowledge, skills, attitudes, and organizational effectiveness. Finally, training also includes feedback.

It is essential to note that training requires different elements to properly fulfill its objective. The legal basis of training can be found in the Political Constitution

of the United Mexican States, Article 123, section XIII, the Federal Labor Law, articles 154-A to 153-X, which declare that all workers are entitled to receive training.

For V. J. Rodríguez (2007), a training program must have clearly defined objectives, specific media and materials, a selection of methods and teaching techniques, execution, control, and evaluation. All of this is necessary for the success of the program and largely depends on the proper detection of training needs.

To ensure investment in training and development, a strategic and systematic use is required, consisting of four phases (S. Snell and G. Bohlander, 2013): first, needs assessment, composed of organization analysis, task analysis, and person analysis; second, program design, composed of instructional objectives, training, and principles of learning; third, program implementation, which includes on-the-job training, off-the-job training, and management development; and finally, the fourth phase is the evaluation of the training program, where reactions, learning, behavior, and results are considered.

The steps to follow in training and development proposed by W.B. Werther, K. Davis, B.M.P. Guzmán (2014) start with a diagnosis of employee and company needs, in order to determine the objectives. The specific content and learning to be achieved are established based on these. The instructors may be internal or external to the company. Subsequently, the assessment criteria are determined. These steps are intended to establish an effective program.

The training process according to V.R. Pinto (1997) is formed in the following way:

1. Systemic approach: the person responsible for training in the organization is required to know all parts and sub-parts of the company in order to properly direct training activities.
2. Structural approach: this must be both internal and external to the organization, particularly when relating to the specific normativity that regulates the actions of the person responsible for training in issues of legal, administrative, and instructional processes.
3. Legal process: specifically related to the Secretariat of Labor and Social Security, regarding the Directorate General of Training and Productivity, which is responsible for complying with the Federal Labor Law in the area of training.
4. Administrative process: requires the trainer to apply all administrative functions in order to achieve the organizational objectives, i.e., planning, organization, execution, and evaluation.

5. Instructional process: the process of teaching-learning, i.e., the planning and dynamics of changes in employee behavior.

As seen, each author mentions a number of requirements to conduct the training process, notable among which are the detection of training needs, the training program, legal aspects of training, a budget for its execution, and (responsible) training instructors. Regardless of the author, fulfilling a process contributes to a training culture.

## 6. Methodology

In terms of impact, this research has a comparative descriptive scope with a non-experimental design, as the data obtained were not manipulated and were calculated according to the response of each of the participating subjects. In terms of timeframe, the study is considered a cross-sectional analysis, as it only analyzes the responses at one moment in time. In terms of the research question, the analysis is quantitative, as an instrument was applied to collect data with regard to the perceptions of people who occupy positions at the managerial level in terms of the 6 variables that determine the training factor.

## 7. Operationalization of the variables

The classification of company size is based on the agreement made by the Secretariat of Economy and published in the Official Journal of the Federation in 2009, presented in table 2. For the specific purpose of this study, only small and medium-sized enterprises were taken into account. Likewise, the dimensions that constitute the training variable can be observed in table 3.

**Table 2. Classification of companies based on size**

Size	Sector	Number of workers	Sales per year (million pesos)	*Combined upper limit
Micro	All	Up to 10	Up to \$4	4.6
Small	Trading	From 11 to 30	From \$4.01 to \$100	93
	Industry and Service	From 11 to 50	From \$4.01 to \$100	95



Medium	Trading	From 31 to 100	From \$100.01 to \$250	235
	Services	From 51 to 100		
	Industry	From 51 to 250	From \$100.01 to \$250	250

\*Combined Upper Limit = (Workers) X 10% + (Annual Sales) X 90%

**Source:** Official Journal of the Federation (June 30, 2009)

The classification of the variables that constitute training is described in table 3.

**Table 3. Characteristics that describe training**

<i>Variables</i>	<i>Description</i>	<i>Questions</i>
<i>Training</i>	Refers to whether the company has training programs established in accordance with its mission, vision, and goals.	Includes questions 1 to 16.
<i>Legal aspects of training</i>	The entrepreneur has knowledge of the legal obligations with which he must comply according to the Federal Labor Law.	Includes questions 17 to 23.
<i>Training budget</i>	Refers to whether the company has a budget intended for and exclusive to providing training.	Includes questions 24 to 25.
<i>Instructors of the training course</i>	Refers to the internal or external instructors who teach the training courses.	Includes questions 26 to 27.
<i>Training culture</i>	Refers to the image that the entrepreneur creates regarding the importance of receiving training.	Includes questions 28 to 30.
<i>Seniority in the company</i>	Refers to the loyalty of the employer towards the company as a factor in the implementation of training courses.	Includes questions 31 to 34.

**Source:** prepared by the authors

With regard to the job seniority and company age variables, the specifications can be observed in table 4.

