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SERVQUAL AS A SOCIO-TECHNICAL APPROACH TO MEASURING e-GOVERNMENT SERVICE QUALITY AND GUIDING e-GOVERNANCE STRATEGIES

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ABSTRACT

e-Government services and e-governance have been embraced in many African countries. Nonetheless, measuring the value of e-government remains a challenge. Key to a successful evaluation of progress towards e-governance is the contextual approach, in which ICT is embedded as part of a holistic solution to governance. When carried through without considering the complementary influences of society on ICT and of ICT on society, e-government services can lead to little added value, or even to an exacerbation of societal problems and lack of progress towards e-governance. Although much has been written on e-governance in Africa, few authors have extended the discussion to measuring quality of service and lack of progress towards e-governance. In South Africa, the Batho Pele (People First) policy of service quality is the contextual approach within which e-governance is embedded, because of its good governance attributes. This article relates Batho Pele to SERVQUAL, a framework widely used to measure customer service quality in the retail sector, and adapts the framework for measuring service quality in community e-government service centres, known as Thusong Service Centres (TSC). The analysis, using Structural Equation Modeling (SEM), is consistent with what is known: service quality in TSCs is low and requires regular measurement and evaluation to inform future quality improvements. The article argues that an adapted SERVQUAL instrument, taking into account Batho Pele principles and situational context, can be used as a guide to innovation in e-government service delivery. It is an appropriate sociotechnical tool to collect data to inform e-governance strategies in African countries which share the same social context as South Africa.

KEYWORDS:

e-government service quality, e-governance strategies, measurement, socio-technical approach

INTRODUCTION: CITIZEN SERVICE CENTRES AND BATHO PELE

There is a strong global drive to move government online and to open it to public scrutiny using information and communication technologies (ICT), more popularly known as e-government. The aim of e-government is to create opportunities for government to be more efficient and effective to the business and organisational community (government to business – G2B) and internally (government to government – G2G), and more transparent to individuals (government to citizen – G2C). G2C and G2B interactions are largely dependent on the strength of G2G activities, because a stable ICT platform within government is critical for meaningful digital interaction with individuals and business.

It is generally well accepted that e-government adds value to the citizen, business and government constituencies when implemented well (Carter, Zhang & Schaupp, 2012). However, the increasing demand for e-government to be translated into better governance, e-governance, is pressurising many African governments to uncritically introduce ICT without reflecting on the best approach to value creation in each unique context (Dwivedi, Weerakkody & Jansen, 2011). The weak results from e-government in Africa in the past decade (Muylkens, 2010) highlight the importance of reflecting on how ICT can add value to service delivery and governance. Further, few studies attempt to measure e-governance, which is a socially participative approach, but rather focus on measuring e-government which is a services push approach.

Like many countries, South Africa introduced multi-purpose community centres (MPCCs) to take government services to citizens. The programme, initiated in 1999, lost momentum and MPCCs were under-utilised. In 2006, MPCCs were re-branded as Thusong[1] Service Centres (TSC), with ICT considered as necessary to provide an integrated platform for government officials to offer citizen services and to act as a doorway for digital interaction between government and local communities (Republic of South Africa, 2007). The TSCs promoted computer literacy in an effort to motivate citizens to interact with government using email and the Internet.

South Africa introduced a citizen centric service delivery policy titled Batho Pele (Republic of South Africa, 1997), which means "People First". Batho Pele provides a good basis for addressing the important intangible benefits required from service delivery, beyond time and cost savings. The application of Batho Pele principles to public service delivery, for example the requirement for explicit service standards and value for money, offers a substantive architecture to inform the design of e-government, including citizen experiences at TSCs. The TSCs aim to give citizens access to government services within a five kilometre radius of their place of residence, while also providing electronic access to public services.

Each TSC offers basic services such as social grants, health, education, passports and identity documents. Any further government presence at a TSC is based on the needs of the local community. At least one TSC is envisaged for each of the 283 municipalities before the end of 2014 (Republic of South Africa, 2007). There are currently 142 TSCs in the nine provinces (Table 1).

1 Thusong is a local South Sotho word which means "a place where you can find help"

TABLE 1: THUSONG SERVICE CENTRES

Province	Number of TSCs
Eastern Cape	7
Free State	9
Gauteng	40
KwaZulu–Natal	17
Limpopo	19
Mpumalanga	13
Northern Cape	5
North West	11
Western Cape	21

The Department of Home Affairs (DoHA) is the most important department at TSCs because of the nature of the services they provide, including birth, marriage and death certification, and identity documentation. The DoHA ICT capabilities at each TSC are designed to ensure similar services are offered to those at any DoHA regional office. DoHA processes are executed through the National Population Register (NPR) system or the Home Affairs National Identification System (HANIS). NPR and HANIS are the main systems required for all TSC transactions. Citizens are able to access NPR and HANIS through DoHA officials at TSCs, or access e-services directly. These officials do not have full access to all NPR and HANIS functions. For example, they can register births, but cannot amend the personal records in the system. Through the Track and Trace web-based application, citizens can access the Internet to query the application status of identity documents, passports, marriage status and other matters, using a unique identity or reference number.

This article adopts a social-technical perspective in viewing e-government as comprising people, data, processes, hardware and software interacting together in enabling government services and interactions. Specifically, it discusses an adapted SERVQUAL methodology and its value to building the elements of e-government needed to deliver effective and efficient services, based on a case study of services

rendered by the Department of Home Affairs in Thusong Service Centres. SERVQUAL is a framework widely used in the retail sector to measure customer service quality. Batho Pele defines service quality for the public service as: to ensure consultation; and that there be standards for every government service rendered with an opportunity for redress where poor service is provided, access to information, openness and transparency in interactions with government and the perception that citizens receive value in their interactions with government. e-Government in South Africa would therefore need to take into account the Batho Pele principles. Most ICT implementation in African governments has focused only on implementing the ICT hardware and software, without consideration of the processes, people and data that holistically form e-government. In this article, we postulate that SERVQUAL, with its emphasis on users of a service, could be adapted to assist in enabling efficient and effective e-government.

