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Content validity and expert judgement: innovation model for new ways of working

Validez de contenido y juicio de expertos: modelo de innovación para nuevas formas de trabajo

FLORES-AGUILAR, María de los Ángeles†*

Universidad Tecnológica de Tecamachalco. Avenida, Universidad Tecnológica 1, Barrio la Villita, 75483 Tecamachalco, Pue. Mex.

ID 1st Author: *María de los Ángeles, Flores-Aguilar*

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Abstract

The objective is to validate the content of the information collection instrument, through expert judgement and pilot testing. Methodology: Non-experimental, correlational research with a cross-sectional design. The first sample of the expert judgment was composed of 8 experts, the second of 27 employees was used for the pilot test. Unit of measurement: Employees from four Technological Universities of Puebla, studying empowerment, leadership, work routine, collaborative work and innovation. The methodology of the analysis included the Kendall Concordance Coefficient (W), to decide the level of correlation between the experts and we used Cronbach's Alpha for the statistical analysis of the pilot test to measure the reliability of the measurement scale. The results of the expert judgement showed changes that would improve the clarity of the instrument. The wording would be expressed in third person, the use of technical language would be avoided, with the aim of generalizing understanding in the wording. The identification data would be defined according to the organizational structure of the media unit. Kendall's coefficient and Cronbach's Alpha showed acceptable agreement. Discussion. It is important to control the application of these tests with strict adherence to the methodology, minimizing human bias. It is concluded that the content validity represents an elemental tool to evidence the dominance and representativeness of the constructs. If the results are not reached, it is possible to repeat the process until acceptable values are reached. It is proposed to improve the instrument as a result of the experts' judgment and check the concordance between experts.

Validation, Innovation, New ways of working

Resumen

El objetivo es validar el contenido del instrumento de recopilación de información, a través del juicio experto y las pruebas piloto. Metodología: Investigación corética no experimental con un diseño transversal. La primera muestra de la sentencia pericial estaba compuesta por 8 expertos, la segunda de 27 empleados se utilizó para la prueba piloto. Unidad de medida: Empleados de cuatro Universidades Tecnológicas de Puebla, estudiando empoderamiento, liderazgo, rutina de trabajo, trabajo colaborativo e innovación. La metodología del análisis incluyó el Coeficiente de Concordancia Kendall (W), para decidir el nivel de correlación entre los expertos y utilizamos la Alfa de Cronbach para el análisis estadístico de la prueba piloto para medir la fiabilidad de la escala de medición. Los resultados del juicio de los expertos mostraron cambios que mejorarían la claridad del instrumento. La redacción se expresaría en tercera persona, se evitaría el uso del lenguaje técnico, con el fin de generalizar la comprensión en la redacción. Los datos de identificación se definirían de acuerdo con la estructura organizativa de la unidad de medios. El coeficiente de Kendall y el Alfa de Cronbach mostraron un acuerdo aceptable. Discusión. Es importante controlar la aplicación de estas pruebas con estricta adherencia a la metodología, minimizando el sesgo humano. Se concluye que la validez del contenido representa una herramienta elemental para probar el dominio y la representatividad de las construcciones. Si no se alcanzan los resultados, es posible repetir el proceso hasta que se alcancen valores aceptables. Se propone mejorar el instrumento como resultado del juicio de los expertos y comprobar la concordancia entre los expertos.

Validación, Innovación, Nuevas formas de trabajar

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* Correspondence to Author (email: elsuajas@uv.mx)
† Researcher contributing as first author.

Introduction

Validating the instrument for this model of innovation through new forms of work required initially establishing the variables that would define this model. This required a search in databases such as the WOS, databases that refer to interdisciplinary research, which allowed the in-depth exploration of specialized sub-fields within an academic and/or scientific discipline (Clarivate Analytics, 2019). Hernández Sampieri (2018) refers to validity in general terms as the degree to which an instrument measures the variable it is intended to measure. In addition, content validity represents evidence focused on the degree to which an instrument reflects a specific content domain of what is measured and represents the measured concept or variable (The SAGE Glossary of the Social and Behavioral Sciences, 2009 and Bohrnstedt, 1976). One form of content-related validity, which some authors refer to, is expert validity, also called face validity, where variables are mediated according to "qualified voices". (Gravette and Forzano, 2011; Strainer and Norman, 2008; and Mostert, 2006).