**Table 4. Characteristics that describe job seniority and company age**

<b>Job seniority</b>		
<b>Year range</b>	<b>Description</b>	<b>Classification</b>
1-5	Managers that meet this range of years in company service.	Very low
6-10	Managers that meet this range of years in company service.	Low
11-20	Managers that meet this range of years in company service.	Medium
21 and higher	Managers that meet this range of years in company service.	High
<b>Company age</b>		
5-10	Years of permanence in the market since its foundation.	Very low
11-20	Years of permanence in the market since its foundation.	Low
21-30	Years of permanence in the market since its foundation.	Medium
31 and higher	Years of permanence in the market since its foundation.	High

**Source:** prepared by the authors

## 8. Statistical method

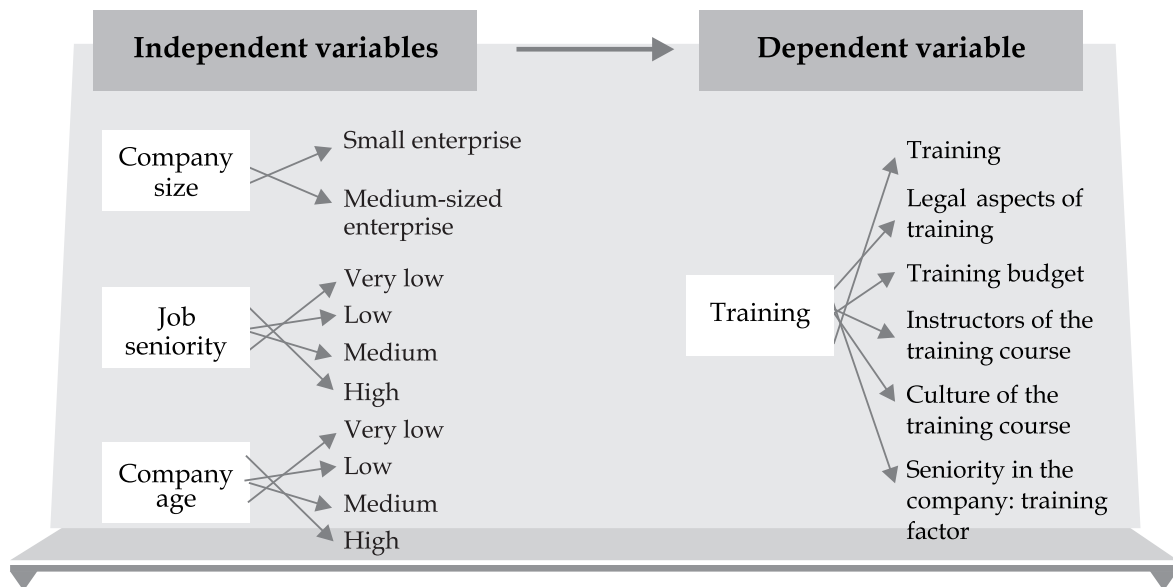
For the statistical analysis, one-way analysis of variance (ANOVA) was used, which serves to compare various elements or groups in a quantitative variable. Therefore, it is a generalization of the t-test for two independent samples. The objective is to determine whether there is equality of means between the groups of elements compared in relation to the quantitative variable with a 95% confidence level.

We wish to ascertain which of the 6 elements that constitute training has the greatest relevance depending on company age, employer seniority within the company, and company size, i.e., we evaluate whether there is a difference in the perception of the elements that constitute training based on company size,

company age, and management seniority. If there is equality of means, this means that regardless of company size, job seniority, and company age, values are assigned that are similar to the elements that constitute training.

With the above information, three independent variables (company size, job seniority, and company age), whose levels are compared among themselves, and a quantitative dependent variable (training), in which the classifications were compared, were obtained. To test the hypothesis of equality of means, an *f*-statistic was obtained, which reflects the degree of resemblance between the means that are being compared. If the hypothesis of equality of means is assumed to be true, the probability of obtaining a value such as the one obtained or greater can be known at any time (Pardo and San Martin 1998, pp. 248-250).

One-way ANOVA is performed to determine the existing or null variability of the variance in each of the elements that constitute training in relation to company size, job seniority, and company age, as shown in figure 1.



**Figure 1. Specification of the variables**

Source: prepared by the authors

## 9. Participants

The study participants were small and medium-sized enterprises in the industrial sector. It was considered a non-probabilistic and convenience sample

of enterprises that answered the survey and met the stipulated characteristics and specifications. A total of 63 surveys were applied.

## 10. Materials

The instrument used was a questionnaire that contained general business aspects and aspects related to training. In the aspects related to training, the questionnaire was composed of a total of 34 questions measuring 6 variables. A Likert-type scale was used with 5 response options consisting of 1) never, 2) hardly ever, 3) sometimes, 4) almost always, and 5) always. The training index ranges from 1 to 5. The mean plus one was established as the criterion to categorize high ( $\geq 3.8$ ), low ( $\leq 3.0$ ), and intermediate training (values from 3.1 to 3.7).