PURPOSE AND RESEARCH QUESTION

The main purpose of the research was to understand how the SERVQUAL framework can be adapted to the e-government context, based on a study of Thusong Service Centres. Specifically, the study sought to answer the research question: How can service quality and citizen perceptions of the value of e-government be measured?

LITERATURE REVIEW: MEASURING AND UNDERSTANDING STAGES OF E-GOVERNMENT AND E-GOVERNANCE

e-Government theory offers a range of maturity models, though these are not necessarily incongruent. Maturity models are conceptual reference models that are used as benchmarks within a given discipline to measure the maturity of an organisation and provide for the evolution of the organisation towards increased maturity (Becker, Niehaves, Poeppelbuss & Simons, 2010). Lee (2010, p. 5) compared and contrasted the 12 most distinctive e-government maturity models that have been developed and employed over the period 2000-2010, using a qualitative meta-synthesis analysis. Qualitative meta-synthesis is an approach which uses as data the findings from other qualitative studies, and attempts to bring together those findings into a single holistic framework that better reflects the different assumptions underlying each of the qualitative studies (Zimmer, 2006). Lee's (2010) meta-synthesis resulted in a common frame of reference model that revealed five distinct maturity processes (Table 2).

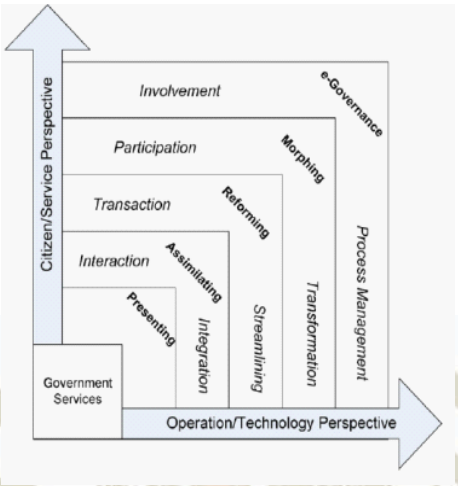
TABLE 2: E-GOVERNMENT MATURITY META-SYNTHESIS

Metaphors	Descriptions	Stages	
		Citizen and service	Operation and technology
Presenting	Present information in the information space	Information	
Assimilating	Assimilates (or replicates) processes and services in the information space with those in the real world	Interaction	Integration
Reforming	Reform the processes and services in the real world to match the information space requirements, fitting for efficiency	Transaction	Streamlining
Morphing	Change the shape and scope of processes and services in the information space as well as those in the real world, fitting for effectiveness	Participation	Transformation
e-Governance	Processes and service in both worlds are synchronously managed, reflecting citizen-involved changes with reconfigurable processes and services	Involvement	Process management

Source: Lee, 2010, p. 5

It is apparent from Lee's model that some maturity models focus on citizens while others focus on the technology artefact. The model suggests that as the technology platform of e-government matures, it offers better opportunity for interaction with citizens (Figure 1). e-Governance therefore stands out as the highest maturity level of e-government where government processes and services are continuously improved, based on a vibrant exchange of ideas between citizens and government. It would be naïve to assume that government must progress from stage to stage towards e-governance. For example, social media has enabled governments to skip stages, moving from the absence of technology to using Web 2.0 platforms, such as Facebook and Twitter, to enable citizens to offer opinions and participate in government decision making.

FIGURE 1: A COMMON FRAME OF REFERENCE FOR E-GOVERNMENT STAGE MODELS



Source: Lee, 2010, p. 10

By utilising Web 2.0 in government, citizens can easily access services and information anywhere, any time, from any device, and comment on what they expect and experience with respect to services. The use of Web 2.0 in government, also referred to as e-gov 2.0, enables citizens and government to realise intangible value, such as improved decision making, which cannot be measured using traditional time and cost factors.

REVIEW OF THE SERVQUAL METHODOLOGY AND ITS APPLICABILITY TO E-GOVERNMENT

When a service is rendered it follows that there is often a gap between what the service is expected to be like and what it turns out to be (Lewis & Booms, 1983). The gap can vary depending on the standards used to measure the quality of service, the difference between the recipient's expectations and the experience, the difference between what customers were told and what they experience, and the difference between what management think the service experience will be like and the actual experience (Zeithaml, Parasuraman & Berry, 1990). The degree to which the service experience conforms to the expectation is one way of defining service quality. Service quality is therefore a fair representation of the distinction between what an individual expects prior to experiencing a service and the perception or satisfaction after experiencing the service (Lewis & Blooms, 1983). For service-offering organisations such as government, citizen perceptions and degrees of satisfaction or dissatisfaction (Moorman, Blakely & Niehoff, 1998) are important to understand, in order to ascertain to what extent citizens are experiencing the value of the service.

SERVQUAL is a service quality tool that has been widely used in the retail sector to measure customer experience of services rendered against their expectations (Parasuraman, Zeithaml & Berry, 1988). SERVQUAL initially measured 10 dimensions of service quality, but was refined to the five dimensions of tangibles (equipment, appearance of service staff, visually appealing materials), empathy (caring, individual attention, understanding customer needs), reliability (service as promised, error-free information), responsiveness (prompt service, willingness to help) and assurance (instilling confidence, people feeling safe about their transaction) (Parasuraman, Zeithaml & Berry, 1994, p. 207).

The application of a SERVQUAL type approach would be an opportunity for government to develop ways to understand what type and quality of e-government is expected and how its value is perceived. Since SERVQUAL is a service quality tool that has been applied with respect to commercial transactions, it requires adaptation to an e-government context. One of the differences between business customers and citizens is that customers can leave when they perceive services to be poor, while citizens are often unable to choose an alternative government service point. Furthermore, there are theoretical and operational criticisms of SERVQUAL that need to be addressed. Theoretically, SERVQUAL is criticised for not drawing on established theory, not considering the outcomes of a service encounter, and for its dependence on context, while operationally, the expectations component is regarded as being vague (Buttle, 1996). This study seeks to recognise the value of a structured service quality framework, while adapting the tool to the context and addressing the critique of theoretical weakness and vagueness. The adaptation of SERVQUAL was addressed by relating the design of the framework to theory on e-government, and to important contextual elements, namely the practice of e-government at TSCs and the Batho Pele quality approach to service delivery. Since the article focuses on the e-government experience, the outcomes of an individual service encounter, though important, were not considered.