Methodology

Instrument design

To collect the necessary information from the five variables proposed in the theoretical framework, a questionnaire will be used. In addition to the necessary items and the measurement scale for each item, Sampieri (2018) mentions that a questionnaire basically consists of: cover, introduction, instructions inserted throughout the content and final acknowledgement. For this reason, these will be the parts of the instruments used in this research. In addition, the instrument contains sixty questions, organized into five sections, each one corresponding to one of the five variables: four of them dependent - empowerment of employees, leadership, work routine, collaborative work; and one independent - innovation. It should be noted that there are validated instruments for each of these variables in the scientific literature; however, in order to use this information, it was necessary to verify the validity and relationship of these instruments with this research.

One of the criteria to achieve this implied that each variable was measured with the same amount of questions. At the same time, each one of the blocks assigned to the variables was adapted in number and content to the objectives of this research. The wording of the questions was revised so that they were all under a positive measurement approach, avoiding the use of sentences that measured negative attitudes.

All these items were homogeneously designed with a 5-point Likert measurement scale consisting of: totally disagree, disagree, neither disagree nor agree, agree, totally agree, because it is a scale focused on the opinion and attitudes of the universe in question. It should be noted that this fixed response format was used, because it allowed the level of agreement or disagreement of the respondents to be determined in relation to the variables of the research. The reasons for including the variables in the instrument are described below.

Variable I: Empowerment of employees

According to Corsun and Enz (1999), labor relations that aim to support the employee are positively related to empowerment. If, faced with such a perception of support, employees establish that their efforts are valued by the organization, it is very likely that they will respond through empowering behaviors. This organizational support indirectly and positively influences activities that promote employee development, as well as proactive behaviors that generate commitment to the organization. Inevitably, empowerment acts as a mediator between organizational support and engagement. (Román Calderón, Krikorianb, Franco Ruíz, & Betancur Gaviria, 2016).

To identify the elements of worker engagement, Gallup (2016) conducted focus groups and interviews with workers in all types of organizations, at all levels, in most industries, and in many countries. With this repeated application, the reliability of this instrument, executed by specialists in this field, can be demonstrated. Twelve key employee expectations were recognized that, when met, form the basis of strong feelings of commitment, influenced by empowerment. The result was a 12-question survey in which employees are asked to rate their response to each question on a scale of one to five.

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Thus, this tool allows the implementation of a commitment feedback methodology, used to measure the mediating variable of empowerment.

Variable II: Leadership

The approach of this second section is based on theoretical approaches and research results, which considered leadership as the main axis; thus, defining the dimensions that should make up this variable. To this end, we sought the attributes that defined leadership according to experts. Barahona (2004) mentions the traits of the leader that he assumes have a more robust empirical basis, namely Emotional dominance, great energy, self-confidence, locus of control (openness to experience) and stability. On the other hand, Akins, R., Bright, B., Brunson, T., & Wortham, W. (2013), show ten qualities in favor of achieving a sustainable development of leadership, these are Learning, empowerment, adaptation, development, coupling, reflection, sustainability, humility, integrity and practice. The variables humility, integrity and coupling stand out in their research, which urges to consider the congruence with the need to have practical and continuous presence with the values in leadership.

The way of leading is different for each leader and can vary according to the particular situations that will generate different reactions according to the factors and the way they are considered. Related to this, Díaz, M., Peña, M., & Castellanos, B. (2013) emphasize the need for fluid interpersonal relationships, an appropriate and pleasant work environment and adequate performance. These authors support their deductions in a study that investigates leadership variables such as purpose, multiple relationships, useful mechanisms, leadership qualities, rewards, structure, and attitude toward change. Leadership variables with an ethical approach applicable to all processes are considered by Ramos & Díaz (2010), who focus on trust, support, equal power, mutual respect, participation and confrontation, which shows a facet capable of finding solutions to the present reality with a future perspective that tends to satisfy expectations at all levels. In this way, the possibility of increasing the staff with a mentality supported by a visionary leadership that strengthens the sustainability of the company is facilitated.

