

Measuring Satisfaction of Algerian Social Insured: A PLS-SEM Approach

A. Graa, S. Labair, K. Benyakhlef

Amel Graa, Benyakhlef Khadidja

University of Djillali Liabes, Algeria

Sihem Labair

National Social Insurance Fund, Algeria

Abstract

This study presents a quantitative survey to measure the different factors that affect users' satisfaction in the Algerian Social Insurance Fund. The research uses structural equation modeling (SEM) to analyze and confirm the conceptual model proposed in the study. The findings show that (1) reliability, insurance, relations and ethics have a significant effect on user satisfaction; (2) transparency and tangibility have no significant effect on social insured satisfaction. These findings can help decision makers in public service sector to keep monitoring performance and improving service quality.

Keywords: Public sector, Satisfaction, Perceived quality service, Algerian user, SEM technique.

Introduction

Public service considers the population extensively in its everyday life: school, health, urban and railway transportation, garbage collection, electricity and water distribution, cultural activities, air quality etc. The different activities of public service take an important part in the economic resources of the country, where the public services

are the investors, the consumers, the producers and the employers of first plan.

In Algeria, the public service is not positioned in logic of competition and customer loyalty. However, government often remembers on public forum, that the role of administrators, whatever their status in the hierarchy is to facilitate the daily lives of Algerian people: "This is to restore the trustfulness of the Algerian citizen on the institutions of his country; the gap between the citizen and the administration now is large" states the prime minister. These developments demonstrate to a profound paradigm shift: indeed, in the theory of public services exposed by Duguit, improving relations between the users and the public service can only be undertaken on a legal mode since it devolves on legislator only to know the general interest and thus to define the expectations of users (Didry, 2005).

From the literature review, it is mentioned that wide-reaching studies support the statement that service quality is the precursor of satisfaction (Brady and Robertson, 2001; Sureshchandar et al., 2011). Additionally, providing service in public sector is more complex because it is not only a matter of meeting the stated needs but also setting the priorities, and allocating public resources (Ernani, 2014). While perceived service quality is fundamental to marketing practices in the public sector, its conceptualization has received limited attention (Guenoun et al., 2015).

In this study, we examine the determinants of user' satisfaction in the Algerian public sector mainly in the national social insurance fund better known by its French language acronym (C.N.A.S). Within the framework of the general government policy, this institution has as mission to ensure that the various benefits provided by the legislation of the family and social protection are covered. The said mission is translated concretely by paying social benefits to workers or their rightful claimants: family benefits, old-age invalidity and death pensions, industrial accidents and occupational diseases compensation.

The study is based on a sample of 315 CNAS users in Algeria. The research uses structural equation modeling (SEM) and partial least squares (PLS) approach to analyze and confirm the conceptual model proposed in the research. In this sense, the current study aims at assessing the impact of service perceived quality on the users' satisfaction by using the six dimensions of PSQ model.

Literature Review

The public sector is a part of economic life, public ownership, which deals with the production, delivery, and allocation of basic public goods and services. It may exist at any of four levels: global, regional, national, or local. Its processes and structures can take the form of direct administration, public corporations, and partial outsourcing. Its activities are funded through government expenditure financed by taxes, and government borrowing, or through grants (Serrat, 2010). Beyond the technical tasks that they fill, the public services play a significant role in fighting poverty, to promote the equality of citizens and to combat the inequality.

The origin of the term satisfaction is latin: *satis* (enough) and *facere* (to make); which means to provide what we search for until it is "enough". It means also that there will be satisfaction if and only if the product or service has exactly provided to the consumer what he wished. What is necessary to know also is that satisfaction is based on perceptions and expectations (Zeithaml et al., 2009).

In a public service, which is normally monopolistic, measuring citizens' satisfaction is a way to evaluate the performance. On the other hand, private companies have other tools such as profit. Thus, there are four types of needs to satisfy in the public sector: (1) Needs of usage: water, security, lodging, employment, transportation, education... (2) Needs of associated services: information, simplicity, personalization, confidentiality, rapidity, claim... (3) Needs of society: social cohesion, territorial, sustainable development, citizenship..., (4) to the just cost: need of taxpayer and/or the customer (Touati, 2009).