## 11. Results

Below, the results allowing us to contrast the hypothesis, respond to the research question, and comply with the objectives are shown. This section is organized in the following way: the first segment presents the results of the analysis by company size; the second shows the results by job seniority; and the third shows the results of the comparisons by company age.

## 12. Company size

**Table 5. Training index by company size**

	Company size	N	Average	Standard deviation	Mean standard error
General_Training_Index	Small	49	2.0080	.93566	.13367
	Medium	14	3.2650	1.13902	.30442

Valid at a 95% confidence level.

**Source:** Prepared by the authors

Table 5 shows the average of the training index by company size. As can be observed, small businesses in general have a low general training index (2.0080), while medium-sized businesses have an intermediate general training index.

Table 6 shows the results of measuring the mean difference in terms of the 6 elements that constitute training.

**Table 6. ANOVA: Company size**

		Sum of squares	gl	Root mean square	F	Sig.
Training_Index	Inter-groups	29.025	1	29.025	39.340	.000
	Intra-groups	45.006	61	.738		
	Total	74.031	62			
Training_budget_index	Inter-groups	23.510	1	23.510	7.958	.006
	Intra-groups	180.204	61	2.954		
	Total	203.714	62			
Legal_aspects_index	Inter-groups	15.825	1	15.825	9.262	.003
	Intra-groups	104.222	61	1.709		
	Total	120.047	62			
Course_instructors_index	Inter-groups	41.362	1	41.362	28.984	.000
	Intra-groups	87.051	61	1.427		
	Total	128.413	62			
Training_Culture_Index	Inter-groups	10.161	1	10.161	3.848	.054
	Intra-groups	161.070	61	2.640		
	Total	171.231	62			
Company_seniority_training_index	Inter-groups	1.107	1	1.107	1.962	.166
	Intra-groups	34.430	61	.564		
	Total	35.538	62			
General_Training_Index	Inter-groups	17.202	1	17.202	17.819	.000
	Intra-groups	58.888	61	.965		
	Total	76.090	62			

Valid at a 95% confidence level.

**Source:** prepared by the authors

At a 95% confidence level, the null hypothesis of equality of means that assumes that the perception in relation to training does not vary depending on company size is rejected.

One-way ANOVA allows us to determine among which of the 6 variables that determine training there are significant differences based on company size. It is important to note in this analysis that there are significant variations in the perception of 5 variables that constitute training. The only variable that does not exhibit significant mean differences is the company age variable: a training factor.

To determine the extent of the differences in terms of perception, a post-hoc or a posteriori test was performed using the Bonferroni criterion. The summary of the results is presented in table 7.

**Table 7. Test for independent samples (Company size)**

	T-test for equality of means						
	t	gl	Sig. (bi-lateral)	Mean dif-ference	Standard error of the dif-ference	95% confidence inter-val for the difference	
						Lower	Upper
Training_Index	-6.272	61	.000	-1.63265	.26030	-2.15316	-1.11215
	-6.802	23.866	.000	-1.63265	.24004	-2.12822	-1.13709
Legal_aspects_index	-3.043	61	.003	-1.20554	.39612	-1.99762	-.41345
	-2.474	16.644	.024	-1.20554	.48733	-2.23539	-.17569
Training_budget_index	-2.821	61	.006	-1.46939	.52087	-2.51092	-.42785
	-2.832	21.139	.010	-1.46939	.51890	-2.54806	-.39072
Course_instructors_index	-5.384	61	.000	-1.94898	.36202	-2.67288	-1.22508
	-3.578	14.434	.003	-1.94898	.54464	-3.11383	-.78413
Training_Culture_Index	-1.962	61	.054	-.96599	.49244	-1.95068	.01870
	-2.165	24.622	.040	-.96599	.44609	-1.88544	-.04653
Company_seniority_training_index	-1.401	61	.166	-.31888	.22767	-.77414	.13639
	-1.376	20.520	.184	-.31888	.23168	-.80138	.16362

General_Training_Index	-4.221	61	.000	-1.25690	.29775	-1.85230	-.66151
	-3.781	18.312	.001	-1.25690	.33247	-1.95454	-.55926

Valid at a 95% confidence level.

Source: prepared by the authors

The a posteriori test confirms that the variations in the variables that constitute the training factor depend on company size, supporting the results presented in Table 5 and effectively showing that small enterprises have a mean in their general training index that is lower than for medium-sized enterprises in all variables that constitute training. In other words, compared with small enterprises, medium-sized enterprises give greater weight or value to all of the elements that constitute training.

### 13. Job seniority

The results of the job seniority comparisons are presented below.