Graham (2005) supports these ideas in turn, by pointing out the relevance and need for the application of ethics in all work teams and at all levels of the company together with empowerment, since there is mutual trust, in order to achieve greater productivity and sustainability.For his part (Ávila De Encío, 2018) mentions that the leader stands out for their popularity, capacity for initiative, self-confidence and spirit of service, recognizing them as a positive personality trait. Ávila De Encío brings together the traits and qualities that measure the presence of leadership in the individual.

Variable III. Work routine

We included the variable Work routine because the excess of standardization of work methods and the consent of very rigid rules make an environment more prone to burnout than the one in which skills are standardized, and creativity and autonomy are encouraged. Winnubst (1993). It is therefore necessary to measure routine and to recognize the degree to which it is presented in order to design this model of innovation. Environments that favor routine because of their structure and systems of procedures, in addition to monotony and lack of control can, among other factors, lead to burnout. On the other hand, those environments that are freer are those focused on the standardization of skills, can cause it but in situations where there are ambiguities of role, personal conflicts or lack of a functional operational structure that defines guidelines for action. In any structure, social support among peers is very relevant to avoid burnout, but the lack of this support would cause the syndrome (Forbes A. 2011).

For this reason, the Maslach Burnout Inventory (MBI) was used as a basis for measuring the Work Routine variable. This inventory represents a measurement instrument recognized for more than a decade as the main measure for Burnout, proof of which is the extensive research that has been carried out in more than 25 years since its initial publication.

These questions address three general dimensions that have been transformed under a positive approach, due to the sequence of the variables that precede them, which by their nature measure positive aspects.

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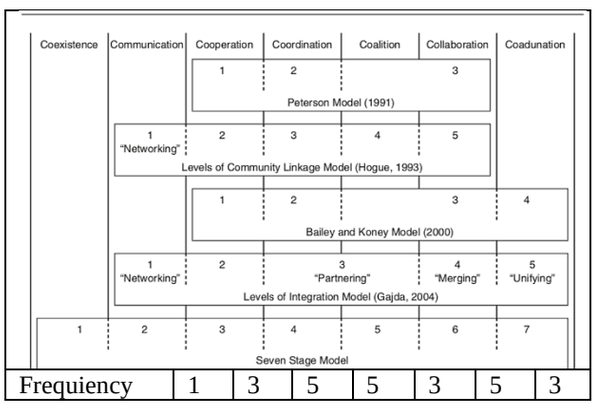
These three dimensions are: emotional strength: it values the experience of feeling emotionally strengthened before the demands of the work; personalization: it values the degree in which each one recognizes attitudes of sensibility and disposition; personal realization: it evaluates the feelings of self-efficacy and personal realization in the work.

Variable IV. Collaborative work

To design the dimensions of this variable, we considered the work of Peterson (1991), who proposed three types of business interaction: cooperation, coordination and collaboration. He describes each one as different states of organizational interaction and not as a strict series of stages. In Gajda's (2004) review of Peterson's model, they are presented as a three-point continuum. On the other hand, Hogue (1993) in his Community Linkage Model suggested five levels: networking, cooperation or alliance, coordination or partnership, coalition and collaboration. The levels differ according to the purpose, the structure of decision-making and the nature of leadership. Bailey and Koney (2000) also offered a model like these, but their contribution lies in a final step: cooperation, coordination, collaboration and coadjustment (which means "growing together"). It is worth noting that Gajda suggested a five-step model in line with the above approaches, her model has five steps in order: networking, cooperation, partnership, merger and unification. However, the steps differ in purpose, organizational tasks and strategies, leadership and decision-making, and type and frequency of communication.



Frequiency	1	3	5	5	3	5	3

Table 1 Dimensions of collaborative work
Source: Frey, Lohmeier, Lee, Tollefson, (2006)

The comparison of these dimensions located in the literature, allows the evaluation of the collaborative business work, and in this way, uniform terms are evidenced that can be used to label the stages, with the specific terminology of each model. Finally, under this study of measurement of business collaboration, the dimensions of this fourth variable are defined, composed of: creation of networks, cooperation, coordination and collaboration.

