TOWARDS A MEASUREMENT OF SERVICE QUALITY FRAMEWORK IN ARCHIVAL INSTITUTIONS

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ABSTRACT

Developing reliable measurement instruments of service quality and strategies for the improvement of service quality invariably become the most importantresponsibilities for managers in many organisations.In today's highly competitive environment, it is therefore imperative that service quality becomes an important determinant of customers' satisfaction in archival institutions, and that should be based on appropriate service quality measurement instruments.

In the absence of conceptual clarity on service quality, divergent views on the dimensionality of service quality and the lack of a psychometrically valid service quality measure in archival institutions, this study set out to develop and subsequently validate a measurement instrument to assess service quality in an archival institutional setting. The two research questions investigated in this study were: (1) what are the dimensions for measuring service quality in archival institutions; and (2) how can the dimensions of service quality in archival institutions be measured effectively?

The methodology for this study involved a two-phased qualitative and quantitative analysis addressing these two research questions. The study followed the standard psychometric procedure for developing constructs. This research has resulted in the important findings and relevant conclusions for both academics and practitioners interested in service quality in the archival environment. The service quality measurement instrument developed and validated is called ARCHIVqual and has three dimensions, namely (1) security of information (with 4 items), (2) integrity of information (with 3 items) and (3) usability of information (with 2 items). Besides measuring service quality in the archival environment, ARCHIVqual will also serve as a tool for conducting periodic surveys thereby identifying specific problematic areas in archival institutions.

Keywords: ARCHIVqual; electronic records management; performance-only; service quality in archivalinstitutions; service quality measurement framework

1. INTRODUCTION

The tremendous growth of electronic information in organisations, especially for key business processes, discovery in litigation, regulatory compliance with governmental agencies and industry regulations, intelligent design, audit, retrieval, and the gathering of corporate mission-critical information is driving the need to change information management strategies to facilitate efficient and economic information management.The service sector of the global economy is undoubtedly growing and increasingly highlighting the criticality of service quality to enhanced profitability in most service organisations. Developing reliable measurement instruments of service quality and strategies for the improvement of service quality invariably become the most important responsibilities for managers in many organisations (Sibanda, 2005). In today's highly competitive environment, it is therefore imperative that service quality becomes an important determinant of customers' satisfaction in archival institutions, and that should be based on appropriate service quality measurement instruments.

2. PROBLEM STATEMENT:

The current global competitive environment reiterates the imperativeness of service quality as an important determinant of customers' satisfaction based on appropriate service quality measurement instruments. The crucial role played by the development of reliable and valid instruments in theory development cannot therefore be overemphasised, as pointed out by Msweli (2011; Hair, Anderson, Tatham and Black, 1978; Nunnaly and Bernstein, 1994; Hinkin 1998; Churchill, 1979). Moreover, what cannot be measured cannot be managed (Lovelock, 1996). The lack of conceptual clarity on service quality; the divergent views on the dimensionality of service quality (Gronroos, 1994; Parasuraman *et al*, 1985, 1988; Cronin and Taylor, 1992); and the absence of a psychometrically valid service quality measure at the archival institutions in the extant literature not only indicate a gap but also dearth in the literature on a service quality concept and measurement instrument in the field.

3. AIM AND OBJECTIVES:

The aim of this study is to develop a valid service quality measurement instrument specifically for the archival institutions. A measurement instrument of this nature should measure the unique aspects of archival information that are not currently measured by the existing service quality measurement instruments.

The specific objectives that drive this study are:

- To develop a service quality measurement instrument
- To validate a service quality measurement instrument

4. RESEARCH QUESTIONS:

4.1 What are the dimensions for the measurement of service quality in archival institutions?
4.2 How can the dimensions of service quality in archival institutions be effectively measured?

5. CONTRIBUTION OF RESEARCH

Service quality measurement instruments are sector specific. Various instruments are industry specific as no measurement instrument can measure across industries and culture (Malai and Speece, 2005). For the archival industry, this research brings value to both academia and industry in uniquely contributing to literature by developing and validating a measurement instrument to measure the unique features of integrated electronic records systems in an archival specific environment. The developed tool will also serve as a tool for conducting periodic surveys thereby identifying specific problematic areas in archival institutions.

6. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

6.1 THEORETICAL FRAMEWORK OF SERVICE QUALITY

6.1.1 Product quality in product manufacturing

Before the service revolution, quality was recognised as a strategic tool for attaining operational efficiency and improved business performance (Jain and Gupta 2004). Several authors have discussed the unique importance of quality to service firms (Nunnaly and Bernstein 2009) and have demonstrated its positive relationship with profits, increased market share, return on investment, customer satisfaction and future purchase intentions (Anderson, 2009; Boulding et al. 2009; Buzzell and Gale 2010; Rust and Lemon2012). A trend that emerged from these studies has been that firms with superior quality products outperform those that mark inferior quality products.
Of interest, too is the examination of the role of quality as background information on the conceptual framework of service quality. Although many authors still regard productivity and quality as separate concepts, several researchers (e.g., Gronroos et al. 2009) argue that quality and productivity cannot be dealt with separately, especially in the context of service. The result has been a growing need to analyse the quality concept of the productivity concept. A summary of this analysis is captured in Garvin's identification (2012) and examination of quality in terms of the following eight critical dimensions (in four key areas): technological advantage (performance, features); adherence to specifications (reliability, conformance); expected performance (time and cost-based) (durability, serviceability): customer judgement (aesthetics, Perceived quality). Garvin was one of the first researchers to focus on the qualitative output of quality and to examine quality in terms of the dimensions that are critical.

7.1.2 The service revolution

Researchers such as Parasuraman, Zeithaml and Berry (2010), among many others, have emphatically pointed out that the concept of quality prevalent in the goods sector highlighted by researchers such as Gavin (2012) is not extendable to the services sector. A service firm therefore has no products, only interactive processes where a service is seen as a process that leads to an outcome during partly simultaneous production and consumption processes. This is significantly different from a physical product where the terms used are manufacturing-orientated concepts that do not always fit the nature of services. Over the years' characteristics of the service process such as heterogeneity and inseparability of production from consumption have made it hard easily to conceptualise the service process and its outcome as a solution to customer problems and as marketing objects. This challenge has ushered in an approach of studying the quality of service as perceived by the users as a possible way of understanding the marketing situation. Such an approach not only addresses questions such as how the quality of a solution to problems or needs is perceived by customers or users of a service, but also provides for most researchers a customer orientated approach on the achievement of the conceptualisation of the service process and the replacement of the missing product of service firms by a service-based, customer-based construct. What has also been highlighted as the problem with management of service quality in service firms is that quality is not easily identifiable and measurable due to the inherent characteristics of services, which make them different from goods. Thus, although initial efforts to define and measure service quality emanated largely from the goods sector, Parasuraman, Zeithaml and Berry (1985) laid a solid foundation for research work in the area in the mid-1980s. They were among the early researchers to point out that the concept of quality prevalent in the goods sector was not extendable to the services sector.

7.1.3 The construct of service quality

Although the four features of services namely (1) intangibility, (2) perishability, (3) heterogeneity and (4) simultaneity have been recognised as significant in developing a construct of service quality, Jain and Gupta (2004) have argued that these characteristic differences between services and products fail to delineate services from products adequately. They further argue that the delineation represents the producer's orientation, rather than the consumer's view. Jain and Gupta (2004) viewed the traditional division between products and services as long outdated and offered to redefine services from a customer-based perspective.

Although intangibility is universally cited as the fundamental difference between products and services, the concept emerges as unambiguous to differentiate pure products from pure services. Santos (2003) was among the first authors to propose that market offerings may be arranged on a tangibility spectrum ranging from tangible-dominant to intangible dominant. What is universally acceptable, however, is that service quality is "intangible" because services, as performances, are difficult to assess on a sale (Jain and Gupta 2004). As a result of this intangibility, service providers can have difficulty in ascertaining how consumers perceive their services (Parasuraman et al. 2010).

The case for heterogeneity or non-standardisation in services has been primarily based on variations in the performance of the producers. However, Zeithaml and Bitner (2006) have argued that no two customers are the same and hence would be defined differently because the unique demands or experiences of the service would have been offered in a unique manner. Subsequently, Sprehe (2005) argued that standardisation was undesirable for many services as most individuals preferred customisation to meet their specific needs. Thus, services are viewed as “heterogeneous” because they can form day to day, from place to place, from producer to producer, and from customer to customer (Parasuraman et al. 2010; Markovic 2006). The involvement of the customer as a co-producer of service delivery therefore means that the service provider has less control over the consistency of the service experience. In India, however, service quality isviewed precisely as a new concept for the service industries.Developing higher levels of service quality also enhances customer loyalty (Leninkumar, 2016).