In general, the quality recognized like comparison between users expectations towards the service provided and its real performance. According to Grönroos (1984), the customer assesses the service quality through two dimensions: the technical dimension and the functional dimension. The technical dimension is relative to the result of the benefit, to the profit that the customer receives once service experience finished. The functional dimension refers to the process in itself, to the way of which the experience of service is lived by the customer (quality of the interaction with the staff of contact, quality of the environment) (Gronroos, 1984). Quality refers to whether something is good or not (Roslan et al., 2015). However, several practitioners define the quality from different expectations of users towards the services provided with the perception of the service received (Munusamy et al., 2010).

Ovretveit (2005, p. 543) summarizes the complexity of a definition of the quality public services while underlining that this one cannot be technical but political: "A quality public services is not one which just produces happy customers, but is one which has to meet other higher level regulations and do so economically".

The multiplication of these new rights mentions the emergence of a principle of quality of the public service that includes two specific requirements (Maisonas, 2003): (1) Accessibility management in the public services does not summarize in planning the local and the timetables of opening. On one hand, it is about adapting the offer of service to the different social and geographical situations of the users to re-establish the equality of access to the service; on the other hand, it is about reinforcing the legibility of the action while making the information more available and simplifying the administrative steps. (2) Improvement of administrative service goes through a better receptiveness of the users and a more rapidity of action. On one hand, by improving the monitoring facilities to reinforce proximity and on the other hand by accelerating the administrative action and to sanction his delay.

Method

A. User' satisfaction assessment methodology

In this study, we propose the application of a hybrid model "PSQ model" which offers a broad guide to measure the perceived quality of service and satisfaction in the public sector. This model is developed by Goudarzi and Guenoun (2010). It combines the legal model proposed by Sabadie (2003) with some elements from the SERVQUAL quality model of Parasuraman et al. (1985, 1988).

The PSQ model is an operational measurement tool, which allows a hybrid analysis of the SERVQUAL model and the specific measurements of the public services. This model combines four principles of the public action (legal model) retained by Sabadie (2003) and five measurements of the SERVQUAL model (Parasuraman et al. 1985; 1988) descended of the service marketing or what it known as client model. The model also proposes an instrument to measure the users' global satisfaction. Directly operational, the PSQ model can be integrated to the present mode of piloting the public performance while valuing and piloting each of the measurements of public services quality from user's perceptions. This model can complete the measures of other

devices commonly used in the public organizations, based on the norms of service.

After data analysis; Goudarzi and Guenoun (2010) keep 31 items and retain six measurements of the of public services quality for measuring global satisfaction:

- The first dimension "Relations" is measured from the items descended of measurements "obligingness" and "empathy" of the SERVQUAL model (9 items). This dimension refers to the relations that the users maintain with CNAS staff. Therefore, we retain four items from this scale:

Rel.1: The CNAS only employs high-quality agents

Rel.2: The CNAS's agents give you accurate information

Rel.3: The CNAS and its agents intend on helping you to the best of their ability

Rel.4: The CNAS's agents give you personalized attention

- The second dimension called "Transparency". It is measured from the items descended of measurements transparency and complaint of the legal model (6 items). This dimension refers to the transparency in the offer of the services as well as in the resolution of the problems. Hence, we retain five items from this scale:

Tran.1: The CNAS clearly explains to the inhabitants the decisions affecting them

Tran.2: Your CNAS agency informs users about the progress of their case

Tran.3: The CNAS delivers a prompt service

Tran.4: In the event of problems, the CNAS explains to the citizens the possibilities of recourse available to them

Tran.5: In the event of complaints, your CNAS agency corrects the problem

- The third dimension called "Reliability". It is measured from the items descended of the measurements reliability of the SERVQUAL model (4 items) and participation of the legal model (3 items). Therefore, the participation of the users in the offer of the CNAS services is associated to the reliability of the global service to form a coherent whole. Therefore, we retain all the items of this scale:

Reli.1: The CNAS listens to the expectations of its users

Reli.2: The citizens participate in the definition of the services delivered by the CNAS

