

# Effectiveness ISO 9000 Quality Management Practices: A Case Study of Academic Libraries in Malaysia

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*The paper aims to study the effectiveness ISO 9000 quality management practices on customer satisfaction levels toward academic library services. The exploratory research in this paper focuses on the link between ISO 9000 practices and an area of customer satisfaction, namely, MUDI (accessibility); KESE (suitable); SEAD (availability); KEBE (effectiveness); KECE (efficiency); BODI (reliability) and, KESA (validity), that has received limited attention in prior studies. The research supports the idea that ISO 9000 standards are a guideline for the implementation of quality management in any organizations whether in library services.*

**Key words:** ISO 9000, Customer Satisfaction, Library Service, ISO 9000, Service Quality, Library Management.

## Introduction

Both, ISO 9000 and Total Quality Management (TQM) have had considerable success in terms of acceptance in organizations worldwide (Han, Chen et al. 2007). ISO 9000 series of standards has formalized systems for evaluating the ability of organizations to consistently design, produce and deliver quality products and services. It is seen as a relatively new concept and a way for organizations to improve the quality of their products and services. Meanwhile there are many definitions of Total Quality Management TQM (Samuel 1994). Tobin (1990), was defined TQM as the totally integrated effort for gaining competitive advantage by continuously improving every facet of organizational culture.

There are also a mixed views in the literature concerning whether ISO 9000 and TQM complement or contradict each other (Magd and Curry 2003). The single fact that TQM is originally related to the for-profit business is sufficient to arouse debate as to its applicability to the non profit organizations such as libraries. It should be observed that the ISO 9000 is a part of TQM in many organizations (e.g. Costa and Lorente (2004). In library context, Hong Wang (2006) had found that TQM has got substantial attention in most of the libraries in the world since early 1990s. This paper aims in different perspective. It is emphasize a seemingly narrow and specific issue, namely the application of ISO 9000 standards of quality management to academic libraries.

## **Problem Statement**

Customer satisfaction has been an organization focus some time as a measure of managerial strength and company productivity. A number of measurement methods were discovered in a literature, including Disconfirmation Model, SERVQUAL, SERVPERF, and Direct Investigation (Baggs and Kleiner 1996). On the other hand, customer satisfaction also can be measured by the following four indicators - number of customer compliments, number of repeat customers, customer retention rates, and the level of customer satisfactions (Fornell 1992; Anderson, Rungtusanatham et al. 1994; Rust, Stewart et al. 1996). In Malaysia, in order to ensure effectiveness of the library services, many libraries had adopted the ISO 9000 in their daily activities as quality management practices. Studied has shown the beneficial of implementation of ISO 9000 in the library (Zaiton, Goon et al. 1998; Che Azlan bin Taib, Nor Hasni Osman et al. 2006; Kiran, Pauziaah et al. 2006). Furthermore, Tooterdell, Gill et al (2005) stated that the quality of any library service can be said to rest upon two foundations, (i) the quality and commitment of the staff and (ii) the support and resources provided by the governing body responsible for the service. However, there is lack of studies on the effectiveness of the library services in the context of user satisfaction. Particularly, very little compared the library that have the ISO 9000 and non-ISO 9000's.

## **Research Objectives**

The main research objective is to investigate the effectiveness of adopting ISO 9000 toward the library services rendered from the context of customer satisfaction. Additionally, other specify objectives are (i) to study the perception of customers regarding the real performance of services rendered by academic library after it had adopted the MS ISO 9000 quality management system; (ii) to study the perception of customers regarding the real performance of services rendered by academic library at the status of they are not adopted the MS ISO 9000 quality management system; (iii) to identify the level of significant dimensions of customer satisfaction of academic library; (iv) to identify the possibility of the existence of defects in adopting the quality management system based on MS ISO 9000 at academic library; and (v) to create and enhance an instrument to measure the quality of service of academic library in the future.

## **Research Questions**

This study had attempted to answer the following questions (i) What are the main dimensions of customer satisfaction that can explain the quality of service at academic library in Malaysia; (ii) What is the actual customer satisfaction level at academic library in Malaysia?; and (iii) Are there any gaps in customer satisfaction between an adoption the ISO 9000 quality management system and non-adoption of ISO 9000 quality management system at academic library in Malaysia?