7.2 SERVICE QUALITY MEASURES

7.2.1 The contradicting paradigms

As indicated before, service quality is not only an elusive construct, but it is also indistinct and difficult to define and measure (Cristobal et al. 2007; Garvin 2012; Parasuraman et al. 2010; Gronroos et al. 2009). Over the years, researchers have made many attempts to define and measure the concept of service quality (Lewis2013; Gronroos et al. 2009; Parasuraman et al. 2010; Carman 2011; Cronin and Taylor 2014; Teas 1998). Two distinct schools of thought are easily identifiable, despite the fact that operationalisation of service quality differs from researcher to researcher. One group of researchers supports the disconfirmation paradigm of perceptions minus expectations; and the other group supports the performance-based paradigm of the perceptions-only version of service quality.

7.2.2 Disconfirmation paradigm

Consumers evaluate (perceived) service quality by comparing expectations with experiences of the services received, according to Gronroos et al. (2009). This viewpoint is further supported by Lewis (2013) who argue that service quality is a measure of how well the service level delivered matches customer expectations on a consistent basis. The implicationof their viewpoint is that delivering quality service means conforming to customerexpectations on a consistent basis. Focus group interviews held by Parasuraman et al.(2010) further affirmed that service quality is derived from the comparison between acustomer’s expectations for service quality performance versus the actual perceivedperformance of service quality (perception minus expectations). Parasuraman et al. (2010,p. 17) also stated, “perceived service quality is viewed as the level of discrepancybetween consumers’ perceptions and expectations”. According to Parasuraman et al. (2010), service quality is an overall evaluation similar to attitude, the “expectancydisconfirmation” model is an appropriate operationalisation of service quality, and servicequality (as a form of attitude) results from the comparison of perceptions with expectations.

7.2.3 Performance-based paradigm

The performance-based paradigm, which has been discussed in the preceding section,basically highlighted that there is little theoretical evidence, if any that supports therelevance of perception-minus-expectations gaps as the appropriate basis for assessingservice quality (Carman 2011). Carman (2011) further argues that there are seriousproblems in conceptualising service quality as a difference score.In the marketing literature, there has been much support for simple performance-basedmeasures of service quality (Mattsson 2011; Wolfinbarger et al. 2012; Bolton and Drew 2013).Cronin and Taylor (2014) have affirmed, as indicated in some sections of this study, that anunweighted performance-based approach is a more appropriate basis for assessing servicequality. The use of performance-based measures of service quality over gap measures hasalso been supported by Babakus and Boller (2013). The performance-based paradigm cantherefore be best summarised by Cronin and Taylor's (2014) viewpoints that perceivedservice quality is best conceptualised as an attitude and that current performanceadequately captures consumers' perceptions of the service quality offered by a specificservice provider.

7.3 SERVICE QUALITY MEASUREMENT MODELS

A model developed by Gronroos et al. (2009) highlights how consumers compare the service as experienced with the service as expected in evaluating service quality; basically, supporting the disconfirmation paradigm. This model attempts to understand how the quality of a given service as perceived by customers. The model also divides the customer's experiences of any particular service into two dimensions, namely (1) the technical quality (i.e., what the consumer receives or the technical outcome of the service delivery process) and (2) the functional quality (i.e., how the customer receives the technical outcome). In the context of services, Gronroos et al. (2009) suggests that functional quality is generally perceived to be more important than technical quality. The assumption was that the service is provided at a technically satisfactory level. What is important about Gronroos's model is how it discusses service quality to include the way in which it is delivered.

7.3.1 The effectiveness of service quality measurement instruments

As mentioned earlier, SERVQUAL scale has been criticised on various conceptual and operational grounds, in spite of its wide application. Additional examination and testing of the SERVQUAL has, for instance, not been supportive of its authors' claims. Various researchers claim that the five dimensions are not always generic and that they can vary depending on the type of service industry investigated (Carman, 2011; Babakus and Boller 2013). The major criticism has been the use of (P-E) gap scores; length of the questionnaire; the predictive power of the instrument; and the validity of the five-dimension structure (e.g. Babakus and Boller 2013; Cronin and Taylor 2014; Dabholkar, Shepherd and Thorpe 2014; Teas 2012). In the (P-E) gap scores, that is, the

disconfirmation model, most studies have found a poor fit between service quality measured through the Parasuraman et al. (2013) scale and the overall service quality measured through a single-item scale (Babakus and Boller 2013; Carman 2011). Babakus and Boller (2013) have questioned the ability of these scores to provide additional information beyond the information already contained in the perception component of service quality.