The Batho Pele policy defines eight principles for service delivery, including that there be consultation; standards for every government service rendered; access to information; openness and transparency in interactions with government; an opportunity for redress where poor service is rendered; and the perception that citizens receive value in their interactions with government. It should follow therefore that e-governance should be measured by the extent to which ICT is leveraged within each of the above elements, for example, the extent to which ICT enables consultation between government and citizens or organisations.

While government attempted to use ICT in e-government (Republic of South Africa, 2001), it later recognised the challenge in making e-government work, citing especially the inconsistent ICT and public administration frameworks that are in use across different sectors of government (GITOC, 2009). The choice was therefore to create a government-wide enterprise architecture that will guide the adoption of ICT across government (GITOC, 2009). In this article, we argue that the creation of a complex ICT framework is misplaced, because most government ICT officers are not familiar with enterprise architectures (Twinomurinzi & Rambau, 2012). It would be more contextual to utilise an established approach such as Batho Pele to inform the framework for delivery at e-government services centres. This article therefore sets out to interpret, from Batho Pele, measures that can be used to determine the value of e-government. It postulates that an adapted SERVQUAL tool can be applied to understanding customer expectations and experiences of e-government at citizen service centres, thus enabling governments to improve their service delivery and e-governance efforts.

MAPPING SERVQUAL DIMENSIONS TO BATHO PELE PRINCIPLES

Table 3 shows the five dimensions of service quality measured by SERVQUAL can be mapped to the Batho Pele principles of consultation, service standards, access, courtesy, information, openness and transparency, redress and value for money.

TABLE 3: MAPPING BATHO PELE PRINCIPLES AND E-GOVERNMENT TO SERVQUAL DIMENSIONS

SERVQUAL dimension	Batho Pele principle	Mapping to e-government
Reliability	• Information • Redress	e-Services should be given fully, based on detailed and correct information. Explanation and/or options should be given for services not rendered.
Empathy	• Courtesy • Access	e-Services should be given with empathetic consideration. The citizens have a right to services and should find the e-services easily accessible and communicated clearly
Assurance	• Openness and transparency	.nformation should be available about what government delivers and how it operates. e-Services should be given in trust and confidence, and should therefore be credible and secure.
Responsiveness	• Service standard • Consultation • Value for money	There should be an awareness of the expected quality of the service and the benefits of ICT access to e-services. Users should be consulted about the quality of e-services rendered and given a choice about the e-services offered. Affordable e-services should be offered.
Tangible	• Infrastructure arrangements	The ICT infrastructure and appearance of personnel should be above a minimum standard.

RESEARCH HYPOTHESES

The following five statements were hypothesised to represent the quality of service rendered in the e-government service centres:

H10: Tangibles experienced by the citizens have no influence on the quality of service rendered in the TSC.
H11: Tangibles experienced by the citizens have an encouraging influence on the quality of service rendered in the TSC.

H20: Reliability experienced by the citizens has no influence on the quality of service rendered in the TSC.
H21: Reliability experienced by the citizens has an encouraging influence on the quality of service rendered in the TSC.

H30: Responsiveness experienced by the citizens has no influence on the quality of service rendered in the TSC.
H31: Responsiveness experienced by the citizens has an encouraging influence on the quality of service rendered in the TSC.

H40: Assurance experienced by the citizens has no influence on the quality of service rendered in the TSC.
H41: Assurance experienced by the citizens has an encouraging influence on the quality of service rendered in the TSC.

H50: Empathy experienced by the citizens has no influence on the quality of service rendered in the TSC.
H51: Empathy experienced by the citizens has an encouraging influence on the quality of service rendered in the TSC.

SERVQUAL ADAPTATION AND TESTING

The Batho Pele policy and the Thusong Service Centre experience provided the citizen-centric context to inform adaptation of the SERVQUAL questions. The first adaptation of the framework was applied to the three TSC sites of Eldorado Park, Ipelegeng and Kopanong in Gauteng Province. The Eldorado Park and Kopanong TSCs are based in local community centres with dedicated rooms. The Ipelegeng TSC operates out of an Anglican Church that made available a building for community projects such as life skills training and youth development programmes. All three TSCs fall under the City of Johannesburg metropolitan municipality and the Gauteng West Region of the Department of Home Affairs (DoHA).

The DoHA ICT capabilities at each TSC are designed to offer the same services offered at any other DoHA regional office. Using the NPR and HANIS systems, officials can register births, but not amend the personal records in the system. The services offered are listed in Table 4.

TABLE 4: DEPARTMENT OF HOME AFFAIRS SERVICE OFFERING MATRIX

Service – Centre	Ipelegeng	Eldorado Park	Kopanong
ID – First issue	P	P	P
ID – Re-issue	P	P	P
Birth registration	P	P	P
ID application status Enquiries	P	P	P
Amendments	P	P	P
Passport application	P	P	P
Estimated daily stats	40	65	50

The e-government SERVQUAL questionnaire operates in the quantitative tradition, using a cross-sectional survey methodology based on 44 contextually adapted questions. In order to test the applicability of the survey, it was administered to a convenient sample of 168 citizens at three TSCs over a period of four weeks. The questionnaire was compiled in English and a verbal translation was offered to participants who preferred any other local language. Each questionnaire was administered before and after a user experience at the TSC. The responses were analysed and further adaptations were then made to the framework to ensure a contextualised instrument. The final adapted SERVQUAL framework is presented in Appendix A.