Reli.3: The CNAS is trustworthy

- The fourth dimension called "Tangibility". It is measured from the items descended of dimension tangibility of the SERVQUAL model (4 items). This dimension refers to the material facilities of the CNAS. Therefore, we retain all the items of this scale:

Tan.1: The CNAS uses new technologies to improve the quality of its services

Tan.2: The decoration and aesthetics of the material facilities of CNAS services are pleasant

Tan.3: The material facilities of the CNAS are comfortable and well designed

Tan.4: The CNAS has modern material facilities

Therefore, we propose the hypothesis below:

- The fifth dimension called "Insurance". It corresponds to one measurements of the SERVQUAL model and refers to expertise and to the courtesy of the employees (3 items):

Ins.1: The CNAS's agents are polite and friendly

Ins.2: The CNAS's agents try to serve you even when it goes beyond their obligations

Ins.3: The CNAS's agents understand your needs

- The sixth dimension called "Ethics". It is measured from the dimension equality of the treatments of the legal model (2 items).

Eth. 1: All the citizens enjoy equal treatment from the CNAS.

Eth. 2: The CNAS ensures that all citizens receive a service adapted to their needs.

- Furthermore, the dimension "Satisfaction" is measured from the following items:

Satis.1: Overall, you are satisfied with the services offered by CNAS.

Satis.2: When you think about the way in which your CNAS delivers its services, the feeling is largely positive.

Satis.3: Overall, CNAS is well managed and its services are well organized.

Consequently, we suggest the following hypotheses:

H1: Relations have a positive and significant effect on user satisfaction.

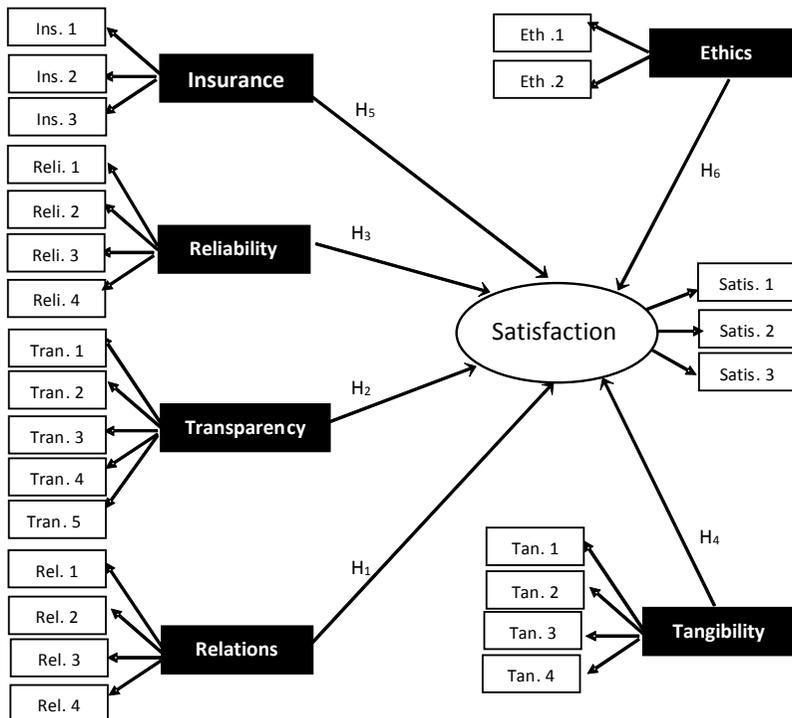
H2: Transparency has a positive and significant effect on user satisfaction.

H3: Reliability has a positive and significant effect on user satisfaction.

H4: Tangibility has a positive and significant effect on user satisfaction.

H5: Insurance has a positive and significant effect on user satisfaction.

H6: Ethics has a positive and significant effect on user satisfaction.