## Research Hypothesis

There are two main hypotheses; (i) there is no significant difference between the mean of overall library service satisfaction amongst ISO and no-ISO library, (ii) there is no significant difference between the mean of overall library service satisfaction amongst the library users background. The hypotheses were tested through independent sample t test and one-way analysis of variance (ANOVA),

## Significance of Study

It is hoped that this study can contribute to these following: (i) to prove a significant of adoption ISO 9000 quality management in customer satisfaction in academic library; (ii) to provide the recommendation to academic library management to apply ISO 9000, as well as to improve the awareness of ISO 9000 implementation; and (iii) to give evidence of the importance and relevance customer satisfaction's dimensions as a measurement tool in academic library, particularly in Malaysia.

## Literature Review

Service quality and customer satisfaction considered as everlasting research topic (Winnie Chim 2007). They seem are related to each other and become a major element in any organization (Caruana 2002). According to Rust and Oliver (1994) service quality is a comparison to excellence in service by a customer, meanwhile customer satisfaction is a process (based on expectancy disconfirmation) yielding a state of fulfilment related to reinforcement or arousal. In general, quality of service means a service that focuses on the customer (Galloway 1997). It can be measured based on factors such as efficiency and effectiveness. Therefore, many libraries attempt to meet the customer needs. This can be happened through a good management system, in order to meet the customer needs and maximises customer satisfaction.

Among the guidelines that can form the base for this type of management system is the Quality of Service based on ISO 9000. In Malaysia, to ensure the enhancement of quality service, in 1992, the Public Service Department had came out with a circular that emphasized the need to achieve the ISO 9000 accreditation (PKPA 1996). The ISO 9001:2000 quality management system standards claim to be applicable to any organization, large or small, whatever its product – independent; or is actually a service in any sector of activity, and whether it is a business enterprise, a public administration, or a government department (Dick, Gallimore et al. 2002). Valls and Vergueiro (2006) stated that the University of Central Lancashire Library was the first university library in England to obtain the ISO 9000 certification. The library has improved a lot its' operations and particularly to ensure the increasing of customer satisfaction among the users. Meanwhile, in Malaysia, in December 1997, the Sultanah Bahiyah Library of Universiti Utara Malaysia was the first academic library that certified to ISO 9000. It is observed

that there exist very few research to study the effectiveness of ISO 9000 in library.

ISO 9001:2000 is an international recognized quality management system standard effect thousands of organizations around the world, The achievement of the customer satisfaction becomes an explicit requirement as in the standard (Houten 2000). It is proved that, Callingo, Leong et al (1995), Bruce (2001), and Mcadam, Rodney et al (1999) had stated that ISO was successful in increasing customer satisfaction .Previous studies also shown that ISO 9000 certification has been successfully effective in many dimensions (Clare Chow Chua, Goh. et al. 2003). The worth is that ISO 9000 standard has received worldwide recognition and acknowledgement from various institutions, companies and quality research (Salleh Yahya and Goh 2001). Researches by Jacobson and Aaker (1987), and Quazi and Padibjo (1998) has shown ISO 9000 successfully increase product quality; widened the market (Casadesus and Gimenez (2000); Clare, Marke et al. (2003); Ebrahimpour, Hikmet et al (1997); Hongyi (2000); Jacobson and Aaker (1987); and Quazi and Padibjo (1998) ; improve service quality Dick (2002).

The adoption of ISO 9000 also said to be helpful in increasing the quality of management system, as was revealed in the studies by George and Katerina(1996), Callingo, Leong et al (1995), and Mcadam, Rodney et al (1999). From another perspective, Callingo, Leong et. At (1995) and George and Katerina (1996) had found ISO to be one of the keys for increasing the competitiveness of an organisation. Meanwhile, research by Kamal Naser, Yusuf Karbhari et al (2004) in manufacturing companies in Malaysia have found ISO 9000 give a good impact in company performance.

In another perspective, according to Shahreen Majid, Anwar et al (2001) an implementation of ISO 9000 proved improving interdepartmental working relationships, student enrolment, students and supplier satisfaction. Casadesus and Gimenez (2000), Heras, Casadesus et al (2002) and Inaki, Gavin et al (2002) revealed that ISO had increased sales and profit. George and Katerina (1996) found that ISO 9000 assisted in preparing new methods for the management of an organisation; increasing the organisational competitiveness without additional investment; modernising operations and management based on the latest trends; explaining responsible justification and operational rules; preparing orders directly to each staff member in an organisation through procedural documentation, process uniformity, and documentation control; emphasising staff training and awareness about quality; increasing relations between departments; improving production capabilities; and introducing internal audits that are able to successfully detect any flaws or irrelevant activities. All these would assist in increasing effectiveness, enabling effective decision making based on facts, maintaining a quality system, as well as periodical reviews that can monitor the effectiveness and suitability of quality guarantee system, quality policy, quality objectives, while emphasising process control.