Variable V. Innovation

Innovation in the workplace allows the development and improvement of processes, the generation of products/services that lead simultaneously to improved organizational performance. Based on a detailed and in-depth review of the literature, Acosta and Fischer, (2013) identify that the conditions that most favor the capacity for innovation in organizations attend to criteria of both an external nature (competitive environment) and an internal nature (strategic purpose, flexible organizational structure, information and communication technologies, and internal environment). Therefore, to measure this innovation variable, a block of questions was designed that included individual capacities such as: exploration of new ideas, expression, persuasion and persistence; coupled with team collaboration in the workplace and resources such as time; in the same way, the implementation of ideas, success and timely support from the immediate boss were considered. The following table describes how the variables and dimensions are shaped in this research.

Theoretical Model

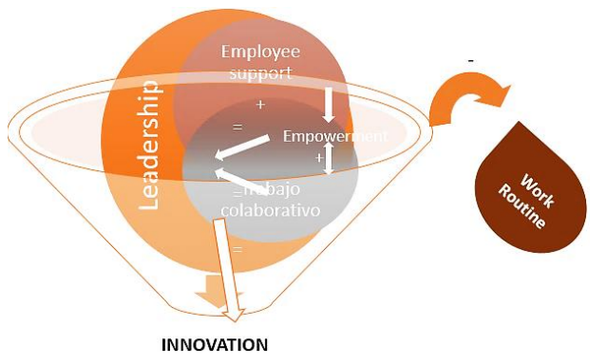


Figure 1 Theoretical Model. Prepared by the authors based on the theoretical framework

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Variables	Dimensions
1. Empowerment	Expectations Materials and equipment Opportunity to do what you do best Acknowledgement Personal concern Development Opinions Mission/Purpose Commitment to quality Best friends Progress Learning and growth
2. Leadership	Organization Attitude of proposal Argumentation Proactive attitude Verbal expression Conflict mediation Teamwork
3. Work routine	Emotional strength Customization Personal fulfillment
4. Collaborative work	Networking Cooperation Coordination Collaboration
5. Innovation	Individual capacities Collaboration Resources Implementation

Table 2 Variables and dimensions of the research

Validity through Expert Judgement

The content validation of this instrument aims to obtain evidence oriented to the degree of specific domain in relation to the variables: employee empowerment, leadership, work routine and collaborative work and innovation. Cohen and Swerdik (2001) establish that content validity consists of how adequate is the sampling that tests the universe of possible behaviors, according to what is intended to be measured. To this end, an expert judgment has been used, which is defined as an informed opinion of people with experience in the subject, who are recognized by others as qualified experts in the field, and who can provide information, evidence, judgments and assessments (Escobar and Cuervo, 2008). Hence, the use of expert judgment as part of a process that provides a rigorous methodology with the aim of providing reliability to the contents. It is necessary to clarify that the literature has instruments that measure these variables, but these instruments were adjusted to the objectives of this research.

Participants

Determining the number of participants in an instrument evaluation through the validity of experts depends on the level of expertise and diversity of knowledge; however, the decision on the appropriate number of experts varies according to the literature consulted. Gable and Wolf (1993), Grant and Davis (1997), and Lynn (1986) (cited in McGartland et al. 2003) propose a range of two to twenty experts. On the other hand, Hyrkäs et al. (2003) are convinced that ten would provide a reliable estimate of the content validity of an instrument. In addition to this number factor, if 80 % of the experts agree with the validity of an item, it can be incorporated into the instrument (Voutilainen & Liukkonen, 1995, quoted in Escobar and Cuervo (2008).

Consequently, the expert judgment in this research consisted of eight people. The selection criteria were: their experience in the area of organizational structures and human capital, combined with their experience in the development of measurement instruments. These experts have an academic background of bachelor's, master's and doctoral degrees. Skjong and Wentworth (2000), quoted in Escobar and Cuervo (2008), mention the need to select those with a recognized reputation in the community, who are willing and motivated to participate in the assessment of the instrument, but who will guarantee its impartiality. For this reason, these were also the criteria considered for selecting those experts.