Fig. no. 1. Conceptual Model

Source: Designed by authors

B. Questionnaire design

The questionnaire was the same as the Goudarzi and Guenoun (2010) instrument with a 5-point Likert scale. Yet, some items have been eliminated to accommodate it with the scope of the study. An academic experienced in questionnaire design examined the final set of 22 items. After that, it was subsequently piloted with 15 persons among CNAS services users to ensure that the questions and response formats were clear. Minor modifications were made based on the feedback provided by the pilot study.

The final questionnaire consisted of three sections. In the first section, questions were related to public service dimensions. The second section contained items measuring the user satisfaction degree. In the both sections the items were put on a five-point Likert scale where a value of 1 expresses strongly disagree and a value of 5 expresses strongly agree. The third section contained questions regarding

demographic characteristics of the respondents such as gender, age, education, seniority and occupational category.

C. Sample and data collection

Testing the suggested research hypotheses was accomplished through a convenience sample survey of 5 different CNAS agencies of Sidi Bel Abbes state (Algeria West).

Table no. 1. Sample profile

		Frequency	Percent
Gender	Male	134	44.8
	Female	165	55.2
Age	18- 30	49	16.4
	30-40	89	29.8
	40-60	149	49.8
	More than 60 years	12	4.0
Seniority	Less than 5 years	65	21.8
	5-15	83	27.9
	15-25	68	22.8
	25-35	62	20.8
	More than 35 years	20	6.7
Occupational category	Active insured	209	69.9
	Pensioner	31	10.4
	Employer	50	16.7
	Particular category	9	3.0
Education	Illiterate	16	5.4
	Middle education	117	39.2
	High education	165	55.4
Total		298	100

Source: Sphinx V5, authors' own adaptation

The respondents filled up the questionnaire within the months of April–June, 2015. Total of 315 questionnaires were collected out of which 298 were found to be completely and accurately filled, the rest 17 were discarded due to incomplete information. Respondents were the service users of different five agencies. The detailed sample characteristics are shown in Table 1.

Findings

The study used structural equation modeling (SEM) to test the conceptual model. SEM is a second-generation multivariate data analysis method that is often used in marketing research because it can test theoretically supported linear and additive causal models (Wong, 2013). It is also useful for concurrent assessment of both reliability and validity (Kushwaha and Agrawal, 2015). As the conceptual model is relatively complex, a partial least squares (PLS) approach was employed using the Smart PLS software (Chin, 1998).

A. Scale validity and reliability

To evaluate the validity of each latent construct, a confirmatory factor analysis (CFA) was made by investigating the convergent validity and discriminant validity. Convergent validity is tested by examining the factor loadings and the average variance extracted (AVE) which should be greater than 0.50 for both (Ling and Ding, 2006). Discriminant validity has been assessed using the square root of AVE that should exceed the construct correlations with all other constructs. The constructs' internal consistency can be measured for all scales through Cronbach's α as well as a measure of composite reliability (CR) and should exceed the recommended threshold criterion of 0.70 for both (Wong, 2013).

Table no. 2. Measurement model summary

Constructs	AVE	CR	α	Correlation							
				1	2	3	4	5	6	7	
1 Insur.	.7445	.8973	.8287	.8628	-	-	-	-	-	-	-
2 Ethics	.7449	.9211	.8856	.5763	.9350	-	-	-	-	-	-
3 Reliab.	.8952	.8952	.8541	.6356	.6152	.8631	-	-	-	-	-
4 Relat.	.7153	.9095	.8673	.7561	.7388	.6624	.8458	-	-	-	-
5 Satisf.	.8796	.8796	.8204	.6936	.6805	.6840	.7590	.8803	-	-	-
6 Transp.	.8743	.9329	.8563	.5250	.6558	.7038	.6948	.5826	.7944	-	-
7 Tangib.	.7750	.9118	.8548	.5418	.3973	.6088	.4892	.5213	.4886	.8042	-

Source: Smart pls V2, authors' own adaptation

Note: α = Cronbach's alpha, CR = Composite Reliability, AVE = Average Variance Extracted.

The Diagonal elements in bold are squared AVE; off-diagonal elements are the correlation between constructs.