Katerina (2005) reported the feedback results from a study on the evaluation of ISO 9000 version 2000. It was revealed that the ISO 9001 Standard had greatly helped in the implementation of a quality management system that is up-to-date and more suitable for management; more appropriate when compared with the previous versions in enabling

an organisation to become more flexible; suitably operational; has a better and more logical structure with a shift in focus from documentation to achievement and decisions; has emphasis on continual improvement; easier to be related to the environment and safety standards; very fitting for small organisations and organisations that are customer oriented; emphasises role and responsibility; and uses and process approach that assists in solving complications in the documentation of a quality management system.

On the contrary, there exists research findings that had found ISO not to have a positive impact on organisations, such as the work of Clare, Mark et al. (2003) that had stated ISO 9000 certification does not guarantee quality. Avery (1995) could not confirm whether ISO 9000 had brought improved effectiveness in business; Terziovski, Samson et al. (1997) was unable to prove that ISO 9000 was successful in decreasing the cost or rate of defective products; Jones, Arndt et al. (1997) found that ISO is not voluntary and monetary benefits is difficult to perceive; a conclusive finding that ISO guarantees better achievements could not be confirmed by (Inaki, Gavin et al. 2002); Dalgleish (2005) strongly stated that ISO 9000 is more of a hindrance than help, only increases costs; less effective in the quality improvement and ISO certification that was requested by customers; and Whittington (1988) had revealed that it not only incurs high cost, but also product quality still remains poor.

## **Data Collection and Analysis**

Based on the 'Directory of Libraries in Malaysia' there are about 1300 libraries in Malaysia. These including, National Library, Public Library, Municipal Council Library, Specialty Library and Academic Library. Meanwhile, according to Ministry of Higher Education, they are about 709 academic libraries in Malaysia. It is including main libraries and branches libraries. In this research we only focus on the academic library.

The primary data was collected through a set of questionnaire that was prepared in Bahasa Malaysia. The constructed questions were based on SERVQUAL and several international and national standards. Additionally, the items also considered the well-known in library-context research by Nitecki and Brophy. Responses for all satisfaction questions were made on 1 – 7 Likert-type scales labelled as 'very dissatisfied' (1) and 'very satisfied' (7). After did some slightly modifications and ran the pilot test, the questionnaires were then mailed to the libraries. Simple instructions also created, enclosed and send together with the acknowledgment letter to the library.

The descriptive and inferences statistics were used in this study. Prior the analysis, the data were reviewed, screened and any missing values were recoded so that the results of the analysis will represent the real status of the research data. The total of 63 academic libraries (public and private) libraries in Malaysia had returned the questionnaires. Out of that, only 60 were considered valid (75% response rate).

To check the reliability and validity of the scales implemented in our study, a confirmatory analysis was performed on the factors for each construct: MUDI

(accessibility); KESE (suitable); SEAD (availability); KEBE (effectiveness); KECE (efficiency); BODI (reliability) and, KESA (validity). In this study, items in the questionnaire was developed based on several sources such as SERVQUAL dimensions, PERPUN requirements, ISO 11620 Standards.

The Cronbach's Co-efficient Alpha was used to assess reliability. According to Garson (2007), value 0.60 indicates an acceptable value; value 0.70 is moderate value and value. 80 and above is the best. Meanwhile, Nunally (1978) and Cook and Thompson (2000) stated that all of the multi-item measures had alpha values greater than .70, indicating sufficient reliability.

## **Study Results**

### **Respondents Profile**

The results show that 1141 respondents (53.5%) were from the diploma/certificate students; 656 respondents (30.7%) were the undergraduate students; 135 respondents (6.37%) were academic staff ; 106 respondents (5.0%) were the post-graduate students and 96 respondents didn't state their category of library users. The totals of 1328 respondents (62.2%) were from public academic library and 806 respondents (37.8%) were from private library. Meanwhile the total of 1292 respondents (60.5%) were from ISO 9000 certification libraries and 615 respondents (28.8%) were from non-ISO 9000 certification libraries. There were 227 respondents (10.5%) did not state whether their library holding the ISO 9000 or not and 1278 (59.9%) respondents were female and 831 (38.9%) were male.

