



"El saber de mis hijos
hará mi grandeza"

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Structural factor exploring sustainability perceptions

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Abstract – *Often, the total quality has been instrumented before being weighted. The strategies even precede a diagnosis in Mexican organizations, but in an opposite sense, the present work set out to establish the reliability and validity of an instrument to measure the perception of total quality based on three indicators related to management, production and transfer of knowledge. A non-experimental study was carried out with a non-probabilistic selection of 124 administrative staff and employees from an organization in central Mexico. From a structural model, it was found that management affects production and this about the total perceived quality, although there are lines of research concerning empathy, commitment, entrepreneurship, satisfaction and happiness in relation to the implementation of continuous improvements to the quality of processes and products.*

Keywords – *Client omission, Control strategy, Logistics mistake, Wrong delivery.*

Introduction

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No doubt, organizations have some mistakes in its organizational context, however, sometimes, mistakes are over-dimensioned because of clients' honest lack. It is when the organization need to have a severe control of it processes, even administrative, financial, sales, production or logistics ones. Organizations which promote the use, production or consumption of green energies, also are attached to negative factors occurrence over its processes. Present document, look forward to be a path on mistake occurrence, when it is considered the logistics' or deliveries' mistakes, in the framework of sustainability's context, due to the need of green organizations hold in the market to promote clean energy methods.

Concern about sustainability has been grown in people's mind. Debate since the release of the World Conservation Strategy in 1980, "Our Common Future" the report of the World Commission on Environment and Development in 1987 and Agenda 21 in 1992 has resulted in gradual acceptance that sustainability must integrate ecological integrity, economic efficiency and social equity (Côté & Cohen-Ronethal, 1998).

In Molina Ruiz (2013), it is mentioned that there exists an alarming situation, due to planets situation. In Mexico, it is possible to see the negative influence of population impact over environment (Molina-Ruiz, 2015). It is also possible to observe some social deterioration and economic problems. Cavagnaro & George (2017) propose a framework in which they are recognized the three main dimension of sustainability.

It is important to promote wellbeing inside the organizations. In the framework of sustainability, organizations which promote use of clean energies, sometimes are in a constant risk that threaten its stability.



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It is natural for organizations to have some mistakes along its development and historical path, however, when client shows a lack of honesty and omit information sharing, the organization have a higher spend of resources to correct the mistake or repair the problem. Between organizations it is necessary to create a supporting environment in which the stakeholders share information with each other.

In order to survive on the market and achieve profitability, the companies need to meet customer requirements and perform their activities in an efficient way (Andrejić, Kilibarda & Popović, 2015). However, some clients abuse of the organizations good will, bringing extra cost in the organizational use of resources.

Sometimes, inside of the organizations, low compromised personnel have cheating attitudes that affect directly the organization performance. In Bohte & Meier (2000), it is defined organizational cheating as an attempt to manipulate performance criteria; it is also identified three major forms of organizational cheating: 1) cutting corners (doing sloppy work); 2) lying (making up organizational results); and 3) biasing samples (reporting most conductive cases). In the organizational context it can be identified another way of organizational cheating, "client's snuggling", which means that a stakeholder inside of the organization overprotect the client, giving to it privileged information and covering bad client (or supplier) behavior that affects the organization.

Cialdini, Petrova & Goldstein (2004), proposed that organizational dishonesty can increased surveillance, (mis) matches between values of employee and organization and/or reputation degradation. It is also possible to state that organization dishonesty



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can make that enterprise run out of business (bankruptcy), loss of clients, loss of suppliers, loss of bank or credit-agents' support.

Enterprise in which it happened the case under study had certain particularities. It is an enterprise relatively new in the photovoltaics sector in Mexico, it was created in 2013. Due to its recent creation, there was a lack in the control and organization of different activities inside of the organization. That organization has the second place in sales in Mexican market, during 2015. During 2017, it has increased its market share to North America and Central America. In Mexico, the enterprise recovers the second position in importance by Mexican PV-market.

First detected particularity was, as here exist a cordial and close communication, delivery of final product would be required via a piece of paper written by sales manager and given to production manager.