Results of Table no. 2 illustrate that the AVE for all variables exceeded the recommended level of 0.50 (Bagozzi and Yi, 1988) CR and Cronbach's α of all the latent variables are greater than the acceptable limit of 0.70. The values of the square root of the AVE are all greater than the inter-construct correlations. Thus, the measurement model reflects good construct validity and reliability.

B. Structural model analysis

To evaluate the model within SmartPLS software, the goodness of fit (GoF) index is calculated by the geometric mean of the average communality and the average R^2 (for endogenous constructs) (Henseler and Sarstedt, 2013). The R^2 is the coefficient of determination; it refers to the exploratory power of the predictor variable(s) on the respective construct. In the present study, the calculated value of AVE=0.73 and $R^2=0.67$. For the model, a GoF value is 0.7, which indicates that a very good global model fits with the data collected.

Table no. 3. Structural model estimates

Path	β	t-values	Results
H ₁ : Relations → Satisfaction	.339	5,129	Accepted
H ₂ : Transparency → Satisfaction	-.078	-1,433	Rejected
H ₃ : Reliability → Satisfaction	.229	4,076	Accepted
H ₄ : Tangibility → Satisfaction	.081	1,854	Rejected
H ₅ : Insurance → Satisfaction	.168	3,056	Accepted
H ₆ : Ethics → Satisfaction	.211	4,024	Accepted

Source: Smart pls, authors' own adaptation

Bootstrapping with 2000 resample was done to derive t-values for significance testing of the structural path (Chin, 1998). Standardized path coefficients (β), t-statistics, and associated significance levels for all relationships in the study model are presented in Table 3. Using a two-tailed t-test with a significance level of 5%, the path coefficient will be significant if the t-value is larger than 1.96 (Chin, 1998). The results indicated that Insurance ($\beta=0.168$; $p<0.05$), Reliability ($\beta=0.229$; $p<0.05$), Relations ($\beta=0.339$; $p<0.05$) and Ethics ($\beta=0.211$; $p<0.05$) had a positive and significant effect on user satisfaction. Thus, H₁, H₂, H₄, and H₆ were accepted. However, transparency ($\beta= -0.078$; $p>0.05$) and tangibility ($\beta=0.081$; $p>0.05$) showed no significant effect on user satisfaction. Therefore, H₃ and H₅ were rejected.

Conclusions and discussion

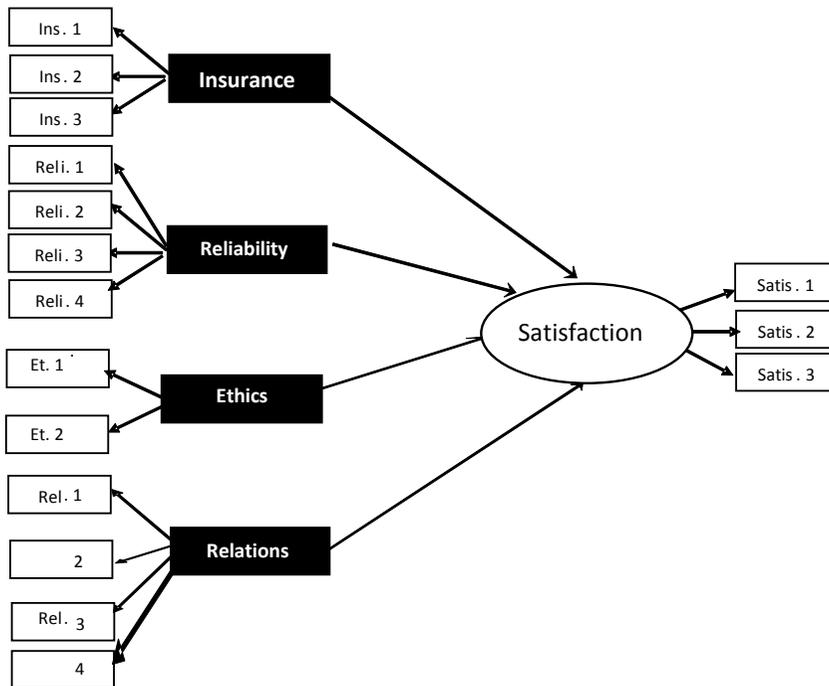
Overall, we assumed that the service quality is determined by six measurements - adopted from the literature review: (1) the relation that the users maintain with the staff of the CNAS; (2) The reliability that makes reference to the capacity discerned of the beneficiary to achieve the service promised; (3) the insurance that makes reference to expertise and to the courtesy of the CNAS employee and his or her ability to inspire confidence; (4) the ethics that makes reference to the equality in treatment of the social insured; (5) the transparency of the information provided to the social insured on the actions of service of the CNAS and on the treatment of their demands in individuals; (6) the tangibility that makes reference to the material facilities, and to the staff's appearances.