Changes Exposed in Expert Judgment

This is an evaluation criterion immersed in the rubric, which consisted of assessing whether the item was easily understood, i.e. whether its syntax and semantics were adequate to obtain the desired information. However, the experts' comments highlighted the need for changes that would improve the clarity of the instrument. For this reason, the changes made are articulated as follows:

The wording of the instrument would be expressed in the third person, and the use of technical language would be avoided, with the aim of generalising understanding in the wording. In addition, the statement "the survey is structured in five variables" was changed to "the survey is structured in five sections".

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In addition, in the identification data, the section titles were changed as follows: Expert's role by appointment, 2. Years of experience in the role by seniority in the position, 3. Expert area was eliminated. At the beginning of the survey, the instructions had the following modifications:

Original.

Below are a series of statements about his work. I ask for your cooperation in responding to them. There are no right or wrong answers, what is sought is your experience.

Modified.

Below are a series of statements about his work. I ask for your cooperation in selecting the option with which you most identify. There are no right or wrong answers, what we are looking for is to know your experience.

Similarly, the statements that made up each block were modified. The tables contain words in red in the left column, indicating the modification in the original version; the words in green in the right column, indicating the final version of the statements.

Kendall's Concordance Coefficient (W)

The analysis of validity and external consistency of the instrument was carried out with Kendall's concordance coefficient W, which measures the degree of association between various sets (k) of N entities, through a previously designed instrument, (annex 3.1 Instrument for Content Validity and Expert Judgement). This analysis is useful to determine the degree of agreement between several judges, or the association between three or more variables. That is, in the statistical test, the Kendall Concordance Coefficient (W), provides the value that makes it possible to decide the level of agreement among experts. The value of W ranges from 0 to 1. The value of 1 means a total agreement and the value of 0 means a total disagreement. The tendency to 1 is desired and new rounds can be carried out if the first round does not achieve a significant level of agreement. Obtaining the coefficient begins with the analysis of each item, for which four criteria were used: sufficiency, clarity, coherence and relevance. The instrument is a rubric designed considering these levels of mastery.

Evaluation criteria		
Category	**Grading**	**Indicator**
Sufficiency Items belonging to the same dimension are sufficient to obtain the measurement of the dimension.	1. Does not meet the criterion	Items are not enough to measure the dimension
	2. Low Level	Items measure some aspect of the dimension but do not correspond to the overall dimension
	3. Moderate level	Some items must be increased in order to fully evaluate the dimension.
	4. High level	The items are sufficient
Clarity The item is easily understood, i.e. Its syntax and semantics are appropriate.	1. Does not meet the criterion	The item is not clear
	2. Low Level	The item requires quite few modifications or very large modificatio in the use of the word according to the meaning or by the arrangement.
	3. Moderate level	A very specific modification of some of the terms in the item is required.
	4. High level	The item is clear, has appropriate semantics and syntax.
Coherence The item has a logical relationship to the dimension or indicator it is measuring.	1. Does not meet the criterion	The item has no logical relationship to the dimension
	2. Low Level	The item has a tangential relationship with the dimension.
	3. Moderate level	The item has a moderate relationship with the dimension it is measuring.
	4. High level	The item is completely related to the dimension it is measuring.
Relevance The item is essential or important, i.e. It must be included.	1. Does not meet the criterion	The item can be removed without affecting the dimension measurement
	2. Low Level	The item has some relevance, but another item may be including what this one measures.
	3. Moderate level	The item is relatively important.
	4. High level	The item is very relevant and should be included

Table 3 Evaluation criteria
Source: based on Escobar and Cuervo (2008), cited by Escobar, Olvera and Huayamave (2019)

Analysis of Kendall's Concordance Coefficient.

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Results

Sufficiency

Sufficiency test statistics	
N	8
W de Kendall[a]	.034
Chi-square	1.091
gl	4
Asymptotic Sig.	.896

Table 4

Test statistics, empowerment .	_ Clarity	_Coherence	_ Relevance
N	8	8	8
W de Kendall[a]	.074	.110	.181
Chi- square	6.525	9.687	15.935
gl	11	11	11
Asymptotic Sig.	.836	.559	.144

Table 5

Conventionally it is .80 which indicates that there is a probability of the relationship between the measured values.

