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The Relationship Between Unlimited Improvement and Service Quality: A Research in Libyan Hospitals

Zuhair Mohamed SABOUN

Business Department PhD Student, Kastamonu University, Turkey
Libyan Academy Masrata/Libya
zsaboon@gmail.com
Orcid: 0000-0002-5009-5701

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Abstract

Quality is one of the most important aspects in any organization as it can be the differentiating factor in competitive market environments. Therefore, quality management systems and concepts emerged to enable organization to implement quality processes and systems, evaluate them, and continue monitoring them for a sustained and improved quality level. Service quality and unlimited improvement are part of quality management concepts, which are focused on specific quality areas within the organization. Service quality is beneficial for all organizations, especially if the core business is dependent on provided services. Moreover, unlimited improvement is a modern concept that works on extending quality to all aspects within the organization.

In this research, the relationship between service quality and Unlimited Improvement is assessed. This study based on the case study of Libyan healthcare establishments, i.e. hospitals. The researcher collected 413 questionnaires that included reliable scales of both quality management concepts. The results of the analysis show that there is a positive relationship between service quality and unlimited improvement, with medium strength correlation coefficient.

Keywords: Unlimited Improvement, Service Quality, Healthcare, hospitals, Libya

Jell Code: M10

Sınırsız İyileştirme ve Hizmet Kalitesi İlişkisi: Libya Hastanelerinde Bir Araştırma

Öz

Kalite, rekabetçi pazar ortamlarında ayırt edici faktör olabileceğinden, herhangi bir

organizasyondaki en önemli yönlerden biridir. Bu nedenle, kuruluşun kalite süreçlerini ve sistemlerini uygulamasına, değerlendirmesine ve sürdürülebilir ve iyileştirilmiş bir kalite düzeyi için izlemeye devam etmesine olanak tanıyan kalite yönetim sistemleri ve kavramları ortaya çıkmıştır. Hizmet kalitesi ve sınırsız iyileştirme, kuruluş içindeki belirli kalite alanlarına odaklanan kalite yönetimi kavramlarının bir parçasıdır. Hizmet kalitesi, özellikle ana iş sağlanan hizmetlere bağlıysa, tüm kuruluşlar için faydalıdır. Ayrıca sınırsız iyileştirme, kaliteyi organizasyon içinde tüm yönlere yaymak için çalışan modern bir kavramdır. Bu araştırmada hizmet kalitesi ile Sınırsız İyileştirme arasındaki ilişki değerlendirilmektedir. Bu çalışma, Libya sağlık kuruluşları, yani hastaneler vaka çalışmasına dayanmaktadır. Araştırmacı, her iki kalite yönetimi kavramının güvenilir ölçeklerini içeren 413 anket topladı. Analiz sonuçları, hizmet kalitesi ile sınırsız iyileştirme arasında orta kuvvette korelasyon katsayısı ile pozitif bir ilişki olduğunu göstermektedir.

Anahtar Kelimeler: Sınırsız İyileştirme, Hizmet Kalitesi, Sağlık, hastaneler, Libya

Jel Kodu: M10

1. Introduction

There are a few concepts that aim to assess and enhance quality planning, implementation and control in organizations. Nonetheless, the aim of quality frameworks in the recent years is to ensure that quality systems, process and procedures are extended to its maximum within the organization. There are several tools that are used for quality management, while the concepts of Service Quality and Unlimited Improvement address significant parts quality. The concept of service quality was first discussed by Parasuraman, Zeithaml and Berry in order to find the dimensions and indicators that affect the quality of the service and can help assess it in a comprehensive framework. Moreover, the concept of unlimited improvement is based on total quality management in order to ensure the extent of quality management to all parts of the organization, including suppliers and all management levels.

The problem addressed in this research is the evaluation of service quality and unlimited improvement and test the relationship between them based on the case study of healthcare institutions in Libya. Through the theoretical

study and literature review performed, it is evident that these quality management concepts have the potential of having a relationship between them. The relationship is evident through the positive impacts both concepts had on performance indicators (Benshina, 2018; Nair, 2016). Therefore, it is important to understand the relationship between service quality and unlimited improvement for a better application on business organizations.