The study found relation; reliability; insurance and ethics had a positive and significant effect on user satisfaction. However, transparency and tangibility had no significant effect on social insured satisfaction. It can conclude that the social insured sees and judges the services of the CNAS with a big emotional part cognitive. The results of the analysis indicated that among the different dimensions addressed in the model, the relation had the most ($\beta=0.339$) impact on user satisfaction, followed by reliability ($\beta=0.229$) and ethics ($\beta=0.211$). On the other hand, insurance ($\beta=0.147$) had a small effect on social insured satisfaction among them (see Table 3). Therefore, citizens pay attention to the interaction between them and the frontline employees. They solicit empathy, friendliness of staff and willingness to help them. Users look also for the trustworthiness and benefit of the prompt service within the agreed deadline. Otherwise, people in CNAS agencies expect equal treatment and understanding their needs. Based on the prior discussion, the hypothesized model is modified (Fig. 2) to remove the factors that had no significant effect on satisfaction users.

The present study uses PSQ model to measure Algerian users' satisfaction and perceived quality service since it has been not frequently used for evaluate the quality service in public sector. However, this research confirms that this model is compliant with the theory and we have verified its validity. Therefore, it can be considered like an initiative to other structural models in order to establish, shortly, of new studies and research in the domain. On the managerial level, this model gives a new lighting to the local decision-makers in order to integrate it for piloting the public service performance. The perceived quality of service for the social insured represents an important

dimension on his satisfaction and a credible indicator to put in evidence as well as to correct some dysfunctions in the National Social Insurance fund “CNAS”.

Fig. no. 2. Modified Model



Source: Designed by authors

The purpose of the study was to demonstrate the most important elements that influence Algerian user' satisfaction in the context of CNAS services. The present study examined the PSQ model to confirm and explain the mentioned relationship and SEM technique was then applied to test the model with a 2000 subsamples bootstrapping procedure using the Smart PLS software.

This study highlights important concepts relating to the satisfaction and quality service in the public sector by developing a research framework with six hypotheses to explore the influences of determinants of perceived quality on users' satisfaction in Algerian social insurance fund. This analysis' results show that relation that

maintain citizens with fund' employees would significantly affect their satisfaction, and it influence (in terms of path coefficient and statistics significance) are much stronger than the influences of reliability, ethics and insurance.

This study certainly suffers from difficulties due to time and budget limits. All the data were collected only among CNAS users with limited sample and in limited region, therefore these findings cannot be generalized to the entire Algerian public sector. Another topic for future investigation is to explore that there are another factors affecting the citizens' satisfaction. A wider research scope of exploration can make design principles and specific application guidelines that this study identifies and suggests more generalizable.

Bibliography

- Bagozzi, R. P., Yi, Y. (1988). "On the Evaluation of Structural Equation Models", *Journal of the Academy of Marketing Science*, Vol. 16, N. 1, pp. 74-94.
- Brady, M. K., Robertson, C. J. (2001). "Searching for a consensus on the antecedent role of service quality and satisfaction: An exploratory cross-national study", *Journal of Business Research*, Vol. 51, pp. 53-60.
- Chin, W. W. (1998). "The partial least squares approach to structural equation modelling", In *Modern Business Research Methods*, Lawrence Erlbaum Associates, Mahwah, NJ, pp. 295-336.
- Didry, C. (2005). "Léon Duguit, Where the public service in action" (Léon Duguit, ou le service public en action), *Revue d'histoire moderne et contemporaine*, Vol. 3, N. 52, pp. 88-97.
- Ernani, H. (2014). "Service Quality and Performance of Public Sector: Study on Immigration Office in Indonesia", *International Journal of Marketing Studies*; Vol. 6, N. 6, pp.104-117.
- Goudarzi, K., Guenoun, M. (2010), "Conceptualization and measure of quality in the public service (PSQ) in a territorial collectivity" (Conceptualisation et mesure de la qualité des services publics (QSP) dans une collectivité territoriale), *Politiques et management public*, Vol. 273, pp. 31-54.
- Gronroos, C. (1984). "A service quality model and its marketing implications", *European Journal of Marketing*, 18, pp. 36-44.

