

APPLYING HIERARCHICAL SERVICE QUALITY MODEL IN MEASURING MOBILE PHONE SERVICE QUALITY IN ALGERIA

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ABSTRACT : *Using mobile phone service as an example, we analysed and tested the validity of the hierarchical model of service quality developed by Brady and Cronin in the measurement of service quality in Algeria; using a sample of 350 respondents representing the customers of mobile phone service providers in Algeria. Through using confirmatory factor analysis and correlation coefficient measurements, we were able to confirm that all three levels of the proposed hierarchical structure; including the primary dimensions of interaction, outcome, and environment qualities, were important and valid in measuring mobile phone service quality in Algeria. Our study results have also enabled us to produce a slightly modified version of the hierarchical model of service quality measurement that is appropriate to the Algerian service sector. Our proposed modified model provides implications for future research on service quality measurements in Algeria.*

KEYWORDS: Service Quality, Customer Satisfaction, Hierarchical Service Quality Model, Mobile Phone Service

INTRODUCTION

There is an increasing trend amongst companies worldwide in trying to improve the quality of services provided to customers, due to an increase in customers's awareness about the levels of service quality offered, the continuing rise of customer's expectations and the fierce competition between companies in providing high service quality. This newly developed importance of service quality has led to an increasing interest in studying and measuring the quality of these services by professionals and academics alike. Therefore, in recent decades, several researchers have focused on developing ways to assess and measure service quality. This interest has resulted in developing various models for measuring service quality.

This interest emerged more in the early eighties, when companies began to pay more attention to customers' experience, through establishing a new internal body responsible for collecting information about customers (complaints, opinions, etc...), and attempting to improve service quality through measuring the companies' pitfalls and developing ways and methods to eliminate them¹. This attempt was the beginning of developing models to measure the quality of services from the viewpoint of customers. The purpose of measuring service quality is the continuous improvement in service quality in order to achieve outstanding level of customer

satisfaction. Therefore, most models developed for measuring service quality were based on customers' perspective and focused on customer's expectations and satisfaction.

LITERATURE REVIEW

Various models, for measuring service quality, were developed in the last few decades. These models include SERVQUAL, which is the most commonly used and studied model of service quality measurement in marketing research. This model was established by Parasuraman, Zeithmol and Berry in 1988, and it measures service quality by measuring the gap between customers' perception and customers' expectation.². Another commonly used model is SRVPERF, which was developed by Taylor and Cronin (1992-1994), and it is a model which measures customers' perception of service performance level directly as a means of measuring service quality³.

One of the newly emerging model of service quality measurement in marketing research is the hierarchical service quality model; which we have applied in measuring service quality in this study. This model was developed by both researchers Brady and Cronin in 2001⁴. This model is considered to be inclusive of all previous models of service quality measurement, as it measures all service quality concepts. In fact, this model divided the concept of service quality measurement hierarchically into primary and secondary dimensions. This division is based on researches which demonstrated that customers do not form a spontaneous and direct opinion about service quality in their assessment, instead they follow a series of complex thinking when assessing service quality. This complex thinking follows hierarchical stages; as customers were observed to collect their assessment from groups of primary and secondary dimensions to form their opinions about the company's performance in each dimension and then assemble these views together to form their perception about the total service quality of the company providing the service⁵.

This model has important implications in the managerial aspect of service quality, as this model determines the quality of service provided within different dimensions, which will support the managers in accurately identifying the specific aspect needed to be improved in the service provided in order to improve the overall service quality. In addition, this model can be used as a tool to compare service quality provided by different companies, and determine the exact aspects of service where these companies' service quality are different.

The model measures the quality of service through measuring customers' perception about the performance level of the service providers in three primary dimensions, and each dimension contains secondary dimensions. The primary dimensions of the hierarchical service quality model are⁶:

1. Interaction Quality.
2. Physical/ Environment Quality.
3. Outcome Quality.

The interaction quality means the quality of the interactive relationship that evolves between customers and providers of the service during the provision of service, and it involves three secondary dimensions; Attitude, Behaviour and Expertise. The customers determine the level of performance of the service providers through assessing their attitude, behaviours and

expertise during the provision of the service. The physical or environmental quality means the quality of the physical surroundings which has been found to have a significant impact on customers' evaluation of the quality of the service provided, as customers need to come to the place where the service is provided. The physical quality includes three secondary dimensions which are; Ambient conditions (Which include physical factors such as the degree of heat or smell), Facility design (which include the decor and the design of the place of the service), and Social Factors (which include the number and type of customers within the environment of the service).