ANALYSIS

VARIABLES IN THE ANALYSIS

Tables 5 and 6 describe the variables (items in each SERVQUAL dimension) for expectations and experience respectively. Respondents rated the statements on a 4-point scale ranging from 1 = strongly disagree to 4 = strongly agree. The raw results were as follows:

TABLE 5: EXPECTATIONS SCALE ITEM MEAN AND STANDARD DEVIATION (N = 168)

Items in SERVQUAL dimension	Mean	SD
Tangibles		
CV8: The physical facilities of excellent service centres will be visually appealing.	3.52	0.50
CV13: Excellent e-government service centres will have modern-looking equipment.	3.35	0.48
CV15: Employees at the excellent e-government service centres will be neat in appearance.	3.35	0.49
CV16: Materials associated with the e-government services (pamphlets) will be visually appealing at an excellent e-government service centre.	3.36	0.50
CV10: Excellent e-government service centres will perform the service correctly the first time.	3.46	0.50
CV12: When a customer has a problem, excellent e-government service centres will show sincere interest in solving it.	3.36	0.48
CV17: Excellent e-government service centres will provide the service at the time they promise to do so.	3.38	0.50
CV26: When excellent e-government service centres promise to do something by a certain time, they do.	3.36	0.48
Responsiveness		
CV27: Excellent e-government service centres will insist on error-free records.	3.34	0.48
CV6: Employees of excellent e-government service centres will tell customers exactly when the service will be performed.	3.51	0.50
CV18: Employees of excellent e-government service centres will give prompt service to customers.	3.38	0.50
CV22: Employees of excellent e-government service centres will always be willing to help customers.	3.37	0.48
CV23: Employees of excellent e-government service centres will never be too busy to respond to a customer's request.	3.34	0.49
Assurance		
CV7: The behaviour of employees of excellent e-government service centres will instil confidence in customers.	3.52	0.50
CV11: Customers of excellent e-government service centres will feel safe in transactions.	3.41	0.49
CV20: Employees of excellent e-government service centres will be consistently courteous with customers.	3.36	0.48
CV21: Employees of excellent e-government service centres will have the knowledge to answer customers' questions.	3.33	0.47
Empathy		
CV9: Employees of excellent e-government service centres will understand the specific needs of their customers.	3.54	0.50
CV14: Excellent e-government service centres will have their customers' best interests at heart.	3.33	0.48
CV19: Excellent e-government service centres will have employees who give customers personal service.	3.36	0.48
CV25: Excellent e-government service centres will give customers individual attention.	3.35	0.48
CV24: Excellent e-government service centres will have operating hours convenient to all their customers.	3.33	0.47

TABLE 6: EXPERIENCE SCALE ITEM MEAN AND STANDARD DEVIATION (N = 168)

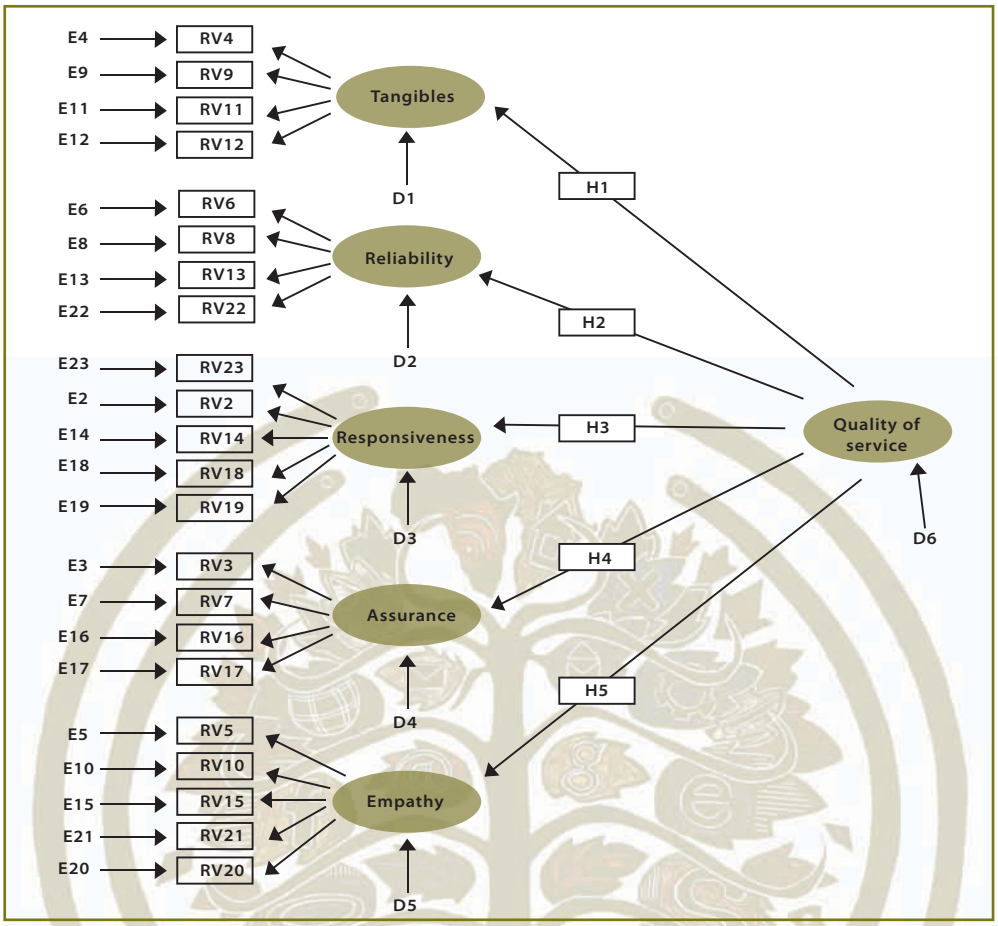
Items in SERVQUAL dimension	Mean	SD
Tangibles		
RV4: The centre's physical features are very appealing.	2.36	0.48
RV9: The centre has modern-looking equipment.	2.08	0.27
RV11: The centre's reception desk employees appear neat.	2.18	0.28
RV12: Materials associated with the e-government service (pamphlets) are visually appealing at centre.	2.08	0.28
Reliability		
RV6: The centre performs the service correctly the first time.	2.30	0.46
RV8: When you have a problem, the centre shows sincere interest in solving it.	2.24	0.43
RV13: The centre provides its service at the time it promises to do so.	2.16	0.37
RV22: When the centre promises to do something by a certain time, it does so.	2.14	0.35
Responsiveness		
RV2: Employees in the centre tell you exactly when the services will be performed.	2.40	0.49
RV14: Employees in the centre give you prompt service.	2.15	0.36
RV18: Employees in the centre are always willing to help you.	2.14	0.35
RV19: Employees in the centre are never too busy to respond to your request.	2.17	0.38
RV23: The centre insists on error-free records.	2.15	0.36
Assurance		
RV3: The behaviour of employees in the centre instils confidence in you.	2.40	0.49
RV7: You feel safe in your transaction with the centre.	2.28	0.45
RV16: Employees in the centre are consistently courteous with you.	2.15	0.36
RV17: Employees in the centre have the knowledge to answer your questions.	2.15	0.36
Items in SERVQUAL dimension	**Mean**	**SD**
Empathy		
RV5: The employees of the centre understand your specific needs.	2.35	0.48
RV10: The centre has your best interest at heart.	2.18	0.39
RV15: The centre has employees who give you personal attention.	2.15	0.36
RV21: The centre has operating hours convenient to all its customers.	2.14	0.35
RV20: The centre gives you individual attention.	2.86	0.35

