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Presentation of the content

In the first article we present *Analysis of measurement scales of organizational commitment* by VÁZQUEZ-CUJ, Luis Arturo, MAGAÑA-MEDINA, Deneb Elí, MAPÉN-FRANCO Fabiola de Jesús and BERTTOLINI-DÍAZ, Gilda María with adscription at Universidad Juárez Autónoma de Tabasco, in the next article *Food packaging and its regulations in Mexico* by HERNÁNDEZ-TINOCO, Araceli, CARBAJAL-MARISCAL, Oscar and MORÁN-SALAS, María Cristina with adscription in the Universidad de Guadalajara, in the next article *Content validity and expert judgement: innovation model for new ways of working* by FLORES-AGUILAR, María de los Ángeles with adscription in the Universidad Tecnológica de Tecamachalco, in the next article *Option to apply personal deductions to decrease the taxable base or increase the tax recovery of individuals in Mexico* by HERNANDEZ-SANDOVAL, Rosa Hilda, NAHUAT-ARREGUIN, Juan Jesús, SUAREZ RODRIGUEZ-Glenda Lila and TORRES-HERNANDEZ, Eric Arturo with adscription in the Universidad Autónoma de Coahuila.

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Analysis of measurement scales of organizational commitment

Análisis de las escalas de medición del compromiso organizacional

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Abstract

The main objective of this study is to identify and analyze the measurement scales used to determine the organizational commitment (OC) of workers, based on an exhaustive bibliographic review in the main scientific databases. The research is of a qualitative, descriptive type of comparative nature between the different instruments used to measure the level of identification of employees with the organization, as well as reliability through internal consistency, through literary review related to the construct in study. The importance of identifying the degree of involvement of labor personnel towards the organization, as well as their classification in the dimensions that make up the organizational commitment is necessary for social research and organizations to formulate proposals focused on the contribution and strengthening of the worker-employer relationship.

Resumen

El presente estudio tiene como objetivo principal identificar y analizar las escalas de medición que se emplean para determinar el compromiso organizacional (CO) de los trabajadores, a partir de una exhaustiva revisión bibliográfica en las principales bases de datos científicas. La investigación es de tipo cualitativa, descriptiva de corte comparativo entre los diferentes instrumentos utilizados para medir el nivel de identificación de los empleados con la organización, así como la confiabilidad a través de la consistencia interna, por medio de la revisión literaria relacionada con el constructo en estudio. La importancia de identificar el grado de involucramiento del personal laboral hacia la organización, así como su clasificación en las dimensiones que conforman el compromiso organizacional es menester de la investigación social y las organizaciones, para formular propuestas enfocadas a la contribución y fortalecimiento de la relación trabajador-empleador.

Organizational commitment, Scale, Reliability

Compromiso organizacional, Escala, Confiabilidad

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Introduction

Organizations face a great challenge in relation to the commitment of workers, which is why they have focused their efforts on knowing the level of affinity of employees towards their objectives. Various authors (Bayona Sáez, Goñi Legaz, and Madorrán García, 2000; Guevara Bedoya and Fernández Poveda, 2017; Tejada and Arias, 2005) maintain that institutions that have workers who identify with them create lasting links and a labour relationship based on loyalty prevails. As a result, production processes and organizational culture are stable (Córdova and Ochoa, 2018) and their development is preserved by avoiding and/or reducing problems of turnover and absenteeism (Patrón, 2018), which generate higher costs related to training programmes.

Organizational commitment is a theoretical construct that has been widely studied for its relationship to and prediction of the desire to leave an organization (Arciniega and González, 2006; Guevara Bedoya and Fernández, 2017; Porter, Steers, Mowday, Boulian, 1974; Tett Meyer, 1993). Given the purpose of the research, the scale by Porter, Steers, Mowday and Boulian (1974) was studied. However, this model proposes only one dimension focused on the worker's attitudes with respect to his or her work performance, and the instrument is made up of 15 items. The OCQ questionnaire was developed afterwards (Mowday, Steers and Porter, 1979). This instrument considered 15 questions with answer options on a Likert scale with seven options, with minimum value 1 = strongly disagree and value 7 = strongly agree.

The following model, and one of the most replicated in both the English and Spanish languages, is the one designed by (Allen and Meyer, 1990; Meyer and Allen, 1991; Meyer, Allen, and Smith, 1993), the original scale was integrated by 24 elements distributed in three dimensions: affective commitment (AC), continuity commitment (CC) y normative commitment (NC). In 1993, the original instrument of the mentioned authors was reduced to six reagents for each one of the three dimensions with a Likert-type response format that goes from 1 = totally in disagreement to 5 = totally in agreement and with acceptable values of internal consistency (Nunnally and Bernstein, 1994).

Justification

The relevance of the study lies in showing the instruments of greatest usability in measuring organizational commitment, as well as indicators of reliability and validity of content, (Quero, 2010; Tomás Marco, González-Romá, Gómez Benito, 2000) in research conducted in the public and private sectors. The measurement scales of the subject in question were designed in the English language, so it has been necessary to apply translation and adaptation to Spanish and the context where they have been used, based on the above interest in analyzing the similarities of context and the population participating in the studies to measure organizational commitment.

Problem

The importance of identifying the level and type of commitment of the labor force in organizations is increasingly in the interest of managers, as a preventive measure to avoid staff turnover and decreased productivity, for this reason it is necessary to identify the scales of greatest reference as well as indicators of reliability and validity, a factor to consider are the similarities of population and language, as this will serve as the basis for replicating a study in the population to be evaluated.

Objectives

General Objective

To identify the scales for measuring organizational commitment to greater usability as well as its values of reliability and validity.

Specific Objectives

- To identify the most commonly used scales in organizational commitment measurement studies and determine the values of reliability and validity.

Theoretical Framework

The main studies on OC as well as the designers of the most replicated scales define this construct as the degree of identification and participation of a worker towards his or her employing organization (Porter et al., 1974), in addition to considering aspects such as the involvement and acceptance of company goals and values, extra effort and a feeling of pride and belonging.

Some authors (Becker, 1960; Buchanan, 1974; Mowday et al., 1979) considered this construct to be one-dimensional. In table 1, some of the definitions of the main authors related to the topic are detailed:

Author	Definition
(Becker, 1960)	It is the emotional bond that the worker establishes with the organization
(Porter, Steers, Mowday and Boulian, 1974)	Affinity and identification of an individual with a certain organization
(O'Reilly and Chatman, 1986)	It is the link between a person and an organization
(Meyer and Allen, 1991)	It is the relationship between the worker and their company based on emotional perceptions
(Buchanan, 1974)	It is the effective-emotional attachment of the worker to the goals and policies of their organization
(Mowday, Porter and Steers, 1982)	It is the strong desire to remain in the organization and the achievement of its objectives

Table 1 Organizational Commitment Definitions
Source: prepared by the authors

However, in subsequent studies, the instruments had three dimensions (Allen and Meyer, 1990; Herscovitch and Meyer, 2002; Meyer and Allen, 1984, 1991). In such a way, they point out that the normative commitment that has its bases in the institutional reciprocity; the commitment of continuity is related to the costs of leaving the organization and finally the affective commitment; this is achieved when the individual needs are covered and the expectations of the workers are reached, this model is known as the Meyer and Allen model. (see figure 1).

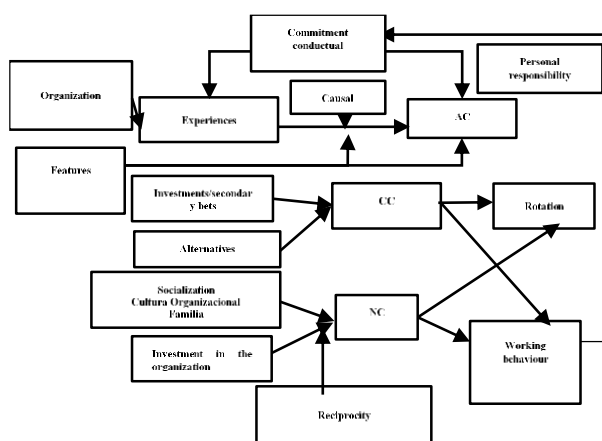


Figure 1 Three-factor model of organizational commitment
Source: Taken from Meyer and Allen, 1991 P.p 68

- **Affective Commitment:** It is the adherence of the individual to a certain organization, establishing strong ties, which in turn directly impacts the participation and emotional involvement shown by the individual towards his or her organization (Meyer and Allen, 1991).
- **Commitment to Continuity:** also known as calculative, it is a feeling of need to continue in the organization based on the time invested and the lack of opportunities abroad, it is possible to say that there is a state of dependency linked to the economic cost that could force the individual to continue in the organization (Meyer and Allen, 1991).
- **Normative commitment:** it is the relationship of the individual towards the organization which is based on feelings of gratitude, sometimes derived from incentives and rewards, in certain cases individuals feel special gratitude towards the company for having given them the opportunity to belong to it (Meyer & Allen, 1991). Arciniega and González (2006) establish this relationship with emotional aspects, such as loyalty to the organization, sense of belonging and gratitude for the granted opportunities.