2. Literature Review

The development of the scale of service quality started in the mid-1980s by Parasuraman et al. through the understanding of the service business nature, as well as the perception differences between customers, employees and management. The authors identified five main dimensions for service quality, which are reliability, responsiveness, assurance, empathy and tangibles (Parasuraman, Zeithaml and Berry, 1985). Each of the five dimensions has several indicators that form a scale for their evaluation. The impact of each of these dimensions on service quality is mainly dependent on the business type and the service provided. However, it was stated by the authors that reliability is considered the most important dimension amongst all, while tangibles can be the least important (Parasuraman, Zeithaml and Berry, 1994; Berry, Parasuraman and Zeithaml, 1994).

Reliability is evaluated through ensuring that the organization performs the promised service on time and right from the first time, showing sincere interest to customers with problem, and provide support as promised and on time. Responsiveness is achieved when employees are able to communicate the exact service time to the customers, provide a prompt service, have the will to help customers and never be busy to respond to a customer. Assurance is achieved through the behavior of the employees with confidence in the customers, employees feel safe to perform transactions, employees being courteous with customers, and employees having the adequate knowledge to answer customers' questions. Empathy is observed through providing an individual attention to each customer, providing the service during convenient hours to all customers, and always having the best interest of the customer at heart. The tangibles dimension is witnessed through the modern look of the equipment, the facilities being

visually appealing, the employees having a neat appearance and used material being visually appealing (Parasuraman, Berry and Zeithaml, 1991).

Unlimited improvement is a quality management concept that aims to removing all limitations faced by organizations in extending quality systems and processes throughout their structure. The concept is inspired by the issues usually faced through implementing total quality management. Unlimited improvement simulates the inclusion of all people, practices, systems, stakeholders and management levels into the quality management system through a continuous appraisal and enhancement. The concept of unlimited improvement addresses several aspects that may not be included in another quality management concept, including organization structure, managers, employees, processes, products, suppliers, tools, working hours, personal rights, educational budget, social infrastructure, permits, and compensation and reward systems (Küçük, 2017).

The importance of unlimited improvement is mainly due to the problems encountered in TQM practices and quality improvement only within certain limits. This is due to the fact that it can be done in a limited environment.

Unlimited healing approach, all person, process, vehicle etc. It brings a basic recommendation such as ensuring that the improvement is included in the scope of improvement and draws attention to this deficiency. Thus, all elements are included in the scope of improvement, in this case, the success of TQM application increases, and organizational performance and customer satisfaction can be increased in real terms (Küçük, 2017: 402).

- Perfectionism is essential
- Quality cannot be limited
- Every suggestion is valuable
- Every part is replaceable
- No element is indispensable

Unlimited Improvement, which is carried out within the framework of principles such as, argues that the top management should have a principled stance in order to improve the organization in all its aspects.

Quality management scales and assessment tools have been correlated with different business aspects in the organization. Ismail and Yunan (2016) proposed two hypotheses to establish the relationship between service quality and the loyalty and satisfaction of the customers. Through a questionnaire that included more than 750 respondents, the findings indicate a high influence of service quality on customer satisfaction, and similar results for their loyalty. The same hypotheses were tested on Iranian banking sector, where at least three of the five service quality dimensions had an impact on customer satisfaction, and subsequently loyalty (Molaee, Ansari, & Teimuori, 2013). Dilek & Küçük (2017) claimed that demographic variables such as age, occupation etc. affect customer satisfaction. Nair (2016) established the effects of implementing service quality principles on business performance outcomes. The results of the research show that all service quality model dimensions had an impact on the performance of the organization; financial, non-financial and operational. Tzeng and Chang (2011) used an importance-performance analysis (IPA) in order to measure service quality in organizations. Wijetunge (2016) showed through statistical analysis that service quality is correlated to competitive advantage and business performance through medium to strong correlation factors. Unlimited improvement has been also correlated to business perfromance in a few studies, such as Ay & Nurov (2017) and Benshina (2018).

3. Aim of Study

In this study, the main aim is to register the relationship between the service quality and unlimited improvement.

These variables' scales based on the case of hospitals in Libya.

4. Scope and Methodology

A subjective method is used in this research through a questionnaire for users and employees of Libyan hospitals. The sampling methods that are used to collect the data are both random and non-random (Küçük 2016, 2022), as the participants were required to be users or employees in a Libyan hospital. As far as the previous condition was satisfied, the participants were chosen randomly from the population pool. Furthermore, it is important to mention the tools and scales that were used to collect the data. The tools that

are used for data collection need to be reliable and tested through many studies (Küçük, 2011 and 2017).