Further criticism of the SERVQUAL scale is related to its reliability and validity (Cronin and Taylor 2014; Teas 2012). Cronin and Taylor (2014) argued that the conceptualisation and operationalisation of the SERVQUAL scale was inadequate and this has been confirmed by the failure of most researchers to replicate SERVQUAL's five distinct dimensions (Carman 2011; Babakus and Boller 2013; Cronin and Taylor 2014) and validity (Cronin and Taylor 2014; Teas 2012). Cronin and Taylor (2014) reiterated that the perception–expectation gap theory of service quality was barely supported by theoretical and empirical evidence as an appropriate basis for measuring service quality. The criticisms also emanated from the notion that expectations are based on experience norms (Teas 2012) and that consumers form expectations on the basis of prior experience with a certain service delivery firm, and that these experiences affect their expectations (Oh 2010). Oliver argued that expectations should ideally be formed before any service encounter. There is also considerate support for the superiority of simple performance-based measures of service quality (Bolton and Drew 2013). According to Cronin and Taylor (2014), this indicates preference for the use of performance-only perceptions as a measure of service quality.

However, within the Internet environment, the argument of whether the empirical value of measuring expectations and operationalising service quality as a set of gap scores, whether the five SERVQUAL dimensions of (1) reliability, (2) responsiveness, (3) assurance, (4) empathy and (5) tangibles were applicable across industries and within the Internet environment became the main reason why many researchers embarked on reconstructing the instrument in the electronic context.

8. RESEARCH METHODOLOGY

The research underpinning the data production for this article followed the standard psychometric procedures for developing service quality instrument constructs. Msweli (2011) defines a construct as a representation of something that does not exist as an observable dimension of behaviour. Hence, the research was operationalised in two phases in which a sequential mixed method was applied. In Phase 1, the qualitative method was used to collect qualitative data and in Phase 2, the quantitative method was applied to collect quantitative data as well as to analyse the data. Phase 1 involved the generation of a sample of items. This was done qualitatively through reviewing literature, conducting in-depth interviews and the using the Delphi Technique exercise of a panel of experts in the archives institutions.

In step 1, the domain of the construct of service quality was specified. Sample items were generated in step 2. A pre-test survey for assessing item relevance and clarity of meaning and data collection were administered, followed by Confirmatory Factor Analysis and Exploratory Factor Analysis (EFA) to 'purify' the measures. After EFA, assessment of the reliability and validity of the measurement instrument was conducted

for the main study using confirmatory factor analysis, and convergent and discriminant validity employing SPSS AMOS.

The population for this study comprised the professionals in the public archival institutions in the countries affiliated to the ESARBICA regional group and the researchers at the respective archival institutions in Eastern and Southern Africa. The respondents were experts in the public archival institutions (affiliated to ESARBICA member states). They were directors, deputy directors, junior and senior archivists, researchers and records management officers.

Purposive sampling was used in Phase 1 of this study. The lead researcher had an opportunity to attend the 20th Biannual Conference of the ESARBICA held at the Windhoek Country Club, Windhoek, Namibia. The researcher had an opportunity to network and establish good relations with the conference delegates, who later at the time of conducting the study became part of the unit of analysis for the study. The theme of the conference was "Electronic Records Management Systems and the Management of Electronic Records". An accessibility purposive sample of experts in the archival industry was drawn from the professionals of the delegates at the ESARBICA conference to whom the researcher administered a draft interview schedule.
The conference delegates included directors, archivists, academics and users of archival institutions and academic institutions from Eastern and Southern Africa; and officials from the International Council of Archives. The initial small sample of five experts could be considered too small to provide a basis for sound generalisations because of what statisticians have traditionally blamed as qualitative studies' lack of representativeness of small *n* studies (Hernon 2011). However, such perceived limitations of the findings from qualitative studies with small numbers of interviews in a limited domain may be further examined and tested in large-scale quantitative surveys (Hernon 2011) as was done under this study in Phase 2, with systematic random sampling method being employed.