APPLICATION OF STRUCTURAL EQUATION MODELLING

The structural equation model (SEM) was adopted to analyse the results. SEM is a general numerical modelling technique, which is used in the behavioural sciences to provide researchers with a complete means of assessing and modifying theoretical models (Anderson & Gerbing, 1988). SEM depicts the relationship between hypothetical constructs that are represented by regression or path coefficients among other factors. In this research, the SERVQUAL questionnaire items are the observed variables which citizens had to rate for the expected and experienced service. The observed variables were grouped to define causal relationships with latent variables. SEM is also called a second-order confirmatory factor analysis (CFA) model, where the five SERVQUAL dimensions are first-order factors and the quality of service is the second-order factor. Establishing a well-fitting CFA model will result in successfully testing the relationships among latent variables. The subject of this study was the relationship between SERVQUAL dimensions and service quality with respect to citizens' expectations and experiences.

The adapted SERVQUAL questionnaire had 22 items each for EXPECTATIONS and EXPERIENCE, measuring five dimensions. The questionnaire was administered to citizens before and after they had visited the TSC to assess the expected service quality and the service quality experienced. The hypothesised relationships of the SERVQUAL dimensions against the quality of service are presented in Figure 2. The relationships were tested using a data set collected through the SERVQUAL questionnaire, and analysed using a structural equation model.

FIGURE 2 THE HYPOTHESIZED STRUCTURAL EQUATION MODEL

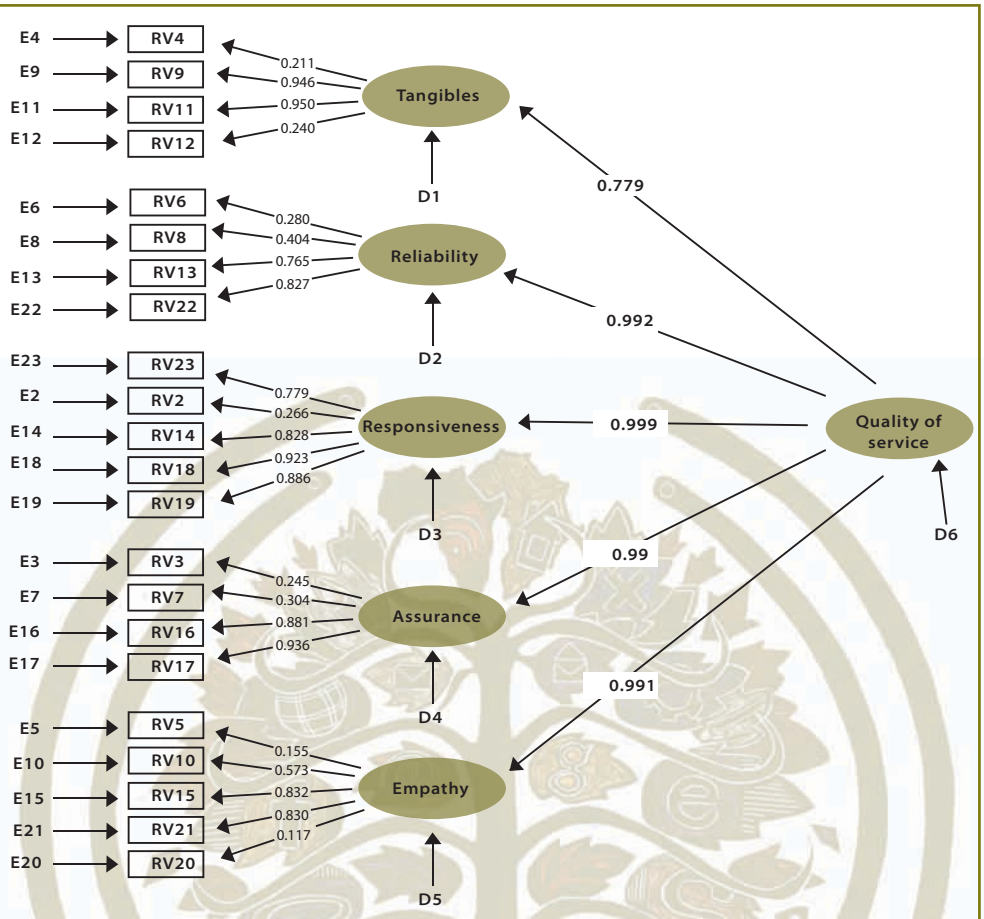


NOTE The variables in squares are the observed variables and the variables in ovals are the latent variables. The arrows show the causal relationships between the variables

RESULTS AND DISCUSSION

The researchers assessed the quality and adequacy of the proposed measurement model by investigating reliability and convergence validity. The convergence validity was supported as a result of the fact that the overall fit of the final model was good, and that all the path loadings were statistically significant at 5% level of significance. With respect to the structural components of the model (Figure 3 below), the results showed that all five SERVQUAL dimensions have a statistically significant effect on the quality of service. The researchers therefore rejected the five null hypotheses at 5% level of significance and confirmed that there is a causal relationship among the SERVQUAL dimensions and the quality of service rendered in the TSCs.