The outcome quality which is defined by Gronroos as "a sense of service, which remains with the customer after the end of service"⁷. Many researchers have found that the outcome quality has a significant impact on customers' perception of the overall service quality provided, and they have identified three important elements for this dimension, and these elements are; Waiting time, Tangible evidence, and Valence (which means personal opinion of the customers about the outcome of the service).

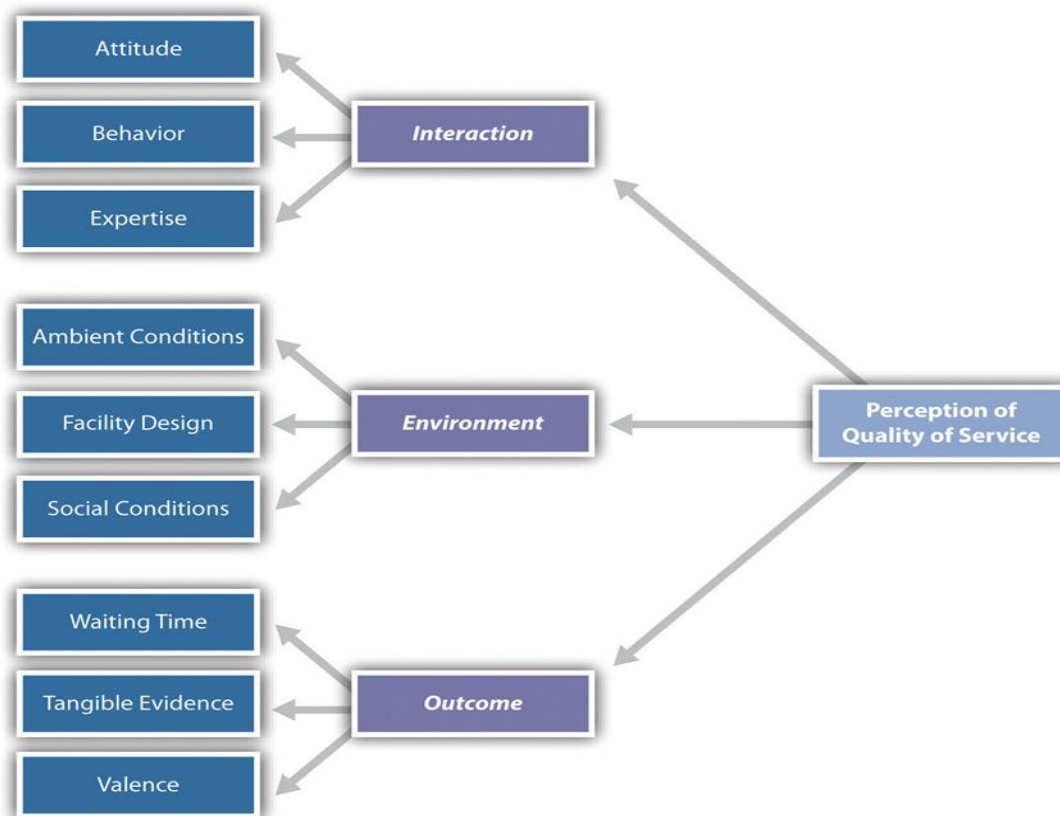


Figure 1. Primary and Secondary Dimensions of the Hierarchical Model of Service Quality⁸

The researchers Brady and Cronin developed a survey consisting of 35 elements representing the primary and secondary dimensions of the hierarchical model of service quality measurement. These elements were designed in a form of questions, where the customers were asked to evaluate each element using Likert scale starting from the value 1 (which mean strongly disagree with the statement), to the value 7 (which means strongly agree with the statement)⁹.

All items were scored on a seven-point Likert scale (1 = "strongly disagree," 7 = "strongly agree").

Interaction Quality:

- Overall, I'd say the quality of my interaction with this firm's employees is excellent.
- I would say that the quality of my interaction with the firm's employees is high.