8. DATA ANALYSIS AND RESULTS

Data analysis in a blended approach of methodologies would relate to the type of research strategy chosen for the procedures (Creswell 2010, p.220). Analysis occurs both within the quantitative (descriptive and inferential numeric analysis) approach and the qualitative (descriptive and thematic text or image analysis) approach and often between these approaches (Creswell 2010, p. 230). Themes and specific statements were obtained from participants in an initial qualitative data collection (Creswell 2010, p.221). These statements were then used as specific items for scales to create a survey instrument that was grounded in the views of the participants (Creswell 2010, p. 221).

8.1 Phase 1: Qualitative data analysis

8.1.1 Step 1: Specification of domain of construct

In developing a psychometrically valid measurement instrument, the domain of the service quality construct in the archival institutions was specified in accordance with Hinkin (2011). A review and synthesis of past literature in the field of service quality not only identified the dimensions of service quality discussed in the literature review

section of the paper, but it also provided the definitions of service quality required in specifying the domain of the construct and the items that capture it. In the absence of a consensus viewpoint in the definition of the service quality construct, SERVPERF was adopted in this study. The construct adopted from the work of Cronin and Taylor (2014) located the concept of service quality as an attitude; and postulated that an individual's perception of service quality was only a function of its performance. As a performance-based measurement, it was also viewed as an alternative to SERVQUAL measurement instrument and its 22 items. It excluded any consideration of expectations; which made it more efficient in comparison to SERVQUAL (Lee and Yoo 2010; Buttle 2013). SERVPERF has also been tested empirically in a number of studies and found to explain more variance in overall service quality than SERVQUAL (Cronin and Taylor 2014). The interviewees on the panel of experts reached the consensus that service quality was a function of perceptions only during the Delphi technique exercise. The viewpoint confirmed the service quality perspective adopted in this study (Cronin and Taylor 2014). It should be noted that some of the interviewees in the archives field were only familiar with the SERVQUAL methodology. After careful explanation of the difference between the two methodologies, the experts unanimously preferred the use of SERVPERF to investigate service quality measurement in the archival institutions.

8.1.2 Step 2: Generation of a sample of items

The generation of a sample of items was done qualitatively through the analysis of extant literature, in-depth interviews of experts and the Delphi technique exercise at the ESARBICA Conference in Namibia. Listed below are the findings from the interviews of the panel of experts and the Delphi technique exercise. Below is an extract of a few excerpts from Delphi technic exercise and in-depth interviews.

8.1.3 Delphi technique exercise and in-depth interviews

Interview question 1:

Are you aware of any existing tool of measuring service quality of integrated electronicrecords management systems of archival institutions?

Excerpt A:

1. ... no existing model 2. ... not aware of any tool to measure service quality in the field 3. ... we use LibQual which is used in libraries...but archives material not the same as the library material...tool has such items as "library as the place" ...these clearly show its bias towards libraries. 4. ...hardly any... 5. ... Not that I know of...

Interview question 2:

Would a tool to measure service quality of integrated electronic records management systems of archival institutions be necessary and important in the field? Why? Why not?

Excerpt B:

1. ...without measuring service quality you won't know where you are going...
2. ...we need a tool appropriate to the field...
3. ...been the major challenge in the archival world...
4. ...we need one...
5. ...uniqueness of archives systems make it imperative for tool specific to archives systems to be formulated
6. ... definitely
7. ...will be more than welcome...

Interview question 3:

From whose perspective should service quality be measured?

Excerpt C:

1. ...from customers who are also researchers...
2. ...from customers' point of view...
3. ...researchers' viewpoint because they are the major customers...
4. ...the archives staff should also be involved...
5. ...researchers...

8.2 Phase 2: Quantitative data analysis

In the second phase of the research, the researcher adopted a quantitative approach and used a questionnaire in a research survey to collect data. This stage complemented Step 4 of the Measurement Development Process, in accordance with Churchill (2009). The step indicated that the main purpose of data collection was to purify the measure using exploratory factor analysis. Phase 2 involved using the systematic random sampling to select a sample of experts in the archival industry at the NASA to be interviewed – using the draft survey instrument developed. The developed survey instrument was a result of the statements that were derived from the extant literature, interviews of the experts in the field and the Delphi technique exercise. As pointed out in the methodology section of this paper, section one in Phase 2 of the research findings presents the preliminary statistical results of the study.