Research Methodology

The research is of a descriptive type since it pursues the analysis and description of the scales of measurement of organizational commitment (Hernández, Fernández and Baptista, 2014) with the aim of showing the main characteristics of the population and the indices of reliability and validity. The study entails a non-experimental transversal design, which consisted of an exhaustive documentary review in the main databases, having as a premise the articles in the Spanish language, to analyze the results derived from the scale used, as well as its translation and adaptation to the application context. The sources used for the project were based on:

- Specialized databases such as Redalyc (Network of Scientific Journals of Latin America and the Caribbean, Spain and Portugal).
- Scopus.
- Web of Science.

Results

According to the results obtained through the literature review, the classification of the studies developed in Spanish-speaking contexts was conducted with the aim of studying the type and number of population, the number of reagents used, and the level of reliability and validity. In table 2, eight studies selected based on the criteria mentioned in the previous paragraph are presented.

No	Author	Instrument	α	Observations
1	(Fonseca, Cruz and Chacón, 2019)	Author's design Likert scale with 5 answers ranging from 1 (strongly disagree) to 5 (strongly agree)	.86 to .89	Confirmatory factor analysis with acceptable adjustment measures was performed
2	(Baez-Santana, Zayas-Agüero, Velázquez-Zaldívar and Lao-León, 2019)	(Meyer, Allen and Smith, 1993) Likert scale with 5 answers ranging from 1 (strongly disagree) to 5 (strongly agree)	AC=.83 CC=.96 NC =.92	Degree of identification, organizational commitment, and adherence to the three-factor OC Three factors with 75% of total variance
3	(Morales Cardenas, Perez Sanchez, & Haidar Torres, 2018)	(Allen and Meyer, 1990) Likert scale with 5 answers ranging from 1 (strongly disagree) to 5 (strongly agree)	.91	Organizational Commitment has a positive relationship with Perceived Organizational Support and Ethical Climate
4	(Zayas Agüero and Báez Santana, 2016)	(Meyer and Allen, 1991) Likert scale with 5 answers ranging from 1 (strongly disagree) to 5 (strongly agree)	.70	Expert validity, pilot test, 79% medium OC level and 19% high OC level
5	(Böhrt, Romero and Díaz Bretones, 2014)	(Meyer and Allen, 1997) Likert scale with 7 answers ranging from 1 (strongly disagree) to 7 (strongly agree)		The study divided the population into three segments: services, workers and office workers, in which tests were carried out on the perception of AC, CC and NC, obtaining different results in each segment.

6	(Ríos, Téllez and Ferrer, 2010)	(Meyer and Allen, 1997) Likert scale with 7 answers ranging from 1 (strongly disagree) to 6 (strongly agree)	AC = .85 CC= .91 NC =.82	Empowerment predicts organizational commitment, the reliability of the three dimensions of OC
7	(Ramos, Martínez and Maldonado, 2009)	(Allen and Meyer, 1990) Likert scale with 7 answers ranging from 1 (strongly disagree) to 7 (strongly agree)	AC = .76 CC= .72 NC =.73	Confirmatory factor analysis with acceptable adjustment values was performed, it was found that OC with high values provides a positive relationship in personnel behavior
8	(Betanzos and Paz, 2007)	Design of the authors based on the literature related to the topic. (OCQ, Meyer and Allen and Lodahl and Kejner) Response format determined for each dimension	AC =.87 Implication= .84 CC= .76	The scale was reconfigured based on expert validity, the CC dimension was evaluated independently by the characteristic of the items.
9	(Betanzos, Andrade y Paz, 2006)	(Meyer et al., 1993; Mowday et al., 1982) Likert scale with 5 answers ranging from 1 (strongly disagree) to 5 (strongly agree)	Scale 1 AC = .81 CC= .48 NC=.82 Scale 2= .87	The OCQ instrument yields two factors, contrasting the one-dimensional theory. The Meyer and Allen scale gives five factors and the theory mentions three. Unifying the two instruments, the factor analysis yields four factors with $\alpha=.87$

Table 2 Scales for measuring organizational commitment in Latin America

Source: own design based on data from the authors cited.

Continuing with the description of the information obtained, table 3 details the complements to table 2, which mentions the number of reagents used in each of the studies, as well as the type of population, public or private sector and the size of the sample.

Thus, it was determined that the scale of greatest reference in the studies carried out in Latin America was the one designed by (Allen and Meyer, 1990; Allen and Meyer, 1996; Meyer and Allen, 1991; Meyer et al., 1993; Meyer, Stanley, Herscovitch, Topolnytsky, 2002), in which the multi-dimensionality of the aforementioned scale is considered; affective commitment, continuity commitment and normative commitment. Similarly, a study using the OCQ tool can be observed, combining items with the Meyer and Allen scale. Of the aspects that stand out, we found acceptable reliability values above .70 (Nunnally and Bernstein, 1994), as well as the lower levels in this index for the continuity commitment dimension (see table 2). Similarly, it is important to consider the wording of the elements of the continuity commitment factor (Zayas Agüero and Báez Santana, 2016) since by their nature they are written in a negative or inverse way, so special attention is recommended when analyzing the results. (see table 3)

No.	Items used	Population Type	Sample
1	Case 3. 25 items and four factors	Teachers and administrative staff of a public university	230
2	18 items translated and adapted to a Cuban context.	Production and marketing sector employees	603
3	18 items translated and adapted to the context	Public servers	250
4	18 items translated and adapted to a Cuban context. Six items written in a negative way.	Cuban private sector employees	92
5	27 items translated and adapted to a Bolivian context	Employees from the manufacturing, customer service and hotel sectors	424
6	18 items on the scale by Meyer et al, 1997, translated and adapted to the Mexican context	Private sector staff, trade, industry and service	147
7	18 items on the scale by Meyer et al, 1990, translated and adapted to the cultural context of Mexico	Professors of a public university in Mexico	300

8	41 Items: Involvement (16 items) Emotional engagement (15 items) Continuity commitment (10 items)	Private sector employees telecommunicatio ns	369
98	18 items on the scale by Meyer et al, 1993 (scale 1) and 9 items on the scale by Porter et al, 1982 (scale 2)	Administrative staff of an airport and administrative staff of a marketing company	233

Table 3 Description of content of scales to measure Organizational Commitment and the context of application

Source: own design based on data from authors

The importance of expert analysis and judgment (Escobar-Pérez and Cuervo-Martínez, 2008) should be noted, which was considered in the present study, since it is a technique that contributes to provide solidity to measurement instruments, ensuring their understanding and contextual adaptation together with reliability, considered as the absence of errors in measurement processes (Quero, 2010). The reliability and validity of measurement instruments is important for understanding and adapting to different environments (Moreno, Herrera and Gargurevich, 2019), so that a scale can be applied to both workers in the manufacturing sector and teachers in the public sector.

Conclusions

The results presented in the study are the yield of an exhaustive analysis of research implemented in Latin America, with the aim of identifying the most widely used instruments for measuring OC. Meller and Allen's multidimensional model and the OCQ (Mowday et al., 1979), a questionnaire for measuring organizational commitment, were identified as the most widely replicated. The characteristics of the population are undoubtedly a determining factor for the success of the research; however, it was determined that, with the support of experts in the field, as well as the application of pilots and precise reviews, positive results are obtained. Areas of opportunity were detected such as the scarcity of studies in Spanish, based on confirmatory analysis and structural equation models, which enables contributions in this regard.

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Food packaging and its regulations in Mexico

Empaques para alimentos y su normatividad en México

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Abstract

Objective: To identify the context in terms of legislation for food packaging in Mexico. Methodology: A qualitative documentary investigation to obtain from Mexican national official and institutional primary sources the existing published information regarding food packaging. The information was recovered, analyzed, classified and organized by food groups, as is done in other international references. Contribution: This paper presents a description of the parameters that regulates food packaging based on the existing regulations for food in Mexico and its sources. From the analysis of the information obtained, this paper contributes to the dissemination of the existing Mexican regulations for the packaging of food products and the degree of inclusion of the needs of Mexican consumers in this matter regarding the form as presented in the United States in its CODEX and in the European Union. A brief discussion of the food groups, their social impact and the comparison in proportion of existing legislation for their packaging and the number of products marketed are presented.

Resumen

Objetivo: Identificar el contexto en materia de legislación para envases de alimentos en México. Metodología: Se realizó una investigación documental cualitativa, para obtener de fuentes primarias oficiales e institucionales nacionales mexicanas, la información existente publicada referente a envases para alimentos. Se recuperó, analizó, clasificó y organizó la información por grupos de alimentos, tal como se realiza en otras legislaciones internacionales. Contribución: En este trabajo se presenta una descripción de los parámetros que regulan los envases para alimentos a partir de las normas existentes vigentes para alimentos en México y sus fuentes de obtención. A partir del análisis de la información obtenida, se contribuye a la difusión de la normatividad mexicana en las regulaciones para los envases de los productos alimenticios y se manifiesta el grado de inclusión de las necesidades de los consumidores mexicanos en esta materia respecto a la forma como se presenta en Estados Unidos en su CODEX y en la Unión Europea. Se presenta una breve discusión de los grupos de alimentos, su impacto social y la comparación en proporción de legislación existente para sus envases y el número de productos comercializados.

Packaging, Processed foods, Regulation

Envases, Alimentos procesados, Regulación

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Introduction

Food and diet are a basic need of humanity that goes beyond mere nutrition and health to become even a sociological component.

Throughout the ages, food has been a universal means of communication, sociability, identification and behavior in a society, thus establishing a biological, nutritional, social, psychological, economic, symbolic and religious interaction (Contreras, 2002). In the description of the history of food, the subject of packaging, which in Mexico is used as a synonym to containers, is necessarily included and the factors that imply its development. Food packaging has an integral role that goes beyond what was initially established only to protect and transport. Now the packages conserve, add nutrients and preservatives, inform about their handling conditions, feed, prevent, provide status and benefits, among other uses.

Packaging has evolved from containers made from animal casings and ceramics in ancient times, to 19th century glass cans and bottles, to aseptic plastic and aluminum containers, to active, intelligent, radio frequency capable, flexible, zippered containers, to 20th century moldable plastic containers, coextrusion of films and two-piece aluminum cans. Technology in the 21st century, on the other hand, offers containers for microwave ovens, dispenser closures, packaging with modified atmospheres, with prolonged release of active ingredients into the food, cans with multiple layers of plastic, trays with high resistance to temperature and flexible or sterilizable packaging that can be cooked in the container, among others.

In the use of food packaging we can find various materials like traditional, glass, wood and paper, to the last generation, such as plastics, metal, the so-called tetrapack and biodegradable materials, as the most important. Most of the authors agree that the priority of packaging is to protect the food from the place of origin to the moment of consumption, by delaying its deterioration due to contamination or exposure to the environment by protecting it from light, heat, humidity, microorganisms, oxygen, mechanical damage, insects, dust and dirt, thus extending its useful life (Careaga, 1993).

On the other hand, it is important to consider the impact on health, related to the fact that it is the same containers used to protect food that are directly responsible for harmful effects on health, when these plastic containers, due to their polymeric characteristics, they require organic solvents to maintain their flexibility and mechanical characteristics that give them their physical advantages in handling and as food containers; these solvents are toxic to humans when ingested through the food they contain. An example of the above is bisphenol A (BPA), a solvent used mainly for the manufacture and hardening of plastics, commonly used in baby bottles, tableware, water and milk bottles. The use of these containers keeps the consumer exposed to this substance. In studies conducted by the World Health Organization (WHO), it was presented that at doses higher than 2 µg/kg body weight/day it caused harmful effects on the prostate, while for a poisoning the maximum amount was considered to be 475 mg/kg body weight/day) (UN, 2010). For the selection of food packaging in Mexico, there is the national commercial and industrial regulations given by the Mexican Official Standards (NOM), which are mandatory. They are issued by government agencies. There are also voluntary standards (NMX.CC) that can be applied at local, regional or national level. They are equivalent to ISO 9000 standards. Certificates and analyses are carried out in laboratories recognized by the National Accreditation System and the National Construction Laboratory (Packaging and standards, 2019). This legislation seeks to cover three basic aspects for the packaging of consumer products:

- "Consumer Protection" deals with materials in contact with food; with hygiene and sanitary practices during the food manufacturing process; with laws on the handling and transport of dangerous goods; and with technical specifications related to the design of containers and packaging.

- Environmental care: deals with waste management and handling systems in relation to packaging, laws controlling materials and packaging processing practices.

- Business practices: deals with the market and labelling of packaging. (Publicidad y Nutrición, 2019).

The laws in Latin America are based mainly on what is indicated by Mercosur and the World Trade Organization (WTO), with their respective variations or modifications between locations. Mercosur "has agreed that the containers and packaging of food products, as well as the implements and tools that participate in their production process, must be sanitary; this applies to basic materials such as plastics, elastomers, metals, glass and ceramics" (Publicidad y Nutrición, 2019).

Many new food products appear on market shelves and in shops every day, but neither the packaging nor its legislation evolves at the same pace, nor do they offer the safety they claim to do. The objective of this paper is to identify the context of food packaging legislation in Mexico. The hypothesis proposed is that in Mexico there are not enough regulatory standards covering the whole range and variety of processed food products in the national market.

Methodology

A qualitative documentary research was carried out in order to obtain, from primary official and institutional Mexican national sources, the existing information published regarding food packaging. The information was recovered, analyzed, classified and organized by food groups, according to the data registered in the General Directorate of Standards, in order to compare it with other international legislations. Other sources of packaging regulations in Mexico were consulted, among them:

- Ministry of Economy (SE).
- National Chambers of Commerce.
- Ministry of Health.
- Mexican Packaging Association (AMEE).

Results and discussion

Definition of packaging

For the purpose of information analysis, packaging must be defined according to Mexican standards and these are:

Container: It is the adequate container that is in contact with the product to protect and preserve it and that facilitates its handling, storage and distribution.

Packaging: Everything that groups, contains and properly protects packaged products, facilitating handling in transport and storage operations and identifying their contents. What is of interest for this work is the container, since it is the one that is directly in contact with the food.

Since the definition does not include that it does not contain compounds that are transferred to the food, "adequate container" leaves many options for the decision of its use.

FAO states that the role of packaging is to protect processed foods from light, moisture and other environmental contaminants (FAO, 2019).

Mexican regulations on packaging. The search yielded a total of 24 NOMs, 38 NMXs and 2 Draft Standards that regulate packaging and containers in different industries, from food to hazardous waste management. All these standards are in force. They are not classified in groups and that makes their search in the system complicated.

Mexican Official Standards (Secretaría de Economía, 2019)

- 1- NMX-EE-010-NORMEX-2004: ENVASE Y EMBALAJE-ENVASES METALICOS PARA CONTENER ALIMENTOS-TERMINOLOGIA (CANCELA A LA NMX-EE-010-1988).
- 2- NMX-EE-011-S-1980: ENVASE Y EMBALAJE. - METALES. - ENVASES DE HOJALATA - CILINDROS SANITARIOS, PARA CONTENER ALIMENTOS. ESPECIFICACIONES
- 3- NMX-EE-022-1983: ENVASE Y EMBALAJE - RESISTENCIA A LA TENSION EN PAPEL Y CARTON PLEGADIZO - ENERGIA ABSORBIDA (TEA) - METODO DE PRUEBA

- 4- NMX-EE-038-1981: ENVASE Y EMBALAJE-CARTON Y PAPEL-METODO DE PRUEBA PARA LOS ADHESIVOS EMPLEADOS EN CARTONES Y PAPELES
- 5- NMX-EE-039-1979: ENVASE Y EMBALAJE- ENVASES Y EMBALAJES DE CARTON- DETERMINACION DE LA RESISTENCIA A LA COMPRESION
- 6- NMX-EE-048-SCFI-2004: INDUSTRIA AZUCARERA-SACOS DE POLIPROPILENO, SACOS CON LINER DE POLIETILENO Y SACOS LAMINADOS PARA ENVASAR AZUCAR-ESPECIFICACIONES Y METODOS DE PRUEBA (CANCELA A LA 7- NMX-EE-059-NORMEX-2000: ENVASE Y EMBALAJE-SIMBOLOS PARA MANEJO, TRANSPORTE Y ALMACENAMIENTO (CANCELA A LA NMX-EE-059-1979).
- 8- NMX-EE-064-NORMEX-2005: ENVASE Y EMBALAJE-ENVASES CILINDRICOS SANITARIOS DE HOJALATA-DIMENSIONES, ESPECIFICACIONES Y METODOS DE PRUEBA (CANCELA LA NMX-EE-064-S-1979).
- 9- NMX-EE-073-NORMEX-2004: ENVASE Y EMBALAJE-METALES-ENVASES DE HOJALATA CILINDRICOS SANITARIOS PARA CONTENER ALIMENTOS-DETERMINACION DE LA HERMETICIDAD-METODO DE PRUEBA (CANCELA A LA 10
- 10- NMX-EE-074-1980: ENVASE Y EMBALAJE- PAPEL Y CARTON-TERMINOLOGIA
- 11- NMX-EE-075-1980: ENVASE Y EMBALAJE- PAPEL Y CARTON-DETERMINACION DE LA RESISTENCIA AL REVENTAMIENTO
- 12- NMX-EE-095-1980: ENVASE Y EMBALAJE- MADERA-DETERMINACION DE LOS DEFECTOS EN MADERAS ASERRADAS Y CEPILLADAS
- 13- NMX-EE-097-NORMEX-2004: ENVASE Y EMBALAJE-METALES-ENVASES DE HOJALATA CILINDRICOS SANITARIOS PARA CONTENER ALIMENTOS-MEDICION DE DEFECTOS-METODO DE PRUEBA (CANCELA A LA NMX-EE-097-S-1980).
- 14- NMX-EE-108-1981: ENVASE Y EMBALAJE - PAPEL Y CARTON-DETERMINACION DE LA RESISTENCIA AL RASGADO
- 15- NMX-EE-114-1985: ENVASE - VIDRIO – TERMINOLOGIA
- 16- NMX-EE-119-S-1982: ENVASE-METALES- EVALUACION DE LA EXPOSICION DEL METAL EN ENVASES METALICOS QUE CONTENGAN BEBIDAS CARBONATADAS Y CERVEZA
- 17- NMX-EE-123-1981: ENVASE Y EMBALAJE- CARTON COMPACTO Y CORRUGADO- DETERMINACION DEL COEFICIENTE DE FRICCION ESTATICA- METODO DEL PLANO INCLINADO
- 18- NMX-EE-124-1988: ENVASE VIDRIO. CLASIFICACION DE LAS CORONAS.
- 19- NMX-EE-126-NORMEX-2004: ENVASE Y EMBALAJE-METALES-ENVASES DE HOJALATA CILINDRICOS SANITARIOS PARA CONTENER ALIMENTOS-EVALUACION DEL CIERRE-METODO DE PRUEBA (CANCELA A LA NMX-EE-126-S-1981).
- 20- NMX-EE-127-1981: ENVASE Y EMBALAJE - MADERA - CLAVADO DE CAJAS – ESPECIFICACIONES
- 21- NMX-EE-130-1981: 6ENVASE 1- VIDRIO - CORONAS DE ROSCA – ESPECIFICACIONES
- 22- NMX-EE-131-1986: ENVASE - METALES - TAPAS PARA USO COMERCIAL - MATERIALES – ESPECIFICACIONES

- 23- NMX-EE-133-NORMEX-2004: ENVASE Y EMBALAJE-METALES-ENVASES DE HOJALATA SANITARIOS PARA CONTENER ALIMENTOS- DETERMINACION DEL ESTAÑO LIBRE Y ALEACION-METODO DE PRUEBA (CANCELA A LA 26-
- 24- NMX-EE-137-1982: ENVASE Y EMBALAJE- MADERA- DETERMINACION DE LA FLEXION ESTATICA.
- 25- NMX-EE-143-1982: ENVASE- PELICULAS PLASTICAS- DETERMINACION DE LA RESISTENCIA DEL SELLADO A LA TENSION
- 26- NMX-EE-147-NORMEX-2004: ENVASE Y EMBALAJE-METALES-ENVASES DE HOJALATA SANITARIOS PARA CONTENER ALIMENTOS- DETERMINACION DE LA CAPA BARNIZ-METODO DE PRUEBA (CANCELA A LA NMX-EE-147-1982).
- 27- NMX-EE-148-1982: ENVASE Y EMBALAJE - TERMINOLOGIA BASICA
- 28- NMX-EE-154-NORMEX-2004: ENVASE Y EMBALAJE-METALES-TAPAS INVOLABLES-ESPECIFICACIONES (CANCELA A LA NMX-EE-154-1986).
- 29- NMX-EE-155-1984: ENVASE Y EMBALAJE - ENVASE - METALES - TAPAS PARA USO COMERCIAL - TERMINOLOGIA Y DEFINICIONES
- 30- NMX-EE-161-1983: ENVASE Y EMBALAJE - EMBALAJE - CARRETES DE MADERA PARA CONDUCTORES ELECTRICOS Y TELEFONICOS – ESPECIFICACIONE
- 31- NMX-EE-169-1984: ENVASE Y EMBALAJE- CARTON- RESISTENCIA A LA FLEXION Y A LA COMPRESION- METODO DE PRUEBA
- 32- NMX-EE-172-1984: ENVASE- METALES- ENVASES METALICOS- DETERMINACION DE SUS DIMENSIONES NOMINALES.
- 33- NMX-EE-173-1986: ENVASE - SACOS DE PAPEL – TERMINOLOGIA
- 34- NMX-EE-175-1984: ENVASE Y EMBALAJE - CARTON CORRUGADO - RIGIDEZ - METODO DE PRUEBA
- 35- NMX-EE-197-NORMEX-2004: ENVASE Y EMBALAJE-METALES-TAPAS ROSCADAS PARA ENVASES DE VIDRIO Y PLASTICO-SERIES 400, 410, 415 Y 425 (CANCELA A LA NMX-EE-197-1986).
- 36- NMX-EE-202-1987: ENVASES Y EMBALAJE - MADERA- CAJAS PARA EXPORTACION DE MERCANCIAS HASTA DE 1400 KG - ESPECIFICACIONES.
- 37- NMX-EE-208-1984: ENVASE Y EMBALAJE - CARTON - RESISTENCIA A LA PERFORACION - METODO DE PRUEBA
- 38- NMX-EE-221-1990: INDUSTRIA DEL PLASTICO - ENVASE Y EMBALAJE - ESPESOR DEL SACO INDUSTRIAL - METODO DE PRUEBA

Of the total number of standards mentioned above, only 38 standards are for food or food-related.

Standards by food groups

For packaging, in the Mexican regulations, there is no classification by the products for which the containers are intended, so it is complicated to look for containers only for food and we had to look for all material relating to packaging and then discriminate by content the ones that were related to food. Even much of the information for packaging is implicit in the standard, so the title is not directly informative of its content.

Of the 38 standards found for foods, 5 standards refer to the group of foods known as dairy products, followed by the group of meat products with 3 standards, and at the end are fruits and vegetables with only one Mexican standard that makes special mention of them. The number of standards does not correspond to the variety of products on the market. Thus, producers are limited to using packaging that is either not prohibited or not mentioned as contraindicated in the standards.

If they are not prohibited, they are allowed. Packaging suppliers recommend the best containers to transport the food but not the best safe vehicles in all cases, especially when it comes to plastic packaging containing chemicals that are transferred to the food and give it that characteristic plastic taste that has already become normalized among the population and that, since it does not offer rejection by the consumer, is still used. The food group with the greatest regulation is dairy products due to the great variety of products derived from them: powdered, whole, pasteurized, ultra-pasteurized, micro-filtered, evaporated, rehydrated, lactose free, concentrated, flavored, to mention a few. Because of this, there are several containers or packages that contain the product, mostly plastic bags, plastic cans, aluminum cans and, in some rare cases, glass.

Parameters regulated by packaging standards

The points that the standards emphasize most are that they should be sanitary type containers, made of safe materials and resistant to different stages of the process, so that they do not react with the product or alter the physical, chemical and sensory characteristics. On the other hand, the material should offer adequate protection to prevent external deterioration, which would facilitate handling, storage and distribution. Packaging materials include metallic materials, glass, paper, cardboard, plastics, wood and even textiles. Each has different regulations and specifications, which are shown in the following table:

Material	Regulation
Metallic	Risk of poisoning from eating lead-contaminated food. Material (must not contain lead) Type of closure Soldering (no lead soldering) Sewing Coating Harmlessness No bad smells The dimensions of cylindrical tinplate food containers are set
Paper and cardboard	It specifies the measurements and characteristics. Materials (mainly corrugated cardboard) Adhesives (not to be dissolved in water) Construction Ventilation Close Compressive strength Tear resistance Resistance to bursting Bending Puncture resistance.

Plastic	Specifications to be met by the bottle. Volume - 1000 ml - 500 ml Hermeticity Impact resistance Compression Material - TYPE 1: PVC bottle of one-liter capacity. - TYPE 2: Half-liter capacity PVC bottle.
Glass	Sets the specifications for lime glass containers intended to contain food in general. Material - Classification Height Diameter Capacity Verticality Crown Thermal shock Residual Efforts Chemical Resistance
Wood	It regulates the quality of the wood and phytosanitary qualities. Defects - Chopped wood - Pests - Chips - Stains -Nailed -Resistance
Ceramics	Limits are set for lead and cadmium.
Textile	Quality specifications to be met by bags or sacks made of sisal threads used for packaging, storage and transport. Thread - Type I - Warp threads/5 cm 10 ± 0.5 threads - Threads in the weft/5 cm 11 ± 0.5 threads - The measurements of the sack should be as follows: width ($80\text{cm} \pm 2\text{cm}$) and ($120\text{cm} \pm 2\text{cm}$) length. - Type II - Warp threads/5 cm 9 ± 0.5 threads - Threads in the weft/5 cm 7 ± 0.5 threads - The measurements of the sack should be as follows: width ($85\text{cm} \pm 2\text{cm}$) and ($125\text{cm} \pm 2\text{cm}$) length. Finish Resistance

Table 1 Descriptors of current Mexican regulations for different food packages

Source: Prepared by the authors

National regulations do not describe or specify food group materials. In many cases there are no regulations for many foods, so international legislation is consulted like the Food & Drugs Administration (FDA) or the European Union, or similar products are sought to provide selected packaging with support. Otherwise, the suppliers' offers are also used based on their experience and customs. Table 2 below presents the description and use of the different packaging materials commonly used in food.

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Description	Use	Reference
Metallic		
like aluminium and tinfoil (with varnish coating), they offer airtightness, inviolability, resistance to thermal processes, resistance to long transports.	Tinfoil containers are not normally found as packaging in the food industry. Generally, it applies for canned fish and meat, but also for vegetable pickles, beer, juices.	(Lara, 2005), (López, 2008), (Pérez, 2012)
Plastic		
They are polymers composed of organic macromolecules used in the form of resins of which 6 types are commonly used (PET, HDPE, PVC, LDPE, PP and PS of 50 that exist on the market) representing 95% of the plastics used in food.	Snacks, cereals, fruits, meats, vegetables, etc.	(Lara, 2005), (López, 2008)
Cardboard		
These are packages essentially made of cellulose fibers, forming thin or thick laminates in paper, pressed cardboard, folding carton and corrugated board presentations.	It is often used as packaging material or as a temporary wrap or provided with a plastic coating for meat.	(Lara, 2005), (López, 2008), (Grisales, 2004)
Wood		
It is a highly resistant, durable and degradable packaging, it fulfills a thermal function, allows easy storage. However, it offers difficulty in cleaning and disinfection, does not offer standardization and generates problems in the abrasion of the product.	It is used as packaging and transport material for fresh fruits and vegetables.	(Lara, 2005), (López, 2008), (Villada, 2007) (Pérez, 2012)

Glass		
It is a vitreous material formed from silica, calcium and sodium. The glass containers are prepared under molding and blowing specifications offering advantages such as being a chemically inert material, resistant to high temperatures and chemical agents, can be pigmented to protect food.	It is commonly used for preserves and fruits, wines and liquors, soft drinks and pharmaceuticals.	(Lara, 2005), (López, 2008) (Pérez, 2012)
Laminates		
These are containers made from other flexible materials: plastics, paper, thin metal sheets, by extrusion method. This type of packaging combines the characteristics of various materials to increase the performance of a product, for example: the strength of the paper, the thermal-hermetic seal of the plastic and the impermeability of the aluminum.	Snacks, chocolates, semi-rigid for milk and juice containers, rigid for ready-to-eat or commonly pre-cooked dishes.	(Lara, 2005), (López, 2008), (Careaga, 1993), (Envapack, 2011)
Aluminum		
Aluminum is a recyclable material that is also used to produce cans.	Some thin sheet aluminum containers are currently used in the industry, such as trays, saucers, trays that are used to distribute and preserve frozen, baked or ready-to-eat foods. It is also used in carbonated drinks, juices and beverages.	(Pérez, 2012)

Table 2 Materials used in the manufacture of food packaging

Source: prepared by the authors

They all refer to the physical quality of the package, physical and mechanical resistance, closure, presentation, dimensions, but none to the reactions with the foods contained so they do not present any list of foods contraindicated by their chemical characteristics or composition that have a problem with the package, because of the possible reactions with it in some way. Nor do they refer to preferential temperature conditions for use in food.

Plastics as a food packaging material.

In relation to the plastics so widely used in the world, these come from oil, a non-renewable resource. In the beginning, polyvinyl chlorate or PVC was one of the most widely used and permitted materials for food packaging. Today the risks of its use are known, since even in its handling and manufacture it generates a high risk for workers in contact with it, like liver cancer (Public Health Summary, 2019).

Another material widely used in food is PET Polyethylene terephthalate, which is made by combining ethylene glycol and terephthalic acid at high temperature and low pressure to form a polymer chain. PET is highly resistant to chemical or biological reactions with other substances (Perez, 2012, PET Resin Association, 2015). According to a study by Forrest (2019), PET can be recycled and reused in foods. The FDA has generated and established the guidelines and conditions for the reprocessing of plastics, to ensure that they are safe to use in food (FDA, 2018).

Mexican legislation does not have such a strict and detailed regulation for the use of plastics in food, thus leaving producers free to use containers and materials that are not regulated but can be used for food.

Regulation in other countries

One of the most advanced countries in terms of packaging is Japan, which differs in the use of some materials authorized in the USA and Europe. Japan has the National Ministry of Health that tests and certifies food with its seal of safety and security, which gives assurance to consumers. In Japan, food contact materials are regulated by national legislation as well as voluntary industry standards.

The Food Sanitation Act enacted in 1947 regulates food, food additives, appliances and packaging/containers, and allows for further specifications. It is based on the food safety basic law. In addition, Notification No. 370 issued by the Ministry of Health and Welfare sets out the specifications and standards for food, food additives and other materials. In addition to the regulation of food contact materials, the Japanese regulation contains an article attributing liability to manufacturers for damages caused by their substances even when they comply with the legislation (Food Hygiene Law, Chapter 1, Art. 16). The legislation also sets out the rules under which migration tests are to be carried out, in order to ensure that an article will comply with the specifications (Japan Food Packaging Regulation, 2019). Thus, metal cans, glass/ceramic/enamel articles, and rubber and polymer articles have specific rules for each material and are supplemented by the specifications for 15 particular resins. In Mexico, legislation for packaging includes labelling, but in addition to regulation, a national label education campaign is required so that citizens first become interested in reviewing labels and knowing how to do so. Currently, many products are consumed in Mexico without any labels, and consumers are not concerned about the packaging of their food.

Conclusions

- There are few food-related standards compared to the food on the market.
- There are no standards by food groups, and they are not classified for easy access.
- Standards do not regulate the effect or impact of packaging components that may migrate into the food.
- There are not enough regulations to protect the consumer from the damage or effects of the packaging itself.
- Currently the labels do not mention that the packages may contain toxic substances.
- There is no culture of label reading.

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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

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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.

Resumen

El objetivo es validar el contenido del instrumento de recopilación de información, a través del juicio experto y las pruebas piloto. Metodología: Investigación coréctica 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.

Validation, Innovation, New ways of working

Validación, Innovación, Nuevas formas de trabajar

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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.

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.

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.

Coexistence	Communication	Cooperation	Coordination	Coalition	Collaboration	Coadunation
		1	2		3	
		Peterson Model (1991)				
	1 "Networking"	2	3	4	5	
	Levels of Community Linkage Model (Hogue, 1993)					
		1	2		3	4
		Bailey and Koney Model (2000)				
	1 "Networking"	2	3 "Partnering"	4 "Merging"	5 "Unifying"	
	Levels of Integration Model (Gajda, 2004)					
	1	2	3	4	5	6
	Seven Stage Model					
Frequency	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

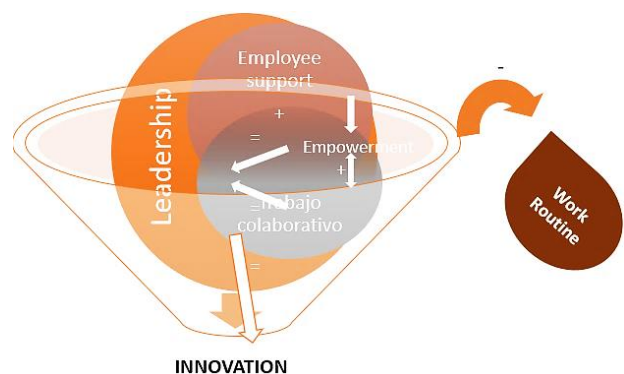


Figure 1 Theoretical Model. Prepared by the authors based on the theoretical framework

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".

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 modification 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.

FLORES-AGUILAR, María de los Ángeles. Content validity and expert judgement: innovation model for new ways of working. Journal-Law and Economy. 2019

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 Juárez, 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				TOTAL
	Directors	Deputy Directors and Area Managers	Administrative and secretarial	Teachers	
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

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

Where:

95% Of confidence

z=1.96
z²=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
e²=0.0025

Error

Then:

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

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

$$n = 307.38$$

$$n = 307 \text{ people}$$

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

IES	DISTRIBUTION OF THE SAMPLE BY CATEGORY					TOTAL	%
	Directors	Deputy Directors and Area Managers	Administrative and Secretarial	Teachers			
1. TU of Puebla	3	5	18	104	130	42%	
2. TU of Tecamachalco	3	1	14	40	60	20%	
3. TU of Huejotzingo	3	4	11	35	53	18%	
4. TU of Tehuacán	3	3	9	29	44	14%	
Source:	12	13	52	208	285	93%	

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 *							Total	
	Directors		Deputy Directors and Area Managers		Administrative and Secretarial		Teachers		
1. TU of Puebla	0.3	1.0%	0.5	1.6%	2	5.8%	1	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		2		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:

FLORES-AGUILAR, María de los Ángeles. Content validity and expert judgement: innovation model for new ways of working. Journal-Law and Economy. 2019

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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Option to apply personal deductions to decrease the taxable base or increase the tax recovery of individuals in Mexico

Opción de aplicar deducciones personales para disminuir la base gravable o incrementar la recuperación de impuestos de personas físicas en México

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Abstract

The objective of this research is to identify all personal deductions of the 151 article of the income tax law that meet all the fiscal requirements, so that individuals can deduct when presenting their annual income tax return. Personal deductions are the concepts that the legislator allows to deduct from the annual income tax statement. When to discount personal deductions? The process is performed when the taxpayer applies certain deductions established by law. Taxpayer must know specific aspects such as: deduction's types, that these deductions are strictly necessary, the limitations that the legislator allows to deduct, as well as who can be the beneficiaries of the taxpayer, among other requirements. The individuals may enjoy the benefits by subtracting the accumulative income. For the practical case are used: the ISR law, Regulations, RMF and decrees. If the taxpayer makes use of this option in a legal manner, the taxpayer will have as a result paying less taxes or to increase the balance at their favor and therefore may request the tax refund.

Personal deductions, Taxes, Benefits

Resumen

El objetivo de esta investigación es identificar todas las deducciones personales que se encuentran en el artículo 151 de la ley de Impuesto sobre la Renta y que éstas a la vez reúnan todos y cada unos de los requisitos fiscales para que el contribuyente persona física pueda deducir al presentar la declaración anual. Deducciones personales son los conceptos que el legislador permite descontar en su declaración anual. Cuando descontar las deducciones personales?. El proceso se realiza cuando el contribuyente al erogar determinadas deducciones que establece la ley, debe conocer ciertos aspectos como: el tipo de deducción, que éstas sean estrictamente necesarias, conocer las limitantes que el legislador permite deducir, así como quienes pueden ser los beneficiarios del contribuyente, entre otros requisitos. Las personas físicas podrán gozar de los beneficios que permite el legislador al restar del ingreso acumulable. Para el caso práctico se utiliza la Ley de ISR, Reglamentos, RMF y Decretos. Si el contribuyente hace uso de esta opción de forma legal, el contribuyente tendrá como resultado pagar menos impuestos o bien incrementar el saldo a favor de impuesto sobre la renta y por ende podrá solicitar la devolución del impuesto.

Deducciones personales, Impuestos, Beneficios

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Introduction

This investigation was conducted in 2019, in the city of Monclova, Coahuila, Mexico. The objective of this research is to identify all the personal deductions found in article 151 of the Income Tax Law and that these meet all the fiscal requirements so that the individual taxpayer can deduct them when presenting the annual return.

Personal deductions are the concepts that legislators allow to be deducted in their annual declaration. In the methodology for the practical case, we use the Income Tax Law (ISR), Income Tax Regulations, Miscellaneous Fiscal Resolution, Decrees and Jurisprudence, among others. This investigation is of a descriptive type to identify the requirements for personal deductions.

Justification

This research will benefit taxpayers who receive income from salaries, business, professional activity, rent, interest, among others. It is a relevant and applicable subject, and it will provide knowledge for people who choose to apply personal deductions with the requirements established by law, so that they can solve a specific issue, because they will have tax arguments.

General deductions, or personal deductions, are considered optional, that is to say, not mandatory for the governed, it is a benefit for the taxpayers that wish to diminish the taxable base or increase their balance in favor of ISR in their annual declaration.

Problem

Taxpayers are unaware of the concepts that legislators allow to be discounted from the annual return, together with the countless requirements that each of the tax vouchers must contain; because of this situation, the vouchers or balances return are rejected in favor of the annual return.

Hypothesis

H1. If individual taxpayers deduct from their annual return the receipts with the tax requirements, they will be able to receive a balance in favor of income tax, or pay less taxes.

Ho. If taxpayers do not apply the required personal deductions, they will not be able to receive the benefits offered by the legislators in their return.

Objectives

A general objective and two specific objectives are presented to determine the line of work.

General Objective

To identify all the personal deductions found in article 151 of the Income Tax Law and that these meet each and every one of the tax requirements, so that the taxpayer can deduct them in their annual return.

Specific objectives

- To identify the personal deductions found in Article 151 of the Income Tax Law
- To describe the tax requirements for personal deductions

Theoretical Framework

Background.

In accordance with the Political Constitution of the United Mexican States, Article 31, Section IV, establishes the obligation to contribute to public spending in a proportional and equitable manner. "Mexicans are obliged to contribute to public spending, both for the Federation and the Federal District or the State and Municipality in which they reside, in a proportional and equitable manner as declared by law" (CPEUM, 2019).

Income Tax Law.

In accordance with Article 151 of the Income Tax Law (LISR), natural persons resident in the country who obtain income from those indicated in this Title, in order to calculate their annual tax, must make, in addition to the deductions authorized in each Chapter of this Law that correspond to them, the following personal deductions (Calvo & Montes, 2018).

Section I. Fees

Payments for medical and dental fees, as well as hospital expenses, made by the taxpayer for himself, for his spouse or for the person with whom he lives in a common-law relationship and for his ascendants or descendants in a straight line, provided that such persons do not receive during the calendar year income in an amount equal to or greater than that resulting from the calculation of the general minimum wage in the taxpayer's geographical area raised per year, and made by means of the taxpayer's nominative check, electronic transfer of funds, from accounts opened in the name of the taxpayer in institutions that make up the financial system and the entities that the Bank of Mexico authorizes for such purpose or by means of credit, debit or service cards.

The tax authorities may release from the obligation to pay disbursements through the means established in the previous paragraph, when these are made in towns or rural areas without financial services.

When analyzing the fraction of fees that mentions who can be the beneficiaries of the taxpayer, the limitation of income to obtain the benefit, the disjunctive of deducting expenses of the spouse or concubine, without limitation in ascendants and descendants in a straight line with the restriction that they do not receive a high minimum wage per year, although it should be considered UMAS instead of minimum wages as established by LISR.

Strictly indispensable.

Also deductible are payments made for medical, dental or nursing fees, for analyses, clinical studies or prostheses, hospital expenses, purchase or rental of devices for the establishment or rehabilitation of the patient, derived from the disabilities referred to in article 477 of the Federal Labor Law, which establishes: when the risks are realized, temporary, partial permanent, total permanent disability, death and disappearance derived from a criminal act (Trueba, 2014).

When there is a certificate or proof of disability issued by the public institutions of the National Health System, or those deriving from a disability in terms of the provisions of the General Law for the Inclusion of Persons with Disabilities and there is a certificate of recognition and qualification of disability issued by the aforementioned public institutions in accordance with the latter law. The provisions of this paragraph shall not be subject to the limit established in the last paragraph of this article.

Deductible medicine billed by hospital.

For the purposes of article 151, section I, of the Act, the deductions referred to in that section shall include the strictly essential costs incurred for the purchase or rental of equipment for the restoration or rehabilitation of the patient, medicines included in the documents issued by hospital institutions, fees for nurses and for analyses, clinical studies or prostheses (ISR, 2019).

Limiting optical lenses.

Likewise, the expenses incurred for the purchase of graduated optical lenses to correct visual defects are included in the deductions referred to in the previous paragraph, up to an amount of \$2,500.00 MXN, in the fiscal year, for each one of the persons to which the mentioned fraction refers, provided that the characteristics of such lenses are described in the tax receipt or, in its absence, the diagnosis of an ophthalmologist or optometrist is available (RISR, 2019).

In the case of temporary incapacity or partial permanent incapacity, or disability, the deduction referred to in the previous paragraph will only be applicable when said incapacity or disability is equal to or greater than 50% of normal capacity.

For the purposes of the deduction referred to in the second paragraph of this section, the corresponding digital tax receipt must contain the specification that the expenses covered by it are directly related to the care of the incapacity or disability in question. Additionally, the Tax Administration Service (SAT), by means of general rules, may establish other requirements that the digital tax receipt via Internet must contain.

RMF 3.17.11. Payments for dental fees include those made to stomatologists under the terms of Official Mexican Standard "NOM-013-SSA2-2006. For the prevention and control of oral diseases", such as the Medical Dentist, Dental Surgeon, Licensed Stomatologist, Licensed Dental Surgeon, Military Dental Surgeon and any other licensed oral health professional, when the provision of services requires a medical degree (RMF, 2018).

Fraction II. Funeral expenses

Funeral expenses in the part not exceeding the general minimum wage of the geographical area of the taxpayer raised per year, made for the persons indicated in the fraction above (Calvo & Montes, 2018).

ISR Art. 266 For effects of article 151, fraction II of the Law, in the cases of expenditures to cover future funerals, these will be deductible until the calendar year in which the respective funeral services are used (ISR, 2019).

Section III Donations

Donations that are neither onerous nor remunerative, that satisfy the requirements set forth in this Law and in the general rules established for this purpose by the Tax Administration Service, and which are granted in the following cases:

- a). To the Federation, the states or municipalities, their decentralized agencies that pay taxes in accordance with Title III of this Law, as well as international agencies of which Mexico is a full member, provided that the purposes for which they were created correspond to the activities for which authorization may be obtained to receive tax-deductible donations. Donations. Article 249 of the ISHR states that donations that are not onerous or remunerative and are made to human rights institutions that have the status of autonomous public bodies, and are taxed, are considered deductible (ISHR, 2019).
- b). To the entities referred to in the sixth paragraph of article 82 of this Law.
- c). To the entities referred to in articles 79, section XIX and 82 of this Act.

- d). To the legal entities referred to in Article 79, sections VI, X, XI, XX and XXV of this Law and which comply with the requirements established in Article 82 of this Law.
- e). To the associations and civil societies that grant scholarships and comply with the requirements of Article 83 of this Law.
- f). To business school programs.

The Tax Administration Service shall publish in the Official Gazette of the Federation and shall publish in its Internet web page the data of the institutions referred to in paragraphs b), c), d) and e) of this fraction that meet the aforementioned requirements. In the case of donations to educational institutions, they will be deductible provided that they are public establishments or those owned by individuals who have authorization or recognition of official validity of studies under the terms of the General Education Act, and are intended for the acquisition of investment goods, scientific research or development of technology, as well as administrative expenses up to the amount, in the latter case, indicated in the Regulations of this Act; they are not onerous or remunerative donations, in accordance with the general rules determined for such purpose by the Ministry of Public Education, and such institutions have not distributed any surplus to their partners or members during the last five years (Calvo & Montes, 2018).

Limitation of donations.

The total amount of the donations referred to in this fraction shall be deductible up to an amount not exceeding 7% of the cumulative income that serves as the basis for calculating the income tax payable by the taxpayer in the fiscal year immediately preceding that in which the deduction is made, before applying the deductions referred to in this article. When donations are made in favor of the Federation, the states, the municipalities, or their decentralized agencies, the deductible amount may not exceed 4% of the cumulative income referred to in this paragraph, without in any case the limit of the deduction in the case of these donations, and those made to different authorized donors, exceeding the 7% mentioned (Calvo & Montes, 2018).

Concept	Value
Accumulated income from the previous year 2017.	\$ 1000,000.
(x) Limiting 7% of LISR	70,000.
Up to \$70,000.00 may be deducted for 2018, with the requirements of the CFDI tax receipt	

Table 1 The table shows the limitation of the donation that can be deducted by the taxpayer in the following year according to the data of the return

Income can be accumulated between related parties.

When donations are made between related parties, the donor cannot contract with the related party that made the donation, the provision of services, the sale, or the granting of the temporary use or enjoyment of goods. Otherwise, the donor must consider the amount of the deduction made for the corresponding donation as a cumulative income for income tax purposes, updated from the date on which the deduction was applied and until the moment in which it is accumulated (Calvo & Montes, 2018).

Cash deductible paid in rural areas.

For the purposes of Article 27, section III, third paragraph of the Act, the tax authorities shall decide on applications for authorization to release the obligation to pay outlays by the means indicated in the first paragraph of that section, in accordance with the following: I. The circumstances of each case will be assessed considering, among others, the following parameters: a) That payments made to suppliers are made in towns or rural areas, without financial services (ISR, 2019).

Fraction IV Interest.

The real interest effectively paid during the period for mortgage loans destined to the acquisition of their home contracted with the institutions that make up the financial system, provided that the total amount of the loans granted for said property does not exceed seven hundred and fifty thousand investment units.

For these purposes, real interest shall be considered to be the amount in which interest effectively paid in the period exceeds the annual adjustment for inflation of the same period and shall be determined by applying the provisions of the third paragraph of Article 134 of this Law, for the corresponding period (Calvo & Montes, 2018). In addition, the taxpayer must have the tax receipt for the deduction.

Deductibles	UDIS value	Deductible value
650,000	6.2590	\$4,068,350.00

Table 2 Limitation of the credit so that the originated interests are deductible by the taxpayer according to UDIS

Deductible real interest. Interest. In accordance with ISR Art. 250, for the purposes of Article 151, Section IV of the Law, the amount of actual interest paid in the year in question, including arrears, corresponding to mortgage loans, shall be deductible; the interest that may be deducted shall be the one paid in the year in which the deduction is made (ISR, 2019).

Withdrawal of IMSS contributions and income. The interest referred to in article 151, section IV of the Law shall also be deductible when the payment thereof is made using the amount of the withdrawals of the contributions and their income, from the housing sub-account of the individual account provided for in the Social Security Law, of the housing fund sub-account of the individual account of the Retirement Savings System provided for in the Law on the Institute of Social Security and Services for State Workers, as well as the housing fund for active members of the armed forces provided for in the Law on the Institute of Social Security for the Mexican Armed Forces.

Section V Supplementary contributions

Supplementary retirement contributions made directly to the supplementary retirement contributions sub-account, under the terms of the Law on Retirement Savings Systems or to personal retirement plan accounts, as well as voluntary contributions made to the voluntary contributions sub-account, provided that in the latter case such contributions comply with the permanence requirements established for retirement plans pursuant to the second paragraph of this section (Calvo & Montes, 2018).

Limitation of personal deductions.

The amount of the deduction to which this fraction refers will be up to 15% of the taxpayer's cumulative income in the year, without such contributions exceeding the equivalent of five general minimum salaries in the taxpayer's geographic area per year (Calvo & Montes, 2018).

Concept	Limitation
(80.60)(365)(5) UMA	\$ 147,095.00
If the taxpayer receives total income of \$ 1000.0000.00 for 15%	\$ 150,000.00
Both values are compared and the lower value is deducted, in this case the first one	\$ 147,095.00

Table 3 Comparison to identify the limitation of the annual value of the personal deduction of a taxpayer who receives \$1000,000.00, and compare to identify the one that is less, in that case applies 5 UMAS

Personal, non-structural deductions.

The Supreme Court of Justice of the Nation (SCJN) has classified as non-structural those expenditures that are not linked to the production or obtaining of the object of the tax; since they have no relation to the generation of the profit, they did not influence the obtaining of the income. These types of deductions are the result of a positive sanction provided by a typically promotional rule called fiscal expenses originated by a tax reduction. They are disbursements made for personal consumption, whether because of their origin, purpose or effect they are contingent expenses, and have no incidence on obtaining tax revenues (SCJN, 2017).

Limitation of the lesser.

According to the SCJN, the limitation of personal deductions does not generate a regressive tax. The regulatory portion mentioned above establishes as the upper limit for the amount of personal deductions that may be applied, the lower amount between (a) the one corresponding to 4, now 5, minimum wages that must be high UMAS per year and (b) the one equivalent to 10%, now 15%, of the total income of the taxpayer as mentioned in table 3 and 4 (SCJN, Thesis, 2017).

Personal retirement plans are those accounts or investment channels that are established with the sole purpose of receiving and managing resources destined exclusively to be used when the holder reaches the age of 65 or in cases of disability or incapacity of the holder to carry out personal paid work in accordance with the law, provided they are managed in individualized accounts by insurance institutions, credit institutions, stockbrokers, retirement fund managers or investment company operators authorized to operate in the country, and provided they obtain prior authorization from the SAT (Calvo & Montes, 2018).

When the resources invested in the sub-accounts of complementary retirement contributions, in the sub-accounts of voluntary contributions or in the personal retirement plans, as well as the yields they generate, are withdrawn before the requirements established in this fraction are fulfilled, the withdrawal will be considered accumulative income in the terms of Chapter IX of this Title.

In the event of the death of the holder of the personal retirement plan, the designated beneficiary or the heir shall be obliged to accumulate the withdrawals made from the account or investment channels, as the case may be, with other income of the fiscal year.

Section VI. Insurance premiums

Premiums for insurance of medical expenses, complementary or independent of health services provided by public social security institutions, provided that the beneficiary is the taxpayer himself, his spouse or the person with whom he lives in a common-law relationship, or his ascendants or descendants, in a straight line.

RISR 268 For the purposes of Article 151, Section VI of the Law, premiums paid for health insurance are considered deductible, provided that the preventive part covers only the payments and expenses referred to in Article 151, Section I of the Law and Article 264 of these Regulations (RISR, 2019).

VII School transport

Expenses for school transportation of descendants in a straight line when it is mandatory under the legal provisions of the area where the school is located or when for all students such expenses are included in the tuition. For these purposes, the receipt must include the amount corresponding to school transportation and be made by means of a check made out to the taxpayer, electronic fund transfers from accounts opened in the name of the taxpayer in institutions that make up the financial system and the entities authorized by the Bank of Mexico or by means of credit, debit or service cards. When they are in rural areas, they may be deducted even if they are paid by means other than those established.

Transport when required.

For the purposes of Article 151, Section VII of the Act, the requirement set out in that section shall be deemed to be met when the school concerned requires all its pupils to pay for the school transport service. Schools in this situation must prove that they have allocated the corresponding revenue to the provision of transport service (RISR, 2019).

VIII. Local taxes on salary income

Payments made for local income tax on salaries and in general for the provision of a subordinate personal service, provided that the rate of such tax does not exceed 5%. To determine the geographical area of the taxpayer, the place where his or her home is located at December 31 of the year in question shall be considered. Those persons who, as of that date, have their domicile outside the national territory will be attended to in the geographical area corresponding to the Federal District. It is important not to confuse this tax with the Payroll Tax, this tax is local.

Concept	Value
Total annual income received by the worker	\$500,000.0
1). 15% of total income	\$75,000.0
2). Daily UMA \$ 80.60	\$147,095.0

Table 4 Personal deductions that can be made by the worker according to income and the comparative that is lower, in this case 15% of the salary that was lower

Fiscal Stimulus Decree D.O.F. 2013.

To make use of the benefit the person must have the tax receipt with the tax requirements, which must be issued by private educational institutions, which can be deducted in the annual return. Tuition payments are from pre-school to high school level or equivalent according to the limitations mentioned at the time of application (FEDERATION & DOF, 2018).

Educational level	Deduction limit
Preschool	\$ 14,200.00
Primary	\$ 12,900.00
Secondary	\$ 19,900.00
Technical Professional	\$ 17,100.00
Technical High School	\$ 24,500.00

Table 5 Tax incentive for the payment of educational services or tuition fees, according to the decree on tax benefits to be deducted in the annual return

The SAT makes available a list of educational institutions with a database that in 2018 issued vouchers with CFD, or CFDI, tax requirements (www.sat.gob.mx, 2019). The school must be authorized or recognized as officially valid under the terms of the General Education Law, and the receipt must contain the full name, CURP, and educational level of the student. The amount and concept of the services exclusively for education must be separate.

The following are not deductible: registration, maintenance, educational material, school transport, additional subjects or courses, uniforms or exams of any kind. In addition to the above requirements, payment must be made by check to the taxpayer, transfer of accounts in credit institutions, credit card, debit card or service card (FEDERATION & DOF, 2018).

Case study to compare

A practical case is presented for comparison when a taxpayer chooses to apply the personal deductions according to table No. 6, and another taxpayer who chooses not to consider according to table 7, to observe the effects. In the first table, the taxpayer will pay less taxes than the second one when comparing the income tax produced by both, which is reflected in table 8.

	Concept	Value
	Taxed income	\$480,000.
-	Personal deductions	\$ 64,100.
=	Taxable base	\$415,900.
x	Tariff art.152 LISR	
=	Income tax payable for the year	\$ 76,020.

Table 6 The taxpayer opted to apply personal deductions to reduce the taxable base, compare with table 7

	Concept	Value
	Taxed income	\$480,000.
-	Personal deductions	0
=	Taxable base	\$480,000.
	Tariff art.152 LISR	
=	Income tax payable for the year	\$ 92,513.

Table 7 The taxpayer chose not to project personal deductions and the taxable base was higher when comparing table 6

ISR due considering Personal Deductions to worker	ISR due without considering Personal Deductions	Difference or benefit when applying the deductions
\$ 76,020.	\$ 92,513.	\$ 16,493.

Table 8 Comparison when the taxpayer applies or not the personal deductions, it is a benefit of \$16,493.00 when applying personal deductions

Research Methodology

We analyzed the types of personal deductions found in Article 151 of the Income Tax Law, as well as the requirements of the deductions, adding practical cases to improve understanding, determination of limitation of deductions according to analysis and legal argumentation.

The procedures present a practical case to compare the effect: when the taxpayers choose to apply personal deductions and when they choose not to apply them, as well as the effect of the first option. In this process, legal, juridical and constitutional arguments were applied, such as: income tax, income tax regulations, Miscellaneous Resolution, decrees, jurisprudence and the Political Constitution of the United Mexican States.

Type of Investigation

This investigation is of a descriptive type, considering each of the personal deductions established by law, as well as the requirements that each deduction must contain applying the tax provisions according to the legislation.

A qualitative approach is applied since documentary information was taken, as well as information from Fiscal, Legal, Constitutional and Political laws of the United Mexican States, Fiscal Miscellaneous Resolution, Official Gazette of the Federation and Jurisprudence.

Results

According to Table 6 and Table 7, a comparison is presented in which Table 6 opted to apply personal deductions, while Table 7 opted not to apply them. The result is that the more deductions with requirements and limitations that the taxpayer considers, the less income tax is payable or the more the balance is in favor, in this case, with the deductions, the income tax would be in favor, therefore it is a benefit that all taxpayers can apply in their annual return.

Conclusions

Taxpayers can plan during the fiscal year the personal deductions that can be made or applied in the annual return, additionally they can request advice from the authority or a tax expert because the taxpayers do not apply the personal deductions due to ignorance, together with multiple requirements that sometimes they do not know; additionally, taxpayers do not request the voucher at the time or do not pay with the legal means to be able to deduct without contingencies in the annual return, and therefore receive the benefits.

The collection administration, the SAT, should be more efficient in the return of taxes, and when it makes adjustments or decreases the balance in favor, this should be founded and motivated, it should be expressed with precision, the normative hypothesis configured, that the authority legally informs the taxpayer of the cause of the rejection or decrease of the ISR. The taxpayer must verify that there are two different types of deductions in the annual return, one of which is the one permitted by the legislation under Article 151 of the Income Tax Law, which applies 15% deduction from the taxpayer's total income or five UMAS per year, and compare the lower of the two. While the other is for the stimulus of the Decree, that is to say, the fees, these are of a different nature, in other words, considering this point, the taxpayer will have the opportunity to raise the limit of personal deductions.

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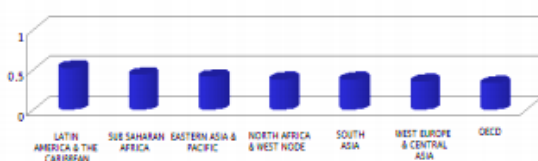
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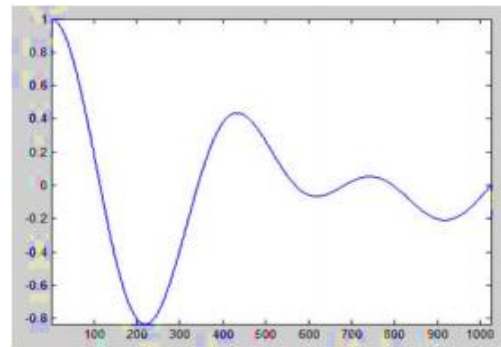


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