The respondents also have a variety of study background, such as information technology, business, nursing, law, electrical engineering, A-Levels, medical, multimedia, mechanical engineering and education.

From 2134 respondents, the total of 1887 (88.4%) respondents were have an experience to use the library and 207 (9.7%) were stated never use the library before. There were a total of 1013 (47.4% from the 2134 respondents that participated in the study were used library at least once a week, 756 (35.4) respondents were used the library daily, 200 (9.4%) were used the library at least once a month, 64 (3.0%) and 60 (28%) were used library at least once in three month and once at least in 6 month, respectively. Only 5 (.2%) respondents were stated never use the library at least once in 6 month ago. From 2134 respondents, 1912 (89.6) respondents were stated they are easy to go to the library and only 183 (8.6%) respondents had stated opposite.

The highest number of respondents used the library for study 438 (20.5%); 243 (11.4%) for doing their homework; 187 (8.8%) for both study and doing their homework; and 180 (8.4%) for doing their research.

## The Overall of Customers Satisfaction

From the perspective of the overall of customer satisfaction, the results have revealed that from the 50 questions the means value exceeded 4.5, except for 5 questions. The highest average was 5.16 for question 50.

The aggregation mean for the dimension of customers' satisfaction shows the values are also exceeded means 4.5. The aggregation means for construct MUDI (accessibility) is 4.65; ;KESE (suitable) is 4.98; SEAD (availability) is 4.80; KEBE (effectiveness) is 4.86 ; KECE (efficiency) is 4.92; BODI (reliability) is 4.94, and, for KESA (validity) is 4.99. For the mean of seven constructs, the statistic show the mean is 4.88.

## Total evaluation of customers' Satisfaction Dimensions Between ISO 9000 Certification Libraries and Non-ISO Certification Libraries

Generally, the respondents had stated that the level of service rendered by their libraries is at a satisfactory level where most respondents had given an average score of above than 4.5 for both categories of library (shown in table 5). The data shows from the perspective of the total of the overall satisfaction customers at ISO 9000 certified libraries more satisfy compared with non-ISO 9000 certified library. However the total of customer satisfaction result shows in table 5 for ISO 9000 certified libraries also only very slightly or very little more than the level of customer satisfaction level achieved for Non-ISO 9000 libraries. The highest difference is .16 for suitability of services and the lowest is efficiency (.01). One of the interesting results is regarding the dimension of availability. Users from non-ISO 9000 slightly happy compare with ISO 9000 libraries.

## Hypotheses Testing Results

In order to test the hypotheses that were defined earlier, the researcher had made value level assumptions, or a significant 2-tailed value at the 0.05 level.

**Table 5. General evaluation of customers satisfaction between ISO 9000 libraries Certification and Non-ISO certification Libraries**

Satisfaction Constructs	ISO Certified	Non-ISO Certified	Difference (ISO-Non-ISO)
MUDI (Accessibility)	4.65	4.58	+0.07
Kese (Suitable)	5.01	4.85	+0.16
SEAd (Availability)	4.73	4.80	-0.07
Kebe (Effectiveness)	4.84	4.77	+0.07
Bodi (Reliability)	4.89	4.83	+0.06
Kece (Efficiency)	4.88	4.87	+0.01
KeSa (Validity)	4.95	4.87	+0.08
TotSat (Total Satisfaction)	4.85	4.80	+0.05

## Hypothesis 1

There is no significant difference between the mean of overall library service satisfaction amongst ISO and non-ISO library.

There is no significant difference between the mean of overall library service satisfaction amongst ISO 9000 and non-ISO 9000 academic libraries.

The statistic shows the significance level for Levene's test is .429, which is larger than the cut-off of .05. This means that the assumption of equal variances has not been violated and refers to the Sig (2-tailed) the value is .106 and it shows the value is more than .05. This means the result from the analysis indicates that there is not a significant difference in the mean of overall library service satisfaction amongst ISO 9000 and non-ISO 9000 academic libraries,  $t(df = 1887) = 1.16$ ,  $p < .01$ . The mean values indicate ISO 9000 libraries correctly recalled significantly more satisfy ( $M = 4.85$ ) than non-ISO 9000 libraries ( $M = 4.80$ ). This hypothesis was rejected.