FIGURE 3: FINAL MODEL RESULTS



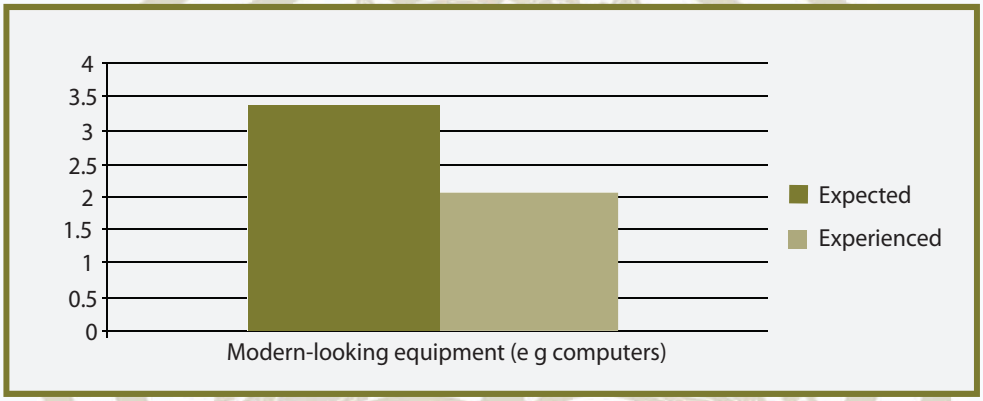
NOTE The numbers on the path diagram are standardised regression coefficients where arrows point either from first-order latent variables to the observed variables or from second-order latent variables (quality of service) to the first-order latent variables (which are also the dependant latent variables)

COMPARISON OF ITEMS BETWEEN EXPERIENCE AND EXPECTATION

Tables 5 and 6 above describe the average scores of citizens' response to experience and expectations items respectively. The results imply that citizens' experience of all dimensions of e-government in terms of tangibles, reliability, responsiveness, assurance and empathy was below their expectations. The greatest difference between what citizens expected and what they experienced was with respect to the physical facilities of the centres, the timing of the services rendered, the employees instilling confidence and the best interest of the citizens. Each of these is described in more detail below.

As one measure of tangibles, the findings show that citizens have high expectations of the ICT infrastructure. Overall, they were disappointed with what they experienced (Figure 4).

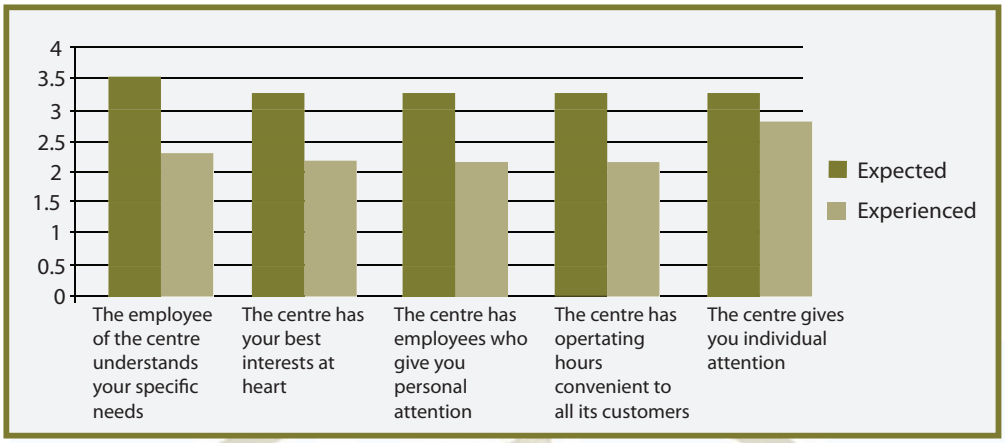
FIGURE 4: AESTHETICS OF ICT AT E-GOVERNMENT SERVICE CENTRES



The TSCs should have similar ICT infrastructure since the Universal Service Agency of South Africa (USAASA) has been engaged in introducing ICT at TSCs. USAASA can outsource ICT implementation to service providers and should create a set of "aesthetic ICT" standards that must be adhered to by service providers.

In terms of empathy, the utilisation of ICT has led to the design of customer relationship management (CRM) systems, enabling the presentation of service profiles such that the customer is addressed as an individual, well known and valued by the company. The CRM approach can be extended to e-government, such that TSC personnel can be empathic because they are able to view the citizen's profile and address each user as a unique individual, valued by government. The findings of this study show that citizens expect the personnel at TSCs to understand their needs and make them feel like unique individuals (Figure 5)

FIGURE 5: EMPATHY IN RELATION TO E-SERVICES AND E-GOVERNMENT



The results show the value that citizens attach to empathy as a key ingredient to successful e-government. Empathy is a skill that can be learned and does not require much effort to implement, especially when complemented with ICT systems.

In terms of assurance and professionalism, ICT can enable services to be rendered in trust and confidence, and to be treated as credible and secure. Assurance and professionalism can be ensured through enabling user participation in identification, for example by using biometric systems to authenticate citizens. The personnel can provide the citizen with a full trail of their interaction with the DoHA. Such simple measures can build trust and enable personnel to treat every matter with confidence and courtesy (Figure 6).

FIGURE 6: ASSURANCE AND PROFESSIONALISM IN E-GOVERNMENT



ICT can enable reliability and responsiveness through keeping citizens updated regarding the status of the services they have applied for. Simple means, such as text messages sent to a citizen, instil a sense of a reliable and responsive government. Additionally, keeping the citizen informed of the trail of activity would make citizens aware that their matters are being dealt with and when the matter will be resolved, illustrating the reliability of e-services and e-government. Such approaches can shift the existing negative experience of reliability and responsiveness (Figures 7 and 8).