Despite there exist four main steps to deliver a merchandize, sales manager, due to urgency of delivery, avoid the sequence of steps. The correct step by step in the enterprise would be as follows: (a) quotation price document, in which sale's agent sent the price and characteristics of the product to client, in case client accept the price and characteristics, it is generated (b) the request document, in which warehouse is notified that a product need to be packaged, it also is sent to the client so he/she can make the payment, to make (c) the invoice document, which is the official document and ensures that merchandize is now client's property, once invoice is created, it is made a (d) warehouse authorization, a list of the allowed merchandise's delivery to client, via Delivery-service outsourcing.



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Sometimes it was authorized the delivery of merchandize, when the quotation price document was just generated, because of the request of sales manager.

There were some situations in which sales manager sent a "request document" to logistics department (warehouse), with missed information, and after, she resent mentioned document with extra information or with corrections in the information, or sales manager hold the (extra) information document (or the corrected one) for itself.

Warehouse do not have a complete folder for each delivery. Deliveries were just registered in a list with very little information, and the folder for each delivery (invoice) do not have all of the documents.

Theory of perceived quality

In the anthropocentric paradigm in which companies circumscribed their total quality control to the demands of the market and the specific demand of their clients, the function of the leader was that of an intermediary who managed and managed the risks without considering the environment or capital nor the possibilities of human or intellectual capital in face of the imbalance that the situation implied.

In the paradigm of sustainability, the total quality lies in the evaluation, certification and accreditation of processes based on the availability of resources, policies against climate change, the effects on environmental public health and the risks inherent in the Industrial production (Acar & Acar, 2014).

While in the old anthropocentric paradigm the responsibility was centered on the leader, the manager or administrator, in the new ecocentric paradigm the



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responsibility is shared (Hernandez & Valencia, 2016). This implies a unilateral communication versus a bilateral communication, a unidirectional motivation versus a bidirectional motivation. It is about the confrontation of two cultures, one authoritarian and the other democratic (Anicijevic, 2013).

Even the new environmental paradigm is distinguished from the previous dominant paradigm by the continuous improvement of processes (Mendoza, Ramirez & Atriano, 2016). This supposes the entrepreneurship and the innovation of the processes that in the previous paradigm was translated in a resistance to the change. That is to say that the responsibility of participation and initiative now concerns all those who integrate the organization (Carreón et al., 2014).

The achievement of a shared responsibility precedes a shared work commitment and a climate of emotional, affective and sentimental relationships regulated and oriented to coexistence, respect, solidarity and support among those who make up the organization (Cruz, Arroyo & Marmolejo, 2016).

Therefore, there to define quality standards and criteria for its continuous improvement, the organization involves leaders and managers, managers and employees in the objectives, tasks and goals according to the availability of resources, social responsibility and organizational capabilities (Escobar, 2014).



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Specification model

Will the relationships proposed in the theory of perceived quality be adjusted to empirical observations with leaders and employees of an organization in central Mexico?

The relationships between the variables specified in the theory of perceived quality will be adjusted to the data observed in an organization in central Mexico, since it is a universal asymmetric relationship between the demands of the environment and organizational capacities, which also mark differences between leaders and employees

Although the theory of perceived quality anticipates scenarios of differentiation between the requirements of the environment and the capabilities of the organization, among leaders and employees, the perceptions around the total quality process, as well as control management are different in each organization reason why the relationships established in the theory will not conform to the observations of a case study

In the following paragraphs, it is reported different events linked to wrong delivery made by the provider enterprise. Data have been changed or modified to protect confidential information of different enterprises and persons.

Method

A descriptive, exploratory and transversal study was carried out 124 administrative and employees of a for-profit organization in the center of Mexico. 34% men and 66%



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women. 75% under 29 years old ($M = 24,13$ $SD = 0,18$), 15% between 29 and 65 years old ($M = 41,23$ $SD = 10,17$) and 5% over 65 years old ($M = 67,32$ $SD = 0,16$). 22% with more than 7 working years ($M = 7,12$ $SD = 0,12$), 38% with less than 7 and more than 3 working years ($M = 4,35$ $SD = 0,84$), 28% with less than 3 working years ($M = 2,43$ $SD = 0,93$).