- Guenoun, M., Goudarzi, K., Chandon J. L. (2015). "Construction and validation of a hybrid model to measure perceived public service quality (PSQ)", *International Review of Administrative Sciences*, vol. 82, N. 1, pp. 208-230.
- Henseler, J., Sarstedt, M. (2013). "Goodness-of-fit indices for partial least squares path modeling", *Computational Statistics*, Vol. 28, N. 2, pp. 565-580.
- Kushwaha, G. S., Agrawal, S. R. (2015). "An Indian customer surrounding 7P's of service marketing", *Journal of Retailing and consumer services*, Vol. 22, pp. 85-95.
- Ling, C. P., Ding, C. G. (2006). "Evaluating group difference in gender during the formation of relationship quality and loyalty in ISP service", *Journal of organizational and end user computing*, Vol. 18, N. 2, pp. 38-62.
- Maisonas, S. (2003). "Customer service: Knowledge and Measure of the customer's satisfaction" (Service à la clientèle : connaissance et mesure de la satisfaction du client), *Midi conférence, Québec : Institut de la Gestion*.
- Munusamy, J., Chelliah, S., Mun, H. W. (2010). "Service Quality Delivery and Its Impact on Customer Satisfaction in the Banking Sector in Malaysia", *International Journal of Innovation, Management and Technology*, Vol. 1, No. 4, pp. 398-404.
- Ovretveit, J. (2005). "Public service quality improvement", In Ferlie et col. (Éds.), *The Oxford Handbook of Public management*, Oxford University Press, pp. 537-556.
- Parasuraman, A., Zeithaml, V. A., Berry, L. L. (1985). "A conceptual model of service quality and implications for future research", *Journal of Marketing*, Vol. 49, Fall, pp. 41-50.
- Parasuraman, A., Zeithaml, V. A., Berry, L. L. (1988). "SERVQUAL: a multiple-item scale for measuring consumer perceptions of service quality", *Journal of Retailing*, Spring, pp.12-40.
- Roslan, N., A., Wahab, E., Abdullah, N. (2015). "Service quality: A case study of logistics Sector in Iskandar Malaysia Using SERVQUAL Model", *Procedia - Social and Behavioral Sciences*, Vol. 72, pp. 457-462.
- Sabadie, W. (2003). "Conceptualization and measure of perceived quality of public service" (Conceptualisation et mesure de la qualité perçue d'un service public), *Recherche et Applications en Marketing*, Vol. 18, N.1, pp. 1-24.

-
- Serrat, O. (2010). *Marketing in the public sector*, Washington, DC: Asian Development Bank.
- Sureshchandar, G. S., Rajendran, C., Kamalanabhan, T. J. (2011). "Customer perceptions of service quality: A critique", *Total Quality Management*, Vol. 121, pp.111-124.
- Touati, N. (2009). "Management of quality in public sector: is the subject well surrounded?" (La gestion de la qualité dans le secteur public: a-t-on fait le tour de la question?), *La Revue de l'innovation dans le secteur public*, Vol. 14, pp. 3-13.
- Wong, K. K. (2013). "Partial Least Squares Structural Equation Modeling (PLS-SEM) Techniques Using Smart PLS", *Marketing Bulletin*, Vol. 24, pp. 1-32.
- Zeithaml, V. A., Bitner, M. J., Gremler, D. D. (2009). *Services marketing: integrating customer focus across the firm*, 5th ed. Boston, MA: McGraw-Hill Irwin.