Attitude

- You can count on the employees at the firm being friendly.
- The attitude of the firm's employees demonstrates their willingness to help me.
- The attitude of the firm's employees shows me that they understand my needs.

Behaviour

- I can count on the firm's employees taking actions to address my needs.
- The firm's employees respond quickly to my needs.
- The behaviour of the firm's employees indicates to me that they understand my needs.

Expertise

- You can count on the firm's employees knowing their jobs.
- The firm's employees are able to answer my questions quickly.
- The employees understand that I rely on their knowledge to meet my needs.

Physical/ Environment Quality:

- I would say that the firm's physical environment is one of the best in its industry.
- I would rate the firm's physical environment highly.

Ambient Conditions

- At the firm, you can rely on them that there will be a good atmosphere.
- The firm's ambiance is what I'm looking for in the firm's facility.
- The firm understands that its atmosphere is important to me.

Design

- This service provider's layout never fails to impress me.
- The firm's facility's layout serves my purposes.
- The firm understands that the design of its facility is important to me.

Social Factors

- I find that the firm's other customers consistently leave me with a good impression of its service.
- The firm's other customers do not affect its ability to provide me with good service.
- The firm understands that other patrons affect my perception of its service.

Outcome Quality:

- I always have an excellent experience when I visit the firm.
- I feel good about what the firm provides to its customers.

Waiting Time

- Waiting time at the firm is predictable.
 - The firm tries to keep my waiting time to a minimum.
 - This service provider understands that waiting time is important to me.
- Tangibles**
- I am consistently pleased with the firm.
 - I like the firm because it has what I want.
 - The firm knows the kind of service its customers are looking for.
- Valence**
- When I leave the firm, I usually feel that I had a good experience.
 - I believe the firm tries to give me a good experience.
 - I believe the firm knows the type of experience its customers want.
- Service Quality:**
- I would say that the firm provides superior service.
 - I believe the firm offers excellent service.

Figure 2. Survey Items of the Hierarchical Model of Service Quality⁹

METHODOLOGY

The aim of this study was to assess the possibility of applying the hierarchical model of service quality measurement in the Algerian service sector, using mobile phone service as an example. The sample of this study was selected randomly from Algerian university students who are also customers of different mobile phone service providers operating in Algeria. The customers chosen to participate in this study were 350 university students aged between 25 and 34 years old and of both genders.

We designed a survey, by translating to Arabic (The official language in Algeria) the questionnaire developed by Brady and Cronin for the hierarchical model of service quality measurement, which consisted of primary and secondary dimensions. We also included the questionnaire developed by Bitner and Hubbert (1994), translated to Arabic, in order to be able to measure the customers' satisfaction as well¹⁰.

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he Survey was distributed amongst the 350 study participants and they were advised to complete the questions on the survey based on their perception of the service quality provided by mobile phone service providers; using Likert scale; and 282 surveys were collected and identified to be valid for the analysis of the study.

In this study, we tried to establish some facts when analysing the results of the study in order to determine whether we can adopt the hierarchical model of service quality measurement in measuring service quality in Algeria, and whether any modifications needed to be applied to the model in order to make it valid and adopted in the Algerian service sector.

In order to determine that the hierarchical model of service quality measurement is valid we need to prove that there is an established statistical correlation between the primary and

secondary dimensions, and between the primary dimensions and the overall service quality, and this can be confirmed using goodness of fit indices of the confirmatory factor analysis.

In addition, we need to determine that there is an established statistical correlation between overall service quality and customers' satisfaction in order to prove the validity of the hierarchical model of service quality measuring, as researches proved that there is a positive correlation between the level of service quality and the level of customer satisfaction. Therefore, proving the presence of positive statistical correlation between service quality and customers' satisfaction will prove the validity and the viability of the model of service quality measurement used¹⁰.

RESULTS & DISCUSSION

In this study, we used goodness of fit indices in order to confirm the validity of the hierarchical model in measuring service quality in mobile phone service sector in Algeria.

The values of NFI for the secondary and primary dimensions of the model in this study was 0.869, and 0.968 consecutively, which were similar to the values obtained in the study of Brady and Cronin. This result indicates that the model is statistically valid in measuring service quality in phone mobile service in Algeria, despite the different characteristics of the environment, customers and economic activity studied.