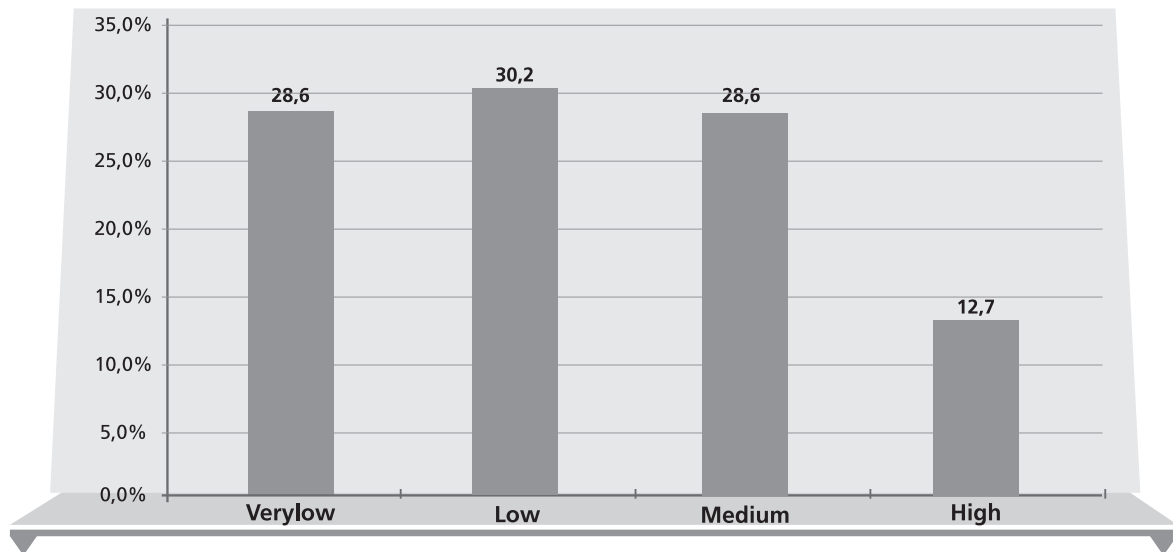
Table 8 shows the frequency of ranges of job seniority. As can be observed, the percentage between the ranges of very low, low, and medium seniority is relatively similar, while a clear difference appears among the managers that possess high seniority, i.e., over 21 years in the position.

Table 8. Job seniority range

		Frequency	Percentage	Valid percentage	Cumulative percentage
Valid	Very low	18	28.6	28.6	28.6
	Low	19	30.2	30.2	58.7
	Medium	18	28.6	28.6	87.3
	High	8	12.7	12.7	100.0
	Total	63	100.0	100.0	

Source: prepared by the authors

Figure 2 is provided to show the distribution of job seniority more clearly.



**Figure 2. Job seniority**

Source: prepared by the authors

To measure the differences in the perception of the elements that constitute training based on job seniority, an analysis based on the t-test was performed, whose results are presented in table 9.

**Table 9. One-way ANOVA (Job seniority)**

		Sum of squares	gl	Root mean square	F	Sig.
Training_Index	Inter-groups	6.736	3	2.245	1.969	.128
	Intra-groups	67.295	59	1.141		
	Total	74.031	62			
Training_budget_index	Inter-groups	23.102	3	7.701	2.516	.067
	Intra-groups	180.612	59	3.061		
	Total	203.714	62			
Legal_aspects_index	Inter-groups	3.083	3	1.028	.518	.671
	Intra-groups	116.964	59	1.982		
	Total	120.047	62			



Course_instructors_index	Inter-groups	4.590	3	1.530	.729	.539
	Intra-groups	123.822	59	2.099		
	Total	128.413	62			
Training_Culture_Index	Inter-groups	11.538	3	3.846	1.421	.246
	Intra-groups	159.693	59	2.707		
	Total	171.231	62			
Company_seniority_training_index	Inter-groups	1.137	3	.379	.650	.586
	Intra-groups	34.401	59	.583		
	Total	35.538	62			
General_Training_Index	Inter-groups	4.057	3	1.352	1.108	.353
	Intra-groups	72.033	59	1.221		
	Total	76.090	62			

Valid at a 90% confidence level.

**Source:** prepared by the authors

At a 90% confidence level and in contrast with the test by company size, in this case it is impossible to reject the mean equality hypothesis except in the case of the training budget element. In other words, the perception of the elements that constitute training does not vary according to job seniority at the management level.

To measure the difference in the training element by job seniority, a post-hoc analysis was performed where it can be observed that managers whose seniority is low place more value on the training budget compared with managers who have medium seniority. This can be simplified by stating that those who are younger in terms of years of service place a greater weight on budget when making the decision to implement training plans in their companies compared with those who have a range of job seniority between 11 and 20 years. Those who are younger in the position are more conservative than those who are not as young. Appendix 1 shows the complete a posteriori analysis.