The two concepts that are tested in this research have their own scales that are recommended by their authors. However, the scales may be changed a selectively in order to suit the case of application. The dimensions that form each of the concepts are maintained for a reliable measurement. Based on that, the used sales are referenced as the following:

- Service Quality (ServQual) scale: the main reference is Parasuraman, Zeithaml and Berry (1985), where the concept scale was established and the subsequent researches of the same authors in 1991 and 1994.
- Unlimited improvement scale: the dimensions and indicators are based on Küçük (2011, 2017), where the dimensions and indicators of the concept were given and tested.

Each of the indicators of the two concepts was tested on a 5-point Likert scale. The scale ranged from strongly agree (5) to strongly disagree (1). The sampling technique used in collecting the data was random from the users and employees at healthcare institutions in Libya. Furthermore, the sample size has to reach a minimum of 382 participants in order to achieve a reliability of 95% (Küçük, 2016: 68-81). Therefore, the sample quota is determined to be 400 for this study, where physical questionnaires were distributed and collected from each participant. After the questionnaire implementation, a total of 500 questionnaires were distributed and a total of 413 questionnaires were completed and received back.

5. Research Model

The two concepts that are discussed in this study form the main variables that are used for the study. Each of them has several dimensions and indicators that are used to determine the main concept. The focus of the current research is to establish the relationship between the main concepts. Unlimited improvement has a total of nineteen indicators, while service quality has a total of twenty-two indicators from five dimensions. The mean values of the two concepts are averaged in order to create a variable that can be correlated with the other concept. As shown in Figure 1, two variables are included in the evaluation of this research; service quality and unlimited

improvement. The statistical analysis tests the relationship between the two concepts.

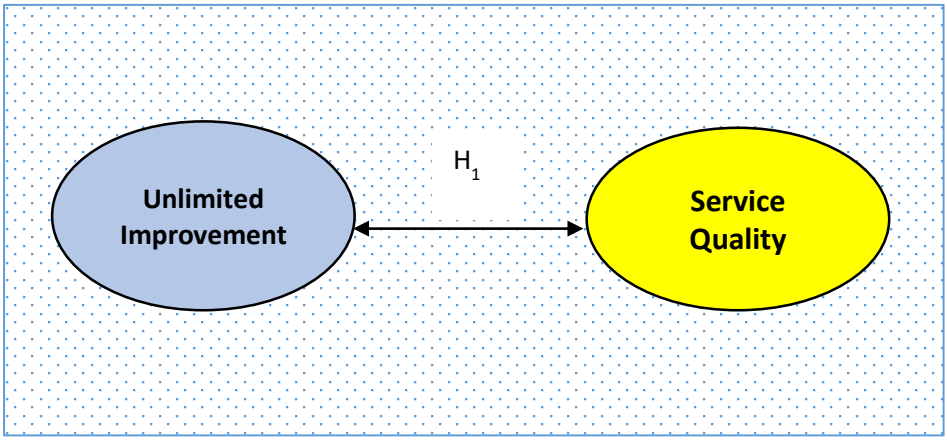

Figure 1: Research Model

6. Hypothesis

The scale to measure enhancements in the tool of total quality management was developed by Küçük (2011, 2012) in order to ensure that quality management processes and systems are extended to all parts and stakeholders of the organization. There are several dimensions that are included in the model: optimization, organization structure, training and suppliers. There are few studies that researched the relationship between unlimited improvement and service quality. Nonetheless, there are studies that tested unlimited improvement impact on the performance of the organization (Ay & Nurov, 2017). There are other studies that tested the relationship between service quality and performance (Nair, 2016). Therefore, it is possible to observe a relationship between the two concepts.

H_1: There is a relationship between Unlimited Improvement and Service Quality based on the case of hospitals in Libya.

7. Data Analysis

The demographics of the collected data, Table 1, shows that 72.9% of the sample were male, while 27.1% were female. The majority of the participants are holding a master's degree with 42.4%, followed by Bachelor degree holders with 33.9%. The reliability of the sample was tested through Cronbach's Alpha. As shown in Table 2, the reliability analysis was run on SPSS statistics 23.0, where the overall alpha was calculated as 0.910, with 0.904 alpha for unlimited improvement and 0.953 alpha for service quality.

Table 1: Demographics (n=413)

Information	Choices	Count	Percent (%)
Gender	Male	301	72.9
	Female	112	27.1
Education level	Secondary School	7	1.7
	Bachelor degree	140	33.9
	Master degree	175	42.4
	PhD degree	91	22.0

Table 2: Cronbach's Alpha for reliability (n=413)

Concept	Concept Alpha	Overall Alpha
Unlimited Improvement	0.904	0.910
Service Quality	0.953	

In order to test the impact of the sample demographics on the results of the

research, an ANOVA testing was conducted for gender and education level impacts, as shown in Table 3 and Table 4. Both gender and education level had no influence on the results to the $p<0.05$ level.