8.2.1 First confirmatory factor analysis

According to Daniel (2011, p.2), factor analysis is "designed to examine the covariance structure of a set of variables and to provide an explanation of the relationships among those variables in terms of a smaller number of unobserved latent variables called

factors". Twenty-two items derived from the three sources of data, theories and literature review, qualitative interviews, and the Delphi technique exercise of a panel of experts in the archives was used as indicators of the six latent variables in a confirmatory factor analysis. Structural equation model (SEM) played the confirmatory role as it allows for a statistical test of specific hypotheses about the structure of the factor loadings and inter-correlations of observed variables. Confirmatory factor analysis seeks to determine if the number of factors and the loadings of measured variables on them conform to what is expected on the basis of a theory (Hair et al. 2008). Hair et al. (2008) point out that confirmatory factor analysis is particularly useful in the validation of scales for the measurement of specific constructs.

It should be pointed out that in the second phase of the study; most of the results obtained from the initial confirmatory factor analysis were poor. Some of the criteria, for instance, indicated an unacceptable model fit while others were close to meeting values for acceptable fit. For the CFA model, the chi-square value was significantly greater than zero, with a P-value of 0.0478, which meant that the model fit was not good. The value of CMIN/DF (542.225/225) was 2.410 with a P-value of .000. This suggested that there was no similarity between the observed and expected frequencies of measured variables. The value of RMSEA of .081 also indicated significant discrepancies. The value was larger than the 0.06 or less criterion. The PCLOSE (.000) of less than 0.05 (the threshold of a good model fit) however showed a good model fit. CFI (0.831) and NFI (0.742) values did not meet the criteria (0.90 or larger) for acceptable model fit. The parsimony-adjusted measures of PNFI (0.742) and PCFI (0.732) also indicated that the model was not acceptable.

Thus, fit statistics indicated an unacceptable fit and only one (1) fit statistic indicated an acceptable fit. The CFA therefore did not confirm the factor structure that had been derived from the earlier exercises of developing a measurement instrument for service quality in the Archival environment. Since the analysis did not indicate an acceptable model fit, the factor structure was not confirmed, and the next step was to conduct an exploratory factor analysis.

8.2.2 Exploratory factor analysis

In order to conduct an exploratory factor analysis and later another confirmatory factor analysis, the dataset was divided into two random samples using SPSS software. The first sample contained 112 cases, while the second consisted of 96 cases. Preliminary descriptive statistics resulted in eliminating 3 cases as outliers ending up with 93 cases in the second sample to be used in the second CFA. The exploratory factor solution resulted in 3 factors with eigenvalues of greater or equal to 1, accounting for 65 per cent of the total variation in the data.

It should be noted that the outcome of the results was expected because of the significant inter-correlations that existed among the measured or observed variables. Many factor loadings, for instance, were smaller than the cut-off point of .3; some were negative others were positive: and some indicators loaded on more than one factor. For example, even after rotating the factor loadings using the Varimax rotation method, the loading for the first indicator of the dimension of Integrity (trustworthy) was -.020, which was very small and insignificant and the second indicator (representative) loaded heavily on two factors, factors 2 and 3. This made the interpretation and labelling of the

factors difficult, and the researcher had to resort to eliminating such indicators from the analysis completely, as no other good rotation method could achieve a better and simpler factor structure. The other main issue concerning the factor structure was that some indicators, instead of loading heavily on the theorised factor as expected, loaded heavily on another factor all together. For example, theoretically, the “retrievable” item should load heavily on the Usability dimension but it instead loaded heavily on the Integrity dimension.

8.2.1 Second confirmatory factor analysis

A second confirmatory factor analysis was carried out. The distributions of the variables did not seriously violate the normality assumption of factor analysis. The criteria are such that the thresholds for normality are: the value for skewness should not be greater or equal to 2 and that of kurtosis must not be greater or equal to 6. The values of skewness and kurtosis for all the measured variables were below the cut-off points of 2 for skewness and 6 forkurtosis - therefore not violating the normality assumption.Regarding the model fit statistics for the second confirmatory factor analysis, the chi-squarevalue divided by the degrees of freedom (i.e., CMIN/DF = 26.286/24 = 1.095) was less than 3and the corresponding probability level (.34) was greater than 0.05. This indicated that theamount of difference between expected and observed covariance matrices was notsignificant. The debate on “fit statistics” should also be taken note of. CMIN/DF measure,for instance is at times viewed as not deserving the qualification of “fit statistics” becausethe quantity Chi=square/df has no known distribution so probabilities cannot becomputed” (SPSS South Africa). Furthermore, according to the authors, there is noconsensus about what a reasonable value for the index is, in order to reject or accept amodel but in any case, the ratio should be close to 1 for correct models. The NFI was .943>.9and Comparative Fit Index (CFI) was .995 which also indicated a good model fit. Both RootMean Square Error of Approximation (RMSEA) of .032 (<.06) and PCLOSE (.621) alsoindicated an acceptable model fit. The parsimony-adjusted measures were as follows:PRATIO value was .667, PNFI value was .629 and PCFI value was .663. All these fit statisticsindicated a good model fit.