The Total Perceived Quality Scale of Carreón (2016) was used, which includes four dimensions related to the management, production and the perceived transference of the quality of processes. each reagent includes five answer options that go from 0 0 it does not look like anything to my organization up to 4 = it looks a lot like my organization.

The Delphi technique was used for the processing of information and the elaboration of the reagents, comparing and integrating informative information to the total quality, as well as to the opinions of different administrative and employees in an organization for profit in the center of Mexico.

Subsequently, the surveys were applied in the human resources department as part of the staff recruitment and selection protocol, as well as part of the induction, training and training courses. The confidentiality and anonymity of the respondents was guaranteed in writing, as well as the warning that the results of the study did not affect their economic or work status.

The consistency of the instrument was estimated in terms of its questions from the answers, considering the Cronbach alpha parameter, as well as the Bartlett and KMO tests for adequacy and sphericity as preliminary tests to the validity, which was



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performed with a method of extraction of main axes with promax rotation. The comparison of the model with adjustment and residual parameters for the hypothesis test.

Results

Table 1 shows the values of internal consistency of the instrument (alpha of 0.782 for the general scale and 0.780 to 0.795 for the subscales) which suggest that in other contexts and study samples the measurement of indicators and factors will be similar in up to 70% of cases.

Table.1, Descriptive of the instrument

<i>R</i>	<i>M</i>	<i>S</i>	<i>K</i>	<i>A</i>	<i>F1</i>	<i>F2</i>	<i>F3</i>	<i>F4</i>
<i>R1</i>	3,21	0,19	1,71	0,701	0,439			
<i>R2</i>	3,25	0,28	1,67	0,702	0,329			
<i>R3</i>	3,45	0,38	1,09	0,731	0,431			
<i>R4</i>	3,25	0,43	1,54	0,721	0,403			
<i>R5</i>	3,46	0,54	1,34	0,742		0,325		
<i>R6</i>	3,67	0,83	1,15	0,721		0,345		
<i>R7</i>	3,93	0,48	1,18	0,742		0,392		
<i>R8</i>	3,02	0,91	1,19	0,743		0,431		
<i>R9</i>	3,01	0,29	1,10	0,741		0,423		
<i>R10</i>	3,26	0,39	1,17	0,752			0,504	
<i>R11</i>	3,46	0,40	1,16	0,704			0,593	



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R12	3,41	0,53	1,15	0,725	0,502
R13	3,24	0,45	1,14	0,721	0,501
R14	3,25	0,41	1,13	0,793	0,504
R15	3,44	0,24	1,19	0,783	0,305
R16	3,12	0,32	1,10	0,702	0,416
R17	3,11	0,22	1,18	0,771	0,406
R18	3,45	0,34	1,59	0,783	0,376

R = Reactive, M = Median, S = Standard Deviation, K = Kurtosis, A = Alpha, quitting the item value. Method of extraction of the main axes, promax rotation. Adequacy and Sphericity [$\chi^2= 452,67$ (56df) $p = 0,000$: $KMO = 0,770$]. F1 = Perceived Quality Management (alpha of the 0,780 and the 24% of the variance explained), F2 = Production Perceived Quality (alpha of the 0,785 and 21% of the variance explained), F3 = Perceived Quality Transfer (alpha of the 0,790 and the 16% of the variance explained), F4 = Perception of Total Quality (alpha of the 0,795 and the 11% of the variance explained). All the items are answered with five response options: 0 = it does not look like my organization, 1 = it seems very little to my organization, 2 = it seems little to my organization, 3 = it appears in something to my organization, 4 = it looks a lot like my organization

Source: Elaborate with study data

Once the four first-order factors were established, their linear relationships were estimated in order to observe their factorial structure and the possible emergence of a second-order factor common to the four established factors (see Table 2).