#### 14. Company age

The last part of the analysis shows the results of the mean comparisons between the groups that constitute the company age ranges subject to study and the 6 elements that constitute training. Table 10 shows the results for the equality of variances test of company age and training.

**Table 10. One-way ANOVA (company age)**

		Sum of squares	gl	Root mean square	F	Sig.
Training_Index	Inter-groups	7.768	3	2.589	2.305	.086
	Intra-groups	66.263	59	1.123		
	Total	74.031	62			
Training_bud- get_index	Inter-groups	9.473	3	3.158	.959	.418
	Intra-groups	194.241	59	3.292		
	Total	203.714	62			
Legal_aspects_in- dex	Inter-groups	10.695	3	3.565	1.924	.136
	Intra-groups	109.352	59	1.853		
	Total	120.047	62			
Course_instruc- tors_index	Inter-groups	9.889	3	3.296	1.641	.190
	Intra-groups	118.524	59	2.009		
	Total	128.413	62			
Training_Cul- ture_Index	Inter-groups	.669	3	.223	.077	.972
	Intra-groups	170.562	59	2.891		
	Total	171.231	62			
Company_se- niority_train- ing_index	Inter-groups	1.105	3	.368	.631	.598
	Intra-groups	34.433	59	.584		
	Total	35.538	62			
General_Train- ing_Index	Inter-groups	3.740	3	1.247	1.017	.392
	Intra-groups	72.350	59	1.226		
	Total	76.090	62			

Valid at a 90% confidence level.

**Source:** prepared by the authors

As in the previous analysis, the test for mean equality shows that at a 90% confidence level, only the training index element, which refers to the inclusion by the company of training programs within its mission, vision, objectives, and goals, presents a mean difference compared with the rest of the elements that determine training.

The results show that the determining factor in terms of including training programs in a company's mission, vision, objective, and goals is company age or permanence in the market. In this sense, and by performing a posteriori analysis, it can be argued that this difference is only significant in statistical terms among companies whose age or permanence in the market is low versus companies whose age is higher.

In other words, companies over 21 years old assign a higher value to including training programs within their mission, vision, and goals compared with companies that have only been in the market for a few years. To verify the exact difference, the results of this a posteriori analysis are presented in Appendix 2.

## 15. Conclusions

The results of the performed tests allow us to answer the research question and accept or reject the proposed hypothesis. Based on this, a series of conclusions can be offered.

To contrast the proposed hypothesis and answer the research question, analysis of variance (one-way ANOVA) was used that confirmed that the perception that managers of industrial companies in the Ciudad Obregón, Sonora, México have regarding the elements that determine training vary according to company size, managerial job seniority, and company age or permanence in the market.

In relation to the training index, small enterprises presented an intermediate index, while medium-sized enterprises, based on their actions, presented a training index that allows us to classify them as enterprises with high amounts of training. Thus, medium-sized enterprises place more value on training and create a higher number of training programs in their enterprises.

Five of the 6 elements that constitute training receive a weighting or valuation that is different depending on company size. In this case, the only element that does not vary according to company size is employee loyalty towards the company as a factor for the implementation of training courses. With regard to the rest of the elements, the perception and valuation changes depending on whether the enterprise is small or medium-sized. The analysis shows that medium-sized enterprises place more value on training elements compared with

small businesses, which assign a lower weighting or value to training programs. In other words, medium-sized enterprises assess more strategically whether to implement training programs.

By performing an analysis where managerial job seniority is the determining factor in terms of assigning value or weighting to training elements, it can be concluded that this factor does not exhibit significant variation in the mentioned elements, except for the element determined by the budget that the company has intended for and exclusive to providing training. In this case, those possessing fewer years in charge of an enterprise are more cautious in deciding to implement training programs compared with those who have been in charge for more years. This means that of all of the elements that determine the implementation of training programs, managers who have fewer years of service categorize budget as a determining and key element in the decision of whether to implement training programs.

The last analysis performed indicates that permanence in the market or company age determines the valuation given to elements that constitute training. In this case, the only element whose value assignment depends on company age is the one referring to the inclusion of training programs within the mission, vision, objectives, and goals of the company. Companies whose permanence in the market is higher assign greater value to considering training programs within their mission, vision, values, and goals compared with companies whose permanence or seniority is lower. Therefore, it can be inferred that an enterprise will place more value on training programs as it acquires more experience.

In general terms, the elements that constitute training present a weighting or valuation that is different depending on three elements: 1. company size, 2. managerial job seniority and 3. company age. Thus, training or the implementation of training programs diverges depending on the context and the perspective from which they are analyzed. Knowing the differences in these perceptions provides empirical knowledge that can be used in strategic planning.

## Summary

### **Variations in the perception of the elements that constitute training based on company size, employee seniority, and company age**

The implementation of training programs in industrial enterprises is determined by the elements that constitute training and variations in the perception of and value placed on those elements. This study aims to present an analysis of the variations in the per-

ception of the elements that constitute training based on company size, management position seniority, and company age.