There is no significant difference between the mean of overall library service satisfaction amongst ISO 9000 and non-ISO 9000 public academic libraries.

The statistic shows for public library, there are 1093 respondents from ISO Certified libraries and 101 from Non-ISO Certified libraries. The significance level for Levene's test is .106. This also shows the value is larger than the cut-off of .05. This means that the assumption of equal variances has not been violated. Again, to find out if there is a significance difference between these groups, we refer to column labelled Sig (2-tailed). The Sig (2-tailed) value is .015. It is less than .05. So we conclude that there is a statistically significant difference in the mean of overall library service satisfaction amongst ISO 9000 and non-ISO 9000 public academic libraries. This hypothesis was failed to be rejected.

There is no significant difference between the mean of overall library service satisfaction amongst ISO 9000 and non-ISO 9000 private academic libraries.

It was represented there were 181 respondents from ISO Certified and 514 from Non-ISO Certified in private libraries. Meanwhile the significance level for Levene's test is .000 and this value shows it is less than the cut-off of .05. This means that the assumption of equal variances has been violated. Therefore refer Sig (2-tailed), the value is .238. It is more than .05. So we conclude that there is not a statistically significant difference in the mean of overall library service satisfaction amongst ISO 9000 and non-ISO 9000 public academic libraries. This hypothesis was rejected.

## Hypothesis 2

There is no significant difference between the mean of overall library service satisfaction amongst the library users background.



There is no significant difference between the mean of overall library service satisfaction amongst male and female users in academic library students.

Group Statistics from analysis shows there are 831 respondents were male and 1278 were female. The Independent Sample t Test shows the significance level for Levene's test is .197. This is larger than the cut-off of .05. This means that the assumption of equal variances has not been violated and the Sig (2-tailed) value is .228. This is more than .05. So we conclude that there is not a statistically significance difference in the mean of of overall library service satisfaction amongst male and female users in academic library students. This hypothesis was rejected.

There is no significant difference between the mean of overall library service satisfaction amongst male and female users in public academic libraries.

There were 481 male respondents and 826 female respondents from Public Academic libraries and data from the Independent Sample t Test shows the significance level for Levene's test is .007. This value is less than the cut-off of .05. This means that the assumption of equal variances has been violated. The Sig (2-tailed) value is .021 whereby less than .05. So we conclude that there is not a statistically significance difference in the mean of overall library service satisfaction amongst male and female users in public academic libraries. This hypothesis was failed to be rejected.

There is no significant difference between the mean of overall library service satisfaction amongst female and male students in private academic libraries.

For private academic libraries, there are 350 male respondents and 452 female respondents (table 12 – Part B). The next table, Independent Sample t Test shows the significance level for Levene's test is .007 (table 13 – Part B). This is less than the cut-off of .05. This means that the assumption of equal variances has been violated, therefore the report will refer to Evna statistic. The Sig (2-tailed) value is .021. This is less than .05. So we conclude that there is not a statistically significance difference in the mean of overall library service satisfaction amongst male and female users in public academic libraries. This hypothesis was failed to be rejected.

### **Hypothesis 3**

There is no significant difference between the overall mean of quality of library services amongst library users categories.

There is no significant difference between the overall mean of quality of library services amongst library users categories in academic library

There is no significant difference between the overall mean of quality of library services amongst library users categories in public academic library

There is no significant difference between the overall mean of quality of library services amongst library users categories in private academic library

All of these three hypotheses were rejected. For hypothesis 3 (g), the postgraduate, undergraduate and diploma / certificate group differ significantly in terms of their overall satisfaction. Hypothesis (h) shown that postgraduate and diploma/certificate group differ significantly, meanwhile for hypothesis (i) those group differ significantly were postgraduate and undergraduate.

## **Conclusion and Recommendations**

This study had found mixed results. As an overall the libraries with ISO 9000 certified the users were more satisfied compared the libraries without certified. From the results of this study, the researchers would like to suggest that the library should take appropriate action in order to address the comments put forth by the respondents. The researchers also found that this research instrument should be used as alternative or new instrument to study the level of customer satisfaction. The researcher would like to recommend that the number of respondents, especially in private libraries should be increased for the aim of a balance hypothesis testing for future research. For future work, we should widen the research scope so that a more complete research finding could be achieved, for example the combination of relationship between ISO 9000 practices, staff satisfaction and customer satisfaction.

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