FIGURE 7: RELIABILITY OF E-GOVERNMENT SERVICES

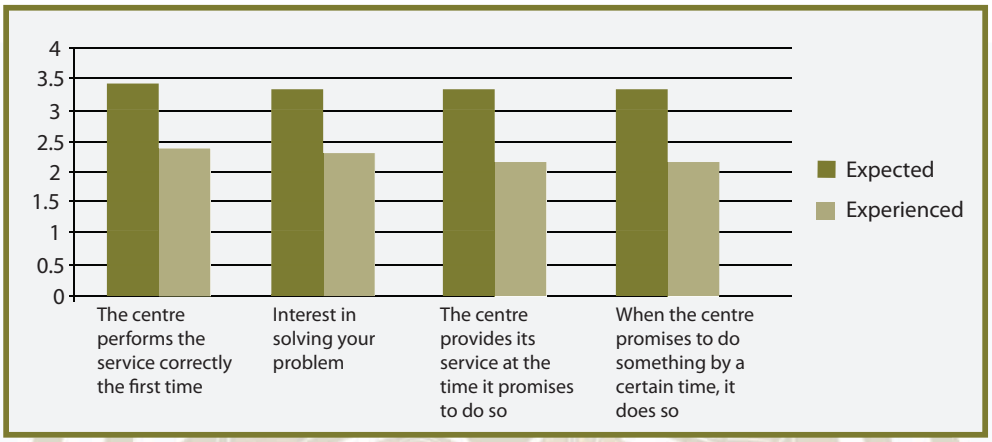
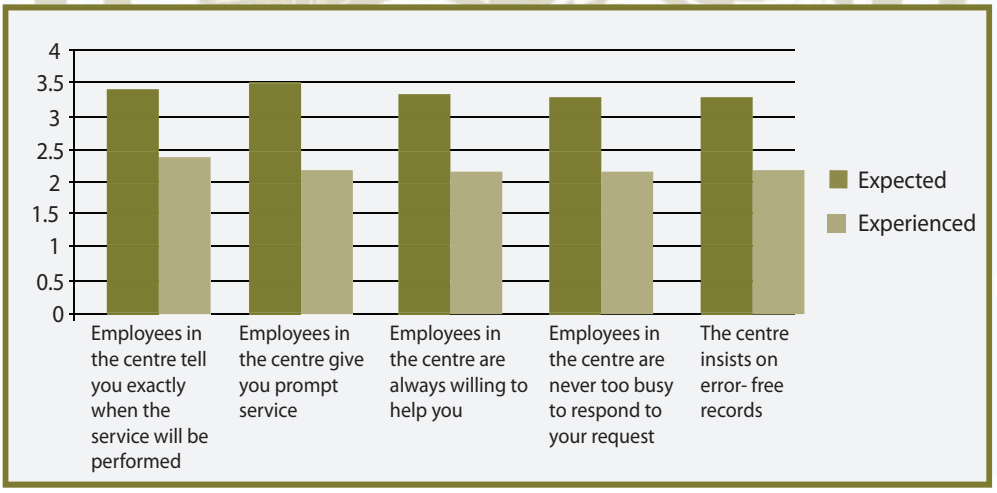


FIGURE 8: RESPONSIVENESS OF E-GOVERNMENT



ICT can enable e-government services centres to give a fair estimate of the time in which every matter will be resolved and, in the event that timelines have not been met, to continually update the citizen of progress through affordable means such as a text message service.

CONCLUSIONS

The study question was: How can service quality and citizen perceptions of the value of e-governance be measured? The study shows that designing e-government cannot be simply about using generic approaches, but requires a degree of contextualisation to the particular country. In the case of South Africa, Batho Pele provides a public service quality framework to measure service delivery. A framework like SERVQUAL can therefore be adapted to South Africa, based on this contextualisation.

The research set out to investigate the adaptation and application of the SERVQUAL framework to e-government, based on a survey of community e-services centres (Thusong Service Centres), where ICT is integrated as a primary component of delivering government services. The research revealed a relationship between the SERVQUAL dimensions, the Batho Pele service quality principles and citizen-centric e-government. In particular, the research showed that the SERVQUAL dimensions can be adapted to measure e-government as follows:

(1) In terms of tangibles, it is important to measure and enhance the aesthetic appearance of the ICT environment in the e-services centres.

(2) To encourage empathetic conduct, ICT needs to be used to support, giving individual attention to each citizen and each query.

(3) Because ICT systems store a great deal of data, reliability and responsiveness can be measured by the degree to which ICT (a) shows the trail of activity for the government services that have been applied for, (b) ensures that the service is free of errors and (c) is used so that information is sent to the citizen at regular intervals.

(4) Assurance can be integrated using ICT by allowing citizens to authenticate their personal details, so that they feel secure about their transactions with government.

Based on the above findings and conclusions, we recommend an adapted SERVQUAL approach to measure e-government services and progress towards e-governance, as set out in Table 7 below and as detailed in the questionnaire in Appendix A. This can be applied in South Africa and in other countries with similar concerns and interests in improving the quality of e-government services and advancing towards e-governance.

TABLE 7: ADAPTED EXPECTATION SERVQUAL INSTRUMENT TO MEASURE E-GOVERNMENT

SERVQUAL	Batho Pele	e-Government expectation measure	e-Government experience measure
Tangibles	Infrastructure arrangements	1 Government service centres will have working and effective ICT equipment	1 Government service centres had working and effective ICT equipment
Reliability	Information and opportunity for redress	2 Government service centres will perform the service correctly the first time through the use of ICT	2 Government service centres performed the service correctly the first time through the use of ICT
		3 Government service centres keep citizens regularly updated about the status of the service that has been applied for	3 Government service centres kept citizens regularly updated about the status of the service that was applied for
Responsiveness	High service standards and consultation	4 Government service centres will use ICT systems which ensure error free records	4 Government service centres used ICT systems to ensure error-free records
		5 Personnel using ICT can tell citizens exactly when the service will be performed	5 Personnel using ICT could tell citizens exactly when the service would be performed
Assurance	Openness and transparency	6 Citizens can participate in authenticating their personal details so they feel secure in using ICT to interact with government	6 Citizens were able to participate in authenticating their personal details and felt secure in using ICT to interact with government
		7 Personnel of government service centres use ICT for knowledge to answer citizen questions	7 Personnel of government service centres used ICT for knowledge to answer citizen questions
Empathy	Courtesy and access	8 Personnel of government service centres use ICT to understand the specific needs of their customers	8 Personnel of government service centres used ICT to understand the specific needs of their customers
		9 Government service centres will ensure that ICT and e-services are available at operating hours convenient to citizens	9 Government service centres have ensured that ICT and e-services are available at operating hours convenient to citizens

Most countries in sub-Saharan Africa share similar social contexts to those in South Africa, with respect to the challenges of taking public services to the majority of citizens and ensuring good quality of service provision. This article argues that the adapted SERVQUAL instrument can be used as a guide to innovation using ICT to enhance service delivery through e-government services. It is an appropriate socio-technical tool that can be used to inform the design of broader e-governance strategies in African countries, including South Africa.