For the analysis, we used one-way ANOVA to quantify the differences and post-hoc Bonferroni tests to assign values to the differences. The results show that there is a mean difference between training and the three variables mentioned above.

The main differences indicate that medium-sized enterprises have a higher training index than small enterprises and that managers whose seniority is low value budget as a determining variable in the decision of whether to implement training programs.

In relation to company age, it is concluded that compared with younger companies, older organizations direct their training programs towards achieving their mission, vision, values, and goals.

**Keywords:** *training, seniority, permanence, company size.*

### **Streszczenie**

#### **Odchylenia w postrzeganiu elementów składających się na szkolenie w oparciu o wielkość firmy, staż pracowników i wiek firmy**

Realizacja programów szkoleniowych w przedsiębiorstwach przemysłowych zależy od elementów szkolenia i różnic w postrzeganiu wartości tych elementów.

Opracowanie ma na celu zaprezentowanie analizy zmian w postrzeganiu elementów szkolenia w oparciu o wielkość i wiek firmy oraz staż kadry zarządzającej.

Do analizy wykorzystano jednostronną ANOVA, po to aby ilościowo określić różnice oraz testy Bonferroni post-hoc oraz by różnicom przypisać wartości.

Wyniki pokazują, że istnieje średnia różnica między treningiem a wspomnianymi zmiennymi.

Główne różnice wskazują, że średnie przedsiębiorstwa mają wyższy indeks szkoleniowy niż małe przedsiębiorstwa, a menedżerowie, których staż pracy jest niski, uznają budżet za decydującą zmienną wdrożenia programu szkoleniowego.

W odniesieniu do wieku firmy stwierdzono, że w porównaniu z młodszymi firmami, starsze organizacje wykorzystują programy szkoleniowe celem osiągnięcia ich misji, wizji, wartości.

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**APPENDIX 1. Post-hoc: Job seniority**

Multiple comparisons								
Bonferroni								
Dependent variable	(I) Job seniority	(J) Job seniority	Mean difference (I-J)	Standard error	Sig.	95% confidence interval		
						Lower limit	Upper limit	
Training_Index	Very low	Low	.43951	.35128	1.000	-.5195	1.3985	
		Medium	.84028	.35599	.129	-.1316	1.8122	
		High	.19444	.45381	1.000	-1.0445	1.4334	
	Low	Very low	-.43951	.35128	1.000	-1.3985	.5195	
		Medium	.40077	.35128	1.000	-.5583	1.3598	
		High	-.24507	.45012	1.000	-1.4739	.9838	
	Medium	Very low	-.84028	.35599	.129	-1.8122	.1316	
		Low	-.40077	.35128	1.000	-1.3598	.5583	
		High	-.64583	.45381	.960	-1.8848	.5931	
	High	Very low	-.19444	.45381	1.000	-1.4334	1.0445	
		Low	.24507	.45012	1.000	-.9838	1.4739	
		Medium	.64583	.45381	.960	-.5931	1.8848	
	Training_budget_index	Very low	Low	.85380	.57549	.859	-.7174	2.4250
			Medium	1.50000	.58321	.076	-.0922	3.0922
			High	1.40972	.74345	.377	-.6200	3.4394
Low		Very low	-.85380	.57549	.859	-2.4250	.7174	
		Medium	.64620	.57549	1.000	-.9250	2.2174	
		High	.55592	.73741	1.000	-1.4573	2.5691	
Medium		Very low	-1.50000	.58321	.076	-3.0922	.0922	
		Low	-.64620	.57549	1.000	-2.2174	.9250	
		High	-.09028	.74345	1.000	-2.1200	1.9394	



Training_bud- get_index	High	Very low	-1.40972	.74345	.377	-3.4394	.6200
		Little	-.55592	.73741	1.000	-2.5691	1.4573
		Medium	.09028	.74345	1.000	-1.9394	2.1200
Legal_as- pects_index	Very low	Little	-.03509	.46311	1.000	-1.2995	1.2293
		Medium	.01587	.46933	1.000	-1.2655	1.2972
		High	.65476	.59828	1.000	-.9786	2.2881
	Low	Very low	.03509	.46311	1.000	-1.2293	1.2995
		Medium	.05096	.46311	1.000	-1.2134	1.3153
		High	.68985	.59342	1.000	-.9303	2.3100
	Medium	Very low	-.01587	.46933	1.000	-1.2972	1.2655
		Low	-.05096	.46311	1.000	-1.3153	1.2134
		High	.63889	.59828	1.000	-.9945	2.2723
	High	Very low	-.65476	.59828	1.000	-2.2881	.9786
		Low	-.68985	.59342	1.000	-2.3100	.9303
		Medium	-.63889	.59828	1.000	-2.2723	.9945
Course_in- structors_in- dex	Very low	Low	.21930	.47650	1.000	-1.0816	1.5202
		Medium	.66667	.48289	1.000	-.6517	1.9850
		High	.54167	.61557	1.000	-1.1389	2.2223
	Low	Very low	-.21930	.47650	1.000	-1.5202	1.0816
		Medium	.44737	.47650	1.000	-.8535	1.7483
		High	.32237	.61057	1.000	-1.3446	1.9893
	Medium	Very low	-.66667	.48289	1.000	-1.9850	.6517
		Low	-.44737	.47650	1.000	-1.7483	.8535
		High	-.12500	.61557	1.000	-1.8056	1.5556
	High	Very low	-.54167	.61557	1.000	-2.2223	1.1389
		Low	-.32237	.61057	1.000	-1.9893	1.3446
		Medium	.12500	.61557	1.000	-1.5556	1.8056