Construct validity, that is, the extent to which an assessment actually measures theproposed trait or construct in the population of interest, was examined at the end of thesecond phase of this study. The results were good in the sense that from a convergent anddiscriminant validity perspective, generally there was a good correlation among the items ofa particular dimension of the newly designed measurement instrument.The correlation between intact and completion was .543*** and that between secure andcompletion was .738***. The highest correlation coefficient was .738*** and the smallestcorrelation was .543** (between intact and completeness). For the Usability factor, thesmallest was .359** (between representative and trustworthy) and the highest was .061(between retrievable and representative), which was even not significant at the 0.05 level.For Integrity, the correlation between interpretable and performance was .889**. Thefactors were well separated from each other, indicating good and acceptable discriminantvalidity.

9. CONCLUSION

On many occasions institutions measure perceptions that may not be of importance to their customers, thus missing altogether the very essence of managing their institutions. This invariably has an impact on the profitability of such organisations. In fact, most service encounters are judged solely from the providers' perspectives without any prior studies on what the customers want. Profitability in the case of archival institutions, has been outlined by Holden, A, Bohl, E and Wynn, M (2016) in the income generation guidelines as activities such as benchmarking fees and charges; sharing the costs and benefits of collaboration, working with business; creating a market niche for film and media archives and finding the right commercial partners. In today's highly competitive environment, it is therefore imperative that service quality becomes an important determinant of customers' satisfaction in archival institutions, and should be based on appropriate service quality measurement instruments.Case studies include finding the right commercial partners – Churchill Archives; Understanding the strategic contribution of conservation – West Yorkshire Archive Service.

Service quality is not universal (Sayareh *et al*., 2016); it is a context-specific phenomenon (Duggal and Harsh; 2016). However, the archival industry has been characterised by the dearth in literature and lack of a service quality measurement model; hence, the development of the generic measurement instrument in this study called ARCHIVqual. ARCHIVqual has three dimensions namely: security of information; integrity of information; and usability of information.

Security of Information-security of information in the archives can be perceived bywhether the record offers complete and unalteredcharacteristics of information. (Completeness). Security of information in the archives can be perceived bywhether the structure and content of information on the record is intact (Intact). Security of information in the archives is perceived by the extentto which access to information is restricted appropriately to maintain its security (Accessibility). Security of information in the archives is perceived as thefreedom from danger, risk or doubt during a service performance (Secure). **Integrity of Information**-integrity of information in the archives is perceived by whether the contents of information/record can be trusted (Trustworthy). Integrity of information at the archives is perceived by whether the contents of the record are representative of the transactions, activities and facts to which it attests (Representative). Usability of information at the archives is perceived by whether the information on the record/record can easily be retrieved (Retrievable). **Usability of Information**-usability of information in the archives can be perceived by whether it is easy to interpret the information on the record/record (Interpretable). Usability of information in the archives is perceived by whether the system is able to perform as promised (Performance).

The main theoretical contribution of this work is the development and validation of a theoretical framework for measuring service quality in the archival environment. Of noteworthy on the contributions of this study to knowledge is an extension of the existing SERVPERF measurement instrument within the archival setting. The measurement instrument can also serve as a tool for conducting periodic surveys, thereby identifying specific problematic areas at the archival institutions.

The business significance of the development and validation of ARCHIVqual measurement instrument is its practical application in measuring service quality at the archival institutions. The measurement instrument is not only an academic and

intellectual exercise, but also a business necessity as “what cannot be measured, cannot be managed” (Lovelock 1996) given the importance of “service quality” in the current highly competitive business environment. Developing higher levels of service quality enhance customer loyalty (Leninkumar, 2016).

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