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Original Research Article

Service Quality Evaluation of a Nigerian University's Internet Service

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ABSTRACT

This study was conducted to examine the quality of internet service provided to a Nigerian University from the perspective of the respondents (staff and students). These subscribers pay monthly for this service and since the inception, the quality of service provided has not been determined. This required investigation to be carried out on respondents' perception and expectation of internet service quality. The approach of sampling used to determine the sample size was the random sampling technique. A modified ServQual model was used to extract data and determine the gaps in service quality. The results showed low gaps in the factors of service quality namely: responsiveness, assurance, tangibility, empathy with the highest score in reliability. It was also observed that a difference exists between staff and student's perception in service quality.

1. INTRODUCTION

Internet services are aspects of information communication technology (ICT) that are presently observed as a necessity for most organizations in the world today. This is possibly due to flexibility and ease of communication offered by internet services. Globally, in economic sectors, internet services have transformed the way other services are delivered. According to Raja and Nagasubramani (2013), ICT has altered all facets of civilization. The advantage of ICT services has forced organizations seeking relevance to embrace internet services especially in the world of research.

According to David, (2002), internet started with packet switching in 1950's among some computers in United Kingdom, United States and France. Barry et al. (1997) submitted that the internet is a method of linking computers using specialized routers and servers to any other computer anywhere in the world. This has made the distant seem near as long as they can be assessed over the internet. It's also widely used in businesses for

shaping international relationships with new vendors (to lower costs) and new customers (to increase sales) (Stephen 2015). In universities, it aids research especially in accessing materials from various locations around the world while physically in one location, it also fosters communication within and outside the institution.

The internet service in University of Benin is handled by the Information Communication Technology unit (ICTU) alongside repair of computers, network equipment and network related activities. Theses includes internet connection for staff and students (subscribers) in faculties, departments, libraries, lecture theatres, laboratories, offices as well as halls of residence. Each subscriber pays for the service and it is managed by assigning bandwidth per internet user. A log is used to describe user activity on the internet in terms of duration and amount of bandwidth consumed per person.

A major driving factor for this research is that, since the inception of the ICTU, the quality of internet service they provide to staff and students has not been investigated. Knowing that the quality of the internet service provided by ICTU is dependent on what the user expects and experience about the service, the service provider through this research will have a definite impression of their provided service based on their subscriber's expectation and experience. According to Figlio et al. (2013), the internet in the university plays a lot of roles in website and email usage especially in research and communication within and outside the institution. This brings to mind that the sensitivity and flexibility of the internet service in a Nigerian university is of uttermost necessity.

This study looks at the quality of internet services provided for the staff and students by the university to guide management in decision making and increase the use of the service.

2. METHODOLOGY

2.1. Sample Size Determination

The sample size was carefully chosen based on Beavers et al. (2013), they suggested that the number of variables multiplied by the Likert scale selected will represent the minimum sample for the experiment. The sample size was given as shown in Equation (1).

$$N = P \times C \tag{1}$$

Where P = number of variables in the questionnaire, C = points on likert scale and N = minimum sample size

2.2. Method of Data Collection

2.2.1. Internet service quality evaluation questionnaire

This questionnaire was developed after consulting some staff and students about their views of University of Benin internet service. These views were used in researching for a suitable questionnaire for internet service and only that of Parasuraman et al. (1988) was closely related. Considering these views, and the identified questionnaire, an internet service questionnaire comprised of twenty-six items for students and twenty-seven items for staff was developed. The university internet service questionnaire had five factors (namely reliability, assurance, tangibility, empathy and responsiveness) and was divided into three parts. The first is demographic characteristics which is arranged for respondents to select their classification in the area of age, sex, faculty, department, level, degree. The second is the expectation part where respondents were required to fill out the questionnaire in terms of what they expect from the service. The final part was the perception part where respondents are to fill what they have experienced in using the internet service. The response of the second and third parts of the questionnaire were also equipped with Likert response format for respondents to indicate their opinions.

A five point Likert scale ranging from strongly agree to strongly disagree as shown in Table 1. was employed as the response internet service questionnaire. This questionnaire was tested with fifteen (15) students from random department and six lecturers from both campuses. Their corrections were observed and applied to restructuring the new questionnaire to twenty six for students and twenty seven for staff. This was necessary to aid quick understanding and easy response from respondent. The questionnaires were randomly deployed to staff and students.

Table 1: Questionnaire Likert scale response and score

Structured response	Score
Strongly Agree	5
Agree	4
Undecided	3
Disagree	2
Strongly disagree	1

2.2.2. Reliability of questionnaires

According to Creswell and David (2017), reliability describes the internal consistency of the developed questionnaire based on the Cronbachs alpha coefficient. This process is done by determining the inter correlations among the factors of the response data. The formula for Cronbach's alpha is shown in Equation (2).

$$\alpha = \frac{m}{m-1}\left(1 - \frac{\sum_{i=1}^{m} \sigma^2_{y_i}}{\sigma^2 x}\right) \tag{2}$$

where $\sigma^2 x$ is the variance of the observed total response scores, $\sigma^2 y_i$ the variance of the component for the current sample of response y, m = sum of items in questionnaire, $x = y_1 + y_2 + ... + y_k$, x = total score variance, y = variance of each item on questionnaire and α = Cronbach alpha coefficient (reliability)

2.3. University Internet Service Quality Evaluation

The analysis of internet service quality was performed with the SERVQUAL model (Parasurman, 1988). The service quality (ServQual) model was selected to examine respondents (staff and students) perception of internet service. It was made possible because of the perception and experience section in the questionnaire delivered to staff and students.

This model was chosen because of the advantage of reflecting the gap(s) in service delivery alongside describing the service quality of internet received by respondents. The service quality model subtracts user experience from their perception as represented in Equation