Training_Culture_index	Very low	Low	.67544	.54113	1.000	-.8019	2.1528
		Medium	1.05556	.54840	.354	-.4416	2.5528
		High	1.00000	.69907	.947	-.9086	2.9086
	Low	Very low	-.67544	.54113	1.000	-2.1528	.8019
		Medium	.38012	.54113	1.000	-1.0972	1.8575
		High	.32456	.69339	1.000	-1.5685	2.2176
	Medium	Very low	-1.05556	.54840	.354	-2.5528	.4416
		Low	-.38012	.54113	1.000	-1.8575	1.0972
		High	-.05556	.69907	1.000	-1.9641	1.8530
	High	Very low	-1.00000	.69907	.947	-2.9086	.9086
		Low	-.32456	.69339	1.000	-2.2176	1.5685
		Medium	.05556	.69907	1.000	-1.8530	1.9641
Company_age_training_index	Very low	Very low	-.20249	.25116	1.000	-.8882	.4832
		Medium	-.26389	.25453	1.000	-.9588	.4310
		High	-.40972	.32446	1.000	-1.2955	.4761
	Low	Very low	.20249	.25116	1.000	-.4832	.8882
		Medium	-.06140	.25116	1.000	-.7471	.6243
		High	-.20724	.32182	1.000	-1.0859	.6714
	Medium	Very low	.26389	.25453	1.000	-.4310	.9588
		Low	.06140	.25116	1.000	-.6243	.7471
		High	-.14583	.32446	1.000	-1.0317	.7400
	High	Very low	.40972	.32446	1.000	-.4761	1.2955
		Low	.20724	.32182	1.000	-.6714	1.0859
		Medium	.14583	.32446	1.000	-.7400	1.0317

General_ Training_ Index	Very low	Low	.32508	.36344	1.000	-.6672	1.3173
		Medium	.63575	.36832	.537	-.3698	1.6413
		High	.56515	.46951	1.000	-.7167	1.8470
	Low	Very low	-.32508	.36344	1.000	-1.3173	.6672
		Medium	.31067	.36344	1.000	-.6816	1.3029
		High	.24007	.46569	1.000	-1.0313	1.5115
	Medium	Very low	-.63575	.36832	.537	-1.6413	.3698
		Low	-.31067	.36344	1.000	-1.3029	.6816
		High	-.07060	.46951	1.000	-1.3524	1.2112
	High	Very low	-.56515	.46951	1.000	-1.8470	.7167
		Low	-.24007	.46569	1.000	-1.5115	1.0313
		Medium	.07060	.46951	1.000	-1.2112	1.3524

**APPENDIX 2. Post-hoc: Company age**

Multiple comparisons							
Bonferroni							
Dependent variable	(I) Company age range	(J) Company age range	Mean difference (I-J)	Standard error	Sig.	95% confidence interval	
						Lower limit	Upper limit
Training_Index	Very low	Low	.43080	.33212	1.000	-.4759	1.3375
		Medium	.06250	.40471	1.000	-1.0424	1.1674
		High	-.70759	.48025	.876	-2.0187	.6036
	Low	Very low	-.43080	.33212	1.000	-1.3375	.4759
		Medium	-.36830	.36565	1.000	-1.3666	.6300
		High	-1.13839	.44783	.082	-2.3610	.0843
	Medium	Very low	-.06250	.40471	1.000	-1.1674	1.0424
		Low	.36830	.36565	1.000	-.6300	1.3666
		High	-.77009	.50402	.791	-2.1461	.6060
	High	Very low	.70759	.48025	.876	-.6036	2.0187
		Low	1.13839	.44783	.082	-.0843	2.3610
		Medium	.77009	.50402	.791	-.6060	2.1461
Training_index_budget	Very low	Low	.95536	.56863	.589	-.5971	2.5078
		Medium	.56250	.69290	1.000	-1.3292	2.4542
		High	.43750	.82224	1.000	-1.8073	2.6823
	Low	Very low	-.95536	.56863	.589	-2.5078	.5971
		Medium	-.39286	.62604	1.000	-2.1020	1.3163
		High	-.51786	.76674	1.000	-2.6112	1.5755
	Medium	Very low	-.56250	.69290	1.000	-2.4542	1.3292
		Low	.39286	.62604	1.000	-1.3163	2.1020
		High	-.12500	.86294	1.000	-2.4809	2.2309