Reliability

A requirement in the application of the measurement instrument is reliability, which Sampieri (2018) considers to be the degree to which its repeated application to the same individual or object produces equal results (Hernández-Sampieri et al., 2013; Kellstedt and Whitten, 2013; and Ward and Street, 2009 cited by Hernández Sampieri, 2018), i.e. the degree to which an instrument produces consistent and coherent results. It is convenient to specify that in order to obtain the reliability of the instrument in this research, the following methodology was used: definition of the universe, calculation of the sample, application of the pilot test, collection of information, statistical analysis of the information and presentation of results.

Universe

In the state of Puebla there are seven Technological Universities, named according to their location: Puebla, Tecamachalco, Izucar de Matamoros, Huejotzingo, Xicotepec de Juarez, Oriental and Tehuacan. For the purposes of this research, the universe will be defined by the central zone and south-east zone. This is intended to guarantee access to secondary information, as well as openness to the application of surveys due to their geographical location.

Figure 2 Territorial Division of Puebla
Source: (Government of Mexico, 2019)

A numerical description of these institutions would be expressed as shown in the following table number 6.

	DATE OF * CREATION	AGE * (YEARS)	REGISTRATION*	PERSONNEL**
1. TU of Puebla	04/02/1994	25	6,773	649
2. TU of Tecamachalco	04/07/1997	22	3,536	303
3. TU of Huejotzingo	27/10/1998	21	3,493	362
4. TU of Tehuacán	08/09/2009	10	2,010	220
Source:	Higher Education Institutions		Directory	

Table 6 Prepared by the authors with information from *ANUIES (2019) and ** National Transparency Platform (2019)

The context of the population is defined through four groups that make up the workforce of the TUs: Directors, Deputy Directors and Heads of Area, Administrative and Secretarial, and Teachers.

	WORKFORCE				
	Directors	Deputy Directors and Area Managers	Administrative and secretarial	Teachers	TOTAL
1. TU of Puebla	15	24	89	521	649
2. TU of Tecamachalco	16	17	69	201	303
3. TU of Huejotzingo	16	21	53	272	362
4. TU of Tehuacán	14	16	46	144	220
Source:	**61**	**78**	**257**	**1,138**	**1,534**

Table 7 Workforce
Source: National Transparency Platform (2019)

Sample

The finite population formula was used to calculate the sample because the universe is no larger than 50,000 elements.

Finite formula

$$n = \frac{z^2pqn}{e^2(N-1)+z^2pq} \quad (1)$$

Where:

95% Of confidence

z=1.96
z^2=3.8416
p=0.5

Probability of occurrence

q=0.5

Probability of non-occurrence

N=1,534
N-1=1533

Population (university community)

e=0.05
e^2=0.0025

Error

Then:

$$n = \frac{1472.25}{3.83 + 0.96}$$

$$n = \frac{1472.25}{4.79}$$

$$n = 307.38$$

$$n = 307\ people$$

Considering the sample size of 307 employees, the proportion was calculated for each category at each university.

IES	DISTRIBUTION OF THE SAMPLE BY CATEGORY									
	Directors		Deputy Directors and Area Managers		Administrative and secretarial		Teachers		TOTAL	%
		4.0%		5.1%		16.8%		74.2%		
1. TU of Puebla	3	1.0%	5	1.6%	18	5.8%	104	34.0%	130	42%
2. TU of Tecamachalco	3	1.0%	3	1.1%	14	4.5%	40	13.1%	61	20%
3. TU of Huejotzingo	3	1.0%	4	1.4%	11	3.5%	55	17.7%	73	24%
4. TU of Tehuacán	3	0.9%	3	1.0%	9	3.0%	29	9.4%	44	14%
Source:	12		16		51		228		307	100%

Table 8 Distribution of the sample by category

It is convenient to specify that the figures were rounded, because they represent individuals to be surveyed. However, to make the sum of these figures, specified in the last column, the decimals of these columns were considered.

Pilot test

To carry out this test, Cronbach's alpha was considered because a measurement instrument was sought for the constructs, which would demonstrate that the scores in the sample being worked with have the psychometric properties of validity and reliability. To this end, we defined the sample size for the pilot test of 27 employees, adopting the position of Malhotra (2018) who mentions that usually the sample size for the pilot test is small, and varies from 15 to 30 respondents for the initial test, depending on the heterogeneity of the target population.