In this study, we have also noted that the values of CFI in the secondary and primary dimensions were 0.877 and 0.969 consecutively, and these values were close to or equal to the values obtained by the researchers Brady and Cronin in the original study. The values of TFI are close to the value 0.9, which proves the validity of the model in measuring service quality of mobile phone service in Algeria.

Goodness of Fit Indices	CFI	NFI
Secondary Dimensions of the Current Study	0.877	0.869
Secondary Dimensions of Brady & Cronin Study	0.93	0.92
Primary Dimensions of the Current Study	0.969	0.968
Primary Dimensions of Brady & Cronin Study	0.91	0.90

Table 1. Results of Goodness of Fit Indices of the Current Study and Brady and Cronin Study.

The results of NFI and CFI indices of the secondary dimensions were slightly below the value 0.90, which means that the validity of the model in this study can be improved further. Therefore, we decided to revisit the standard deviations of the elements of the secondary dimensions, and we found out that the element (The ambient conditions) of the secondary

dimension (Physical Environment) and all the elements of the secondary dimension (The waiting time) showed low standard deviations; which may indicate low level of importance of these elements.

Therefore, we decided that these elements are not important and can be removed from the model applied in measuring service quality in mobile phone service in Algeria. Therefore, we modified the model by removing these elements and we re-calculated the Goodness of fit indices, and we found that by removing these elements the goodness of fit indices improved, resulting in values of NFI and CFI of 0.896 and 0.903 consecutively.

Goodness of Fit Indices	CFI	NFI
Primary and Secondary Dimensions	0.903	0.896

Table 2. Results of Goodness of Fit Indices of the Modified Current Study.

Furthermore, in order to further prove the validity of the model we have analysed the statistical correlation between the primary and secondary dimensions, and between the secondary dimensions and the overall service quality, and we have found statistically strong correlation coefficient results ranging between 95% to 98%, which indicates that the hierarchical model is valid in measuring the service quality in mobile phone services in Algeria.

R2	Outcome Quality	Physical Environment Quality	Quality Interaction
Attitude			0,98
Behaviour			0.97
Expertise			0.95
Ambient Condition		0.97	
Design		0.96	
Social Factors		0.97	
Tangibles	0.975		
Valence	0.965		

Table 3. Correlation Coefficient Results Between Primary and Secondary Dimensions.

R2	Overall Service Quality
Interaction Quality	0.965
Physical Environment Quality	0.95
Outcome Quality	0.965

Table 4. Correlation Coefficient Results Between Secondary Dimensions and Overall Service Quality.

In addition, in order to prove that the model is valid in measuring service quality we proved the presence of a positive correlative relationship between the overall service quality and customer's satisfaction. Indeed, we found that the correlation coefficient between the customers' satisfaction and the overall service quality has a highly positive value (0.967), which proves further that the modified hierarchical model is valid in measuring service quality in mobile phone services in Algeria.

R2	Customers' Satisfaction
Overall Service Quality	0.967

Table 5. Correlation Coefficient Results Between Customers' Satisfaction and Overall Service Quality.

IMPLICATION TO RESEARCH AND PRACTICE

In this study we proved that the hierarchical model of service quality measurement developed by Brady and Cronin can be applied in measuring service quality in the Algerian service sector, as we have demonstrated its validity statistically.

In addition, we have modified the model slightly, through removing some unimportant elements, in order for the model to be suitable for the Algerian customers and applicable in the Algerian service sector.

However, in this study we managed to use a small sample of 350 respondents and only 282 surveys were identified to be valid for the analysis of the study. Therefore, future research should attempt to include a larger sample in order to attain more valid results. In addition, this study tested the validity of the hierarchical model of service quality measurement in only one service field; which was the mobile phone service sector. Therefore, future research should test the model in other services in Algeria in order to prove its validity in measuring service quality in different services.

CONCLUSION

Using confirmatory factor analysis and correlation coefficient measurements, we were able to confirm that all three levels of the proposed hierarchical structure of Brady and Cronin were valid in measuring mobile phone service quality in Algeria. Our study results have also enabled us to produce a slightly modified version of the hierarchical model of service quality measurement that is appropriate to the Algerian service sector.

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