Table 3: Impact of gender on analysis using One-way ANOVA testing

		Sum of Squares	df	Mean Square	F	Sig.
UI	Between Groups	1,028	1	1,028	2,486	,120
	Within Groups	23,572	411	,414		
	Total	24,599	412			
Service Quality	Between Groups	,024	1	,024	1,534	,221
	Within Groups	23,033	411	1,348		
	Total	23,057	412			

Table 4: Impact of education level on analysis using One-way ANOVA testing

		Sum of Squares	df	Mean Square	F	Sig.
UI	Between Groups	,116	3	,039	,087	,967
	Within Groups	24,484	409	,445		
	Total	24,599	412			
Service Quality	Between Groups	1,170	3	,390	,617	,607
	Within Groups	34,740	409	,632		
	Total	35,910	412			

The researcher conducted a factor analysis for the indicators of the concept of

Unlimited Improvement, where the KMO factor is 0.783 and the eigen value is more than 1, which is considered reliable. Indicators with factor loadings above 0.4 are included in the analysis (Küçük, 2016: 227-232). This included indicators 1 to 10, in addition to factor 18, as shown in Table 5. Factor analysis is validated through the total variance explained to be above 60%. In this case, the total variance explained is 62.448%, which satisfy this condition.

Table 5: Factor analysis for Unlimited Improvement (n=413)

		Factor Loading	Eigen value	Total Variance Explained (%)	Cronbach Alpha	Mean Score	KMO
Unlimited Improvement			**5.199**	**62.448**	**0.904**	**3.557**	**0.783**
1	Improvements include all processes and operations without exception	0.589				3.42	
2	All tools, operations, people, equipment and suppliers are important in improvements	0.835				3.85	
3	All managers attend trainings	0.603				3.47	
4	All managers are included in	0.782				3.78	

Table 5: Factor analysis for Unlimited Improvement (n=413)

		Factor Loading	Eigen value	Total Variance Explained (%)	Cronbach Alpha	Mean Score	KMO
	improvements						
5	All organization structure is included in improvements	0.838				3.71	
6	All employees are included in improvements	0.880				3.66	
7	All tools are included in improvements	0.799				3.58	
8	All operations are included in improvements	0.845				3.59	
9	All applications are included in improvements	0.812				3.63	
10	All suppliers are included in improvements	0.631				3.47	
11	Management is subject to change	0.346				3.85	
12	Organization structure is	0.357				3.81	

Table 5: Factor analysis for Unlimited Improvement (n=413)

		Factor Loading	Eigen value	Total Variance Explained (%)	Cronbach Alpha	Mean Score	KMO
	subject to change						
13	All employees are subject to change	0.208				3.29	
14	All tools are subject to change	0.220				3.58	
15	All operations are subject to change	0.292				3.46	
16	All applications are subject to change	0.372				3.41	
17	All suppliers are subject to change	0.341				3.54	
18	Working hours are subject to change	0.448				3.47	
19	Personal rights are subject to change	0.144				3.00	

The researcher conducted a factor analysis for the indicators of the concept of service quality, where the KMO factor is 0.867 and the eigen value is more than 1, which is considered reliable. Indicators with factor loadings above 0.4 are included in the analysis (Küçük, 2016: 227-232). This included all 22 factors, as shown in Table 6. Factor analysis is validated through the total variance explained to be above 60%. In this case, the total variance explained is 65.374%, which satisfy this condition.

Table 6: Factor analysis for Service Quality (n=413)

		Factor Load	Eigen value	Total Variance Explained (%)	Cronbach Alpha	Mean Score	KMO
Service Quality			**3.704**	**65.374**	**0.953**	**2.650**	**0.867**
1	University has modern looking equipment	0.516				2.95	
2	University's physical facilities are excellent and visually appealing	0.510				2.63	
3	Employees of the university have neat appearance	0.476				2.81	
4	Educational products (books, desks, boards, notes, etc.) visually appealing	0.529				2.83	
5	The aims of the	0.744				2.47	