Therefore, the distribution is calculated as shown in Table 7, because the validity and reliability of the instruments must be calculated with each of the samples to which it is applied, because as mentioned by Frias-Navarro (2019) it is not an inherent property of the instrument and could be reliable and valid with a sample of participants but not with a different sample.

Size of the sample

The representativeness of the members that would form this sample was determined through the proportions that define the universe. However, some of the figures resulting from this calculation, table 9, did not represent the unit. Assistant Directors and Area Managers The final number for Teachers, Administrative and Secretarial was rounded, because they represent individuals to be surveyed.

IES	.* DISTRIBUTION _ PILOT TEST *								
	Directors		Deputy Directors and Area Managers		Administrative and secretarial		Teachers		Total
	4.0%		5.1%		16.8%		74.2%		
1. TU of Puebla	0.3	1.0%	0.5	1.6%	2	5.8%	10	34.0%	12
2. TU of Tecamachalco	0.3	1.0%	0.3	1.1%	1	4.5%	4	13.1%	5
3. TU of Huejotzingo	0.3	1.0%	0.4	1.4%	1	3.5%	5	17.7%	6
4. TU of Tehuacán	0.3	0.9%	0.3	1.0%	1	3.0%	3	9.4%	4
TOTAL					5		22		27

Table 9 Distribution for the pilot test. Prepared by the authors

The application of questionnaires was done through google forms, a tool that allows automation in the application and analysis of information.

Results

Statistical analysis of the pilot test

George and Mallery (2003, p. 231) suggest the following recommendations for evaluating Cronbach's alpha coefficient values:

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Alpha coefficient >.9 to .95 is excellent, Alpha coefficient >.8 is good, Alpha coefficient >.7 is acceptable, Alpha coefficient >.6 is questionable, Alpha coefficient >.5 is poor, Alpha coefficient <.5 is unacceptable

Opinions of other researchers:

- Nunnally (1978): within a standard exploratory analysis, the internal consistency value around 0.7 is adequate and is the minimum acceptable level (Nunnally and Bernstein, 1994). The author acknowledges that lower values are sometimes used in the literature. In the early stages of research or exploratory studies an internal consistency value of 0.6 or 0.5 may be sufficient (Nunnally, 1967). With basic research at least 0.8 is needed and in applied research between 0.9 and 0.95.

- Gliem and Gliem (2003): an alpha value of 0.8 is probably a reasonable goal.

- Huh, Delorme, and Reid (2006): the internal consistency value in exploratory research should be equal to or greater than 0.6 and in confirmatory studies should be between 0.7 and 0.8.

- Kaplan and Saccuzzo (1982): the internal consistency value for basic research should be between 0.7 and 0.8 and in applied research about 0.95.

- Loo (2001): the consistency value considered appropriate is 0.8 or more.

- Loewenthal (1996) suggests that an internal consistency value of 0.6 may be considered acceptable for scales with less than 10 items.

Index of Variables: Cronbach's Alpha

Case Processing Summary			
		N	%
Cases	Valid	27	100.0
	Excluded [a]	0	.0
	Total	27	100.0

Table 10

Descriptive statistics					
	N	Minimum	Maximum	Mean	Deviation
INDEX1	27	2.08	5.00	4.0247	.71791
N valid (by list)	27				
INDEX2	27	3.00	5.00	4.0370	.54759
N valid (by list)	27				
INDEX3	27	3.17	5.00	4.4074	.55965
N valid (by list)	27				
INDEX4	27	2.00	5.00	4.0185	.87166
N valid (by list)	27				
INDEX5	27	2.83	5.00	4.0216	.63574
N valid (by list)	27				

Table 11

Reliability statistics		
	Cronbach's Alpha	N of elements
EMPOWERMENT	.891	12
LEADERSHIP	.892	12
WORK ROUTINE	.907	12
COLLABORATIVE WORK	.962	12
INNOVATION	.895	12

Table 12

All the items must measure the same construct (the same psychological domain) and will therefore be correlated to each other. It is a matter of internal consistency or homogeneity.

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