Training_index_budget	High	Very low	-.43750	.82224	1.000	-2.6823	1.8073
		Low	.51786	.76674	1.000	-1.5755	2.6112
		Medium	.12500	.86294	1.000	-2.2309	2.4809
Legal_aspects_index	Very low	Low	.44133	.42665	1.000	-.7235	1.6061
		Medium	1.13690	.51989	.196	-.2825	2.5563
		High	-.07398	.61694	1.000	-1.7583	1.6103
	Low	Very low	-.44133	.42665	1.000	-1.6061	.7235
		Medium	.69558	.46973	.864	-.5868	1.9780
		High	-.51531	.57530	1.000	-2.0859	1.0553
	Medium	Very low	-1.13690	.51989	.196	-2.5563	.2825
		Low	-.69558	.46973	.864	-1.9780	.5868
		High	-1.21088	.64748	.399	-2.9786	.5568
	High	Very low	.07398	.61694	1.000	-1.6103	1.7583
		Low	.51531	.57530	1.000	-1.0553	2.0859
		Medium	1.21088	.64748	.399	-.5568	2.9786
Course_instructors_index	Very low	Low	.48214	.44419	1.000	-.7305	1.6948
		Medium	.70833	.54126	1.000	-.7694	2.1860
		High	-.58929	.64229	1.000	-2.3428	1.1643
	Low	Very low	-.48214	.44419	1.000	-1.6948	.7305
		Medium	.22619	.48903	1.000	-1.1089	1.5613
		High	-1.07143	.59894	.473	-2.7066	.5638
	Medium	Very low	-.70833	.54126	1.000	-2.1860	.7694
		Low	-.22619	.48903	1.000	-1.5613	1.1089
		High	-1.29762	.67408	.354	-3.1380	.5427
	High	Very low	.58929	.64229	1.000	-1.1643	2.3428
		Low	1.07143	.59894	.473	-.5638	2.7066
		Medium	1.29762	.67408	.354	-.5427	3.1380

Training_culture_index	Very low	Low	.24405	.53285	1.000	-1.2107	1.6988
		Medium	.23611	.64930	1.000	-1.5366	2.0088
		High	.18452	.77050	1.000	-1.9190	2.2881
	Low	Very low	-.24405	.53285	1.000	-1.6988	1.2107
		Medium	-.00794	.58665	1.000	-1.6096	1.5937
		High	-.05952	.71849	1.000	-2.0211	1.9021
	Medium	Very low	-.23611	.64930	1.000	-2.0088	1.5366
		Low	.00794	.58665	1.000	-1.5937	1.6096
		High	-.05159	.80863	1.000	-2.2593	2.1561
	High	Very low	-.18452	.77050	1.000	-2.2881	1.9190
		Low	.05952	.71849	1.000	-1.9021	2.0211
		Medium	.05159	.80863	1.000	-2.1561	2.2593
Company_age_training_index	Very low	Low	-.00670	.23941	1.000	-.6603	.6469
		Medium	.02604	.29174	1.000	-.7704	.8225
		High	-.41741	.34619	1.000	-1.3626	.5277
	Low	Very low	.00670	.23941	1.000	-.6469	.6603
		Medium	.03274	.26359	1.000	-.6869	.7524
		High	-.41071	.32282	1.000	-1.2921	.4706
	Medium	Very low	-.02604	.29174	1.000	-.8225	.7704
		Low	-.03274	.26359	1.000	-.7524	.6869
		High	-.44345	.36333	1.000	-1.4354	.5485
	High	Very low	.41741	.34619	1.000	-.5277	1.3626
		Low	.41071	.32282	1.000	-.4706	1.2921
		Medium	.44345	.36333	1.000	-.5485	1.4354

General_ Training_ Index	Very low	Low	.42450	.34704	1.000	-.5230	1.3720
		Medium	.45540	.42288	1.000	-.6991	1.6099
		High	-.19437	.50182	1.000	-1.5644	1.1757
	Low	Very low	-.42450	.34704	1.000	-1.3720	.5230
		Medium	.03090	.38208	1.000	-1.0122	1.0740
		High	-.61887	.46795	1.000	-1.8964	.6587
	Medium	Very low	-.45540	.42288	1.000	-1.6099	.6991
		Low	-.03090	.38208	1.000	-1.0740	1.0122
		High	-.64977	.52666	1.000	-2.0876	.7881
	High	Very low	.19437	.50182	1.000	-1.1757	1.5644
		Low	.61887	.46795	1.000	-.6587	1.8964
		Medium	.64977	.52666	1.000	-.7881	2.0876