	education are delivered as promised						
6	University attends to university and employees' problems with sincere interest	0.814				2.42	
7	University services are delivered right the first time	0.872				2.49	
8	University services are provided according to the set timeframes	0.733				2.54	
9	University insist on error free records	0.715				2.69	
10	Timeframes for university's services are clearly defined	0.745				2.69	
11	University attend to the needs of the students and employees promptly	0.718				2.56	
12	University is always willing to help students and employees	0.785				2.73	
13	University is never too busy to attend to students' requests	0.673				2.81	
14	University employee's behavior instill	0.645				2.92	

	confidence in students						
15	Students feel safe that they are receiving the promised service at the promised quality	0.672				2.93	
16	University employees are courteous with students	0.697				2.86	
17	University employees have the required knowledge to answer students' questions	0.686				2.71	
18	University gives individual attention to every student	0.733				2.36	
19	University operating hours are convenient to all students	0.823				2.49	
20	University gives students personal attention	0.755				2.34	
21	University employees have students' best interest at heart	0.717				2.58	
22	University understand the specific needs of the students	0.727				2.47	

Table 7 shows the correlational analysis using spearman's rho coefficient between the two concepts. The results indicate a positive correlation between service quality and unlimited improvement with medium strength coefficient of 0.461. The results are significant to 0.000 level, which is less than 0.05 (Küçük, 2016: 250). Based on the results of the analysis the first hypothesis stating "H1: There is a relationship between Unlimited Improvement and Service Quality based on the case of hospitals in Libya" is accepted.

Table 7: Spearman's rho correlation between service quality and unlimited improvement

			Service Quality	Unlimited Improvement
Spearman's rho	Service Quality	Correlation Coefficient	1,000	**,461***
		Sig.	.	,000
		N	413	413
	Unlimited Improvement	Correlation Coefficient	**,461***	1,000
		Sig.	,000	.
		N	413	413

*. Significant at the 0.05 level (2-tailed)

8. Result

The findings of the research show that there is a relationship between unlimited improvement and service quality as per the correlational analysis performed on the healthcare establishments in Libya. Moreover, the factor analysis indicate that eleven out of the nineteen indicators of unlimited

improvement are significantly correlated at the 0.05 level, which were used in the subsequent analysis. All of the service quality indicators had a factor greater than 0.4, which indicate their correlation between each other.

9. Discussion

Despite the lack of research that correlated the two quality management concepts with each other, there are many researches that showed their relationship with important factors, such as performance. A research in the banking sector showed a relationship between service quality and performance through a regression analysis, where implementing service quality concepts impacted performance with 28% (Akroush and Khatib, 2009). Another study in the manufacturing sector showed a similar relationship with more detailed performance indicators. The implementation of service quality enhanced financial performance by 31%, operational performance with 24% and employee behavior by 50% (Cheng and Lin, 2014). With similar details but different statistical analysis techniques, Nair (2016) showed a strong correlation between service quality and performance in hotel business. Liu and Wang (2017) applied a regression model, where service quality had a positive impact on performance by up to 30%.

For unlimited improvement, Ay and Nurov (2017) provided findings through a regression model, where unlimited improvement enhanced performance with 32%. Benshina (2018) studied the relationship between unlimited improvement and performance through a correlational analysis. The results indicate a positive correlation between the two factors with a strong relationship coefficient. Through the established relationships and impacts of service quality and unlimited improvement on the performance of the organization, the results of the current research confirm such findings by stating the nature of the relationship between the two quality management concepts. A positive relationship is found between service quality and unlimited improvement with a medium strength correlational factor.

10. Recommendations

Quality management concepts are significant in providing a clear plan for organizations to enhance their operations and outcomes. Service quality and unlimited improvement have the potential to create a strong combination of frameworks that ensures the quality of the services provided and extends the enhancements to the different aspects of the organization. Based on the case study of Libyan hospitals, the relationship between the two concepts are established. However, the mean scores that were found in the research show that there is a room for enhancement in quality management systems implemented in Libyan healthcare establishments. Therefore, several measures can be taken into consideration, including:

- Implementing the service quality framework as constructed by Parasuraman et al. throughout the extensive research. The different dimensions suggested have been proven to enhance quality of services in several sectors. Healthcare services can be further enhanced in Libyan hospitals through ensuring reliable services, responsiveness and empathy from hospital staff, and tangibles that reflect good healthcare to the users.
- As service quality lack the ability to address other quality management issues, unlimited improvement can be used to extend the enhancements to all stakeholders, assets and operations. The combination of the two concepts can complete their impacts on the overall performance of the hospitals in Libya.

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