The research was limited to measuring the services of one department at the Thusong community centres. It would be of value to public service managers designing e-government services and e-governance initiatives to conduct wider research covering a broader range of departments, public services and government-citizen interactions. As e-governance progresses, additional attributes should be measured. For example, a citizen should receive an integrated service and should not need to be aware of the different departments being dealt with but should be able to simply access services as and when they are needed. Furthermore, citizen service centres should promote participative democracy through e-governance

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APPENDIX A: e-GOVERNMENT SERVICE QUALITY (EGOV-SERVQUAL) QUESTIONNAIRE:

PART A: AN ASSESSMENT OF e-GOVERNMENT EXPECTED SERVICE QUALITY

Respondent number V3 5

Please answer each question by drawing a circle around an appropriate number in a shaded box or by writing your answer in the shaded space provided

1. Location of service provider

Site 1	1
Site 2	2
Site 3	3

V2 4

2. Date of assessment

V3 5

3. What is your gender?

Male	1
Female	2

V4 11

4. What is your age?

V5 12

5. Please read each of the following statements below and rate your EXPECTATION of e-government service centres associated with each statement on the scale supplied

	Strongly disagree	Disagree	Agree	Strongly Agree			
Employees of e-government services centres tell users exactly when the service will be performed.	1	2	3	4	V6		13
The ability of employees to use ICT to service citizens instils confidence.	1	2	3	4	V7		14
The e-services centre's ICT equipment is working and effective.	1	2	3	4	V8		15
The e-services centre's ICT equipment is working and effective.	1	2	3	4	V9		16
Employees at e-services centres understand the specific needs of their users.	1	2	3	4	V10		17
e-Government services centres perform the service correctly the first time.	1	2	3	4	V11		18
Users feel secure when performing electronic transactions.	1	2	3	4	V12		19
When a user has a problem, employees show sincere interest in solving	1	2	3	4	V13		20
e-Government services centres have email and Internet facilities for users to access electronic services.	1	2	3	4	V14		13
it. e-Government services centres have their users' best interests at heart.	1	2	3	4	V15		21
Employees at the e-services centres are neat in appearance.	1	2	3	4	V16		22
Materials associated with the e-services (pamphlets, other) are informative.	1	2	3	4	V17		23
e-Government services centres provide the service at the time they promise to do so.	1	2	3	4	V18		24
Employees of e-services centres give prompt service to users.	1	2	3	4	V19		25
e-Government services centres have employees who give users personal service.	1	2	3	4	V20		26
Employees of e-services centres are consistently courteous to users.	1	2	3	4	V21		27
Employees of e-services centres are able to access electronic records to answer user's questions.	1	2	3	4	V22		28
Employees of e-services centres are always willing to use ICT to help users.	1	2	3	4	V23		29
Employees of e-services centres are never too busy to respond to user's requests.	1	2	3	4	V24		30
e-Government services centres have operating hours convenient to all their users.	1	2	3	4	V25		31

	Strongly disagree	Disagree	Agree	Strongly Agree			
e-Government services centres access user's individual electronic records.	1	2	3	4	V26		32
When e-services centres promise to provide an electronic service by a certain time, they do.	1	2	3	4	V27		33
e-Government service centres insist on error-free electronic records.	1	2	3	4	V28		34

PART B: AN ASSESSMENT OF e-GOVERNMENT *EXPERIENCED* SERVICE QUALITY

Respondent number V3 | | | | 5

Please answer each question by drawing a circle around an appropriate number in a shaded box

6. Please read each of the following statements below and rate your EXPERIENCE associated with each statement on the scale supplied

	Strongly disagree	Disagree	Agree	Strongly Agree			
Employees in the e-government services centre tell you exactly when the services will be performed.	1	2	3	4	V2		4
The behaviour of employees in the e-services centre instils confidence in you.	1	2	3	4	V3		5
The e-services centre's ICT equipment is working and effective.	1	2	3	4	V4		6
The employees of the e-services centre understand your specific needs.	1	2	3	4	V5		7
The e-services centre performs the service correctly the first time.	1	2	3	4	V6		8
You feel secure when performing a transaction at the e-services centre.	1	2	3	4	V7		9
When you have a problem, employees at the e-services centre show sincere interest in solving it.	1	2	3	4	V8		10
The e-services centre has email and Internet facilities and offers easy access to e-government services.	1	2	3	4	V9		11
The e-services centre has your best interests at heart.	1	2	3	4	V10		12

	Strongly disagree	Disagree	Agree	Strongly Agree			
The e-services centre's employees are neat in appearance.	1	2	3	4	V11		13
Materials associated with the e-services (pamphlets, other) are informative.	1	2	3	4	V12		14
The e-services centre provides its service at the time it promises to do so.	1	2	3	4	V13		15
Employees in the e-services centre give you prompt service.	1	2	3	4	V14		16
The e-services centre employees give you personal attention.	1	2	3	4	V15		17
Employees in the e-services centre are consistently courteous to you.	1	2	3	4	V16		18
Employees in the e-services centre have the knowledge to answer your questions.	1	2	3	4	V17		19
Employees in the e-services centre are always willing to help you.	1	2	3	4	V18		20
Employees in the e-services centre are never too busy to respond to your requests.	1	2	3	4	V19		21
The e-services centre has operating hours convenient to all its users.	1	2	3	4	V20		22
The e-services centre gives you individual attention.	1	2	3	4	V21		23
When the e-services centre promises to do something by a certain time, it does so.	1	2	3	4	V22		24
The e-services centre insists on error-free records.	1	2	3	4	V23		25