Table 2. Correlations and covariations

	F1	F2	F3	F4	F1	F2	F3	F4
F1	1,000	,325*	,435**	,326*	1,897	,314	,435	,456
F2		1,000	,541*	,436**		1,876	,436	,546
F3			1,000	,437***			1,987	,423



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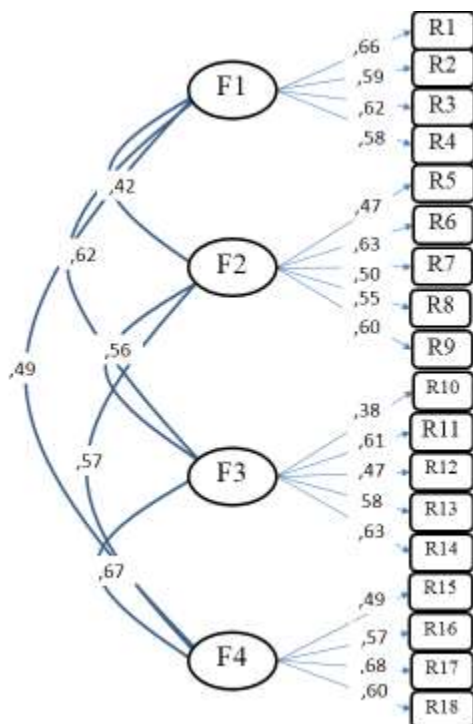
F4	1,000	1,989
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F1 = Perceived Quality Management, F2 = Production Perceived Quality, F3 = Perceived Quality Transfer, F4 = Perception of Total Quality: * $p < ,01$; ** $p < ,001$; *** $p < ,0001$

Source: Elaborated with data study

Figure 3 shows that the perceived management of quality determines the perceived production of quality, but this last factor is determinant of the total perceived quality.

Figure 1. Structural equation modelling





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F1 = Perceived Quality Management, F2 = Production Perceived Quality, F3 = Perceived Quality Transfer, F4 = Perception of Total Quality: \cap relation between factors; \rightarrow relations between factors and indicators

Source: Elaborated with data study

The parameters of adjustment and residual [$\chi^2 = 123,24$ (23df) $p = 0,010$; GFI = 0,990; CFI = 0,991; IFI = 0,993; RMSEA = 0,007] suggest the acceptance of the null hypothesis, relative to the relations of dependence between the factors used in the state of the question and demonstrated in the empirical test.

Discussion

The contribution of this study to the state of the question lies in the establishment of the reliability and validity of an instrument that measures the perception of management, production, transfer and the totality of the quality of the processes, but the type of non-experimental study, the type of non-probabilistic selection and the type of exploratory factor analysis limit the results of the study to the sample and the context of the investigation.

It is recommended to extend the study to other contexts and samples, using sophisticated analysis of factors such as the least squares technique in order to confirm the structure that underlies the perception of total quality, configured by three factors related to management, production and the transfer of knowledge.

It is so important for the organization to hold a substantial list of clients. It is because, the client is the stakeholder that provides organization with the financial resource to



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going on with its labor and remain in its market share. However, it is more important to have a selected list of clients which can be recognized a loyal to the enterprise, and in which case can be a support for the organization.

With the strict control applied on the PV-modules enterprise, apparently mistakes where reduced. In the practice, there were some mistakes on deliveries, however, all of the was due to mistakes in the information provided by sale's agents, main mistakes detected still being in the address given by sale's agents and sale's manager.

With strict control strategy application, it was also possible to determine responsibilities. Due to wrong deliveries, responsibility for each mistake was charged to logistics department or production warehouse, however, when control strategy started it application, it was recognized that mistakes and/or omissions were mainly produced by data provided thorough sales department. Very little mistakes was due to Delivery-service omissions.

Conclusion

In the economy, the total quality is a preponderant factor in the processes and the products, although the labor climate that supposes such company is centered in the analysis of positions, worker cycle and the motivation of the worker as determining factors of a system of management, production and transfer of knowledge oriented to the continuous improvement of the scientific, technological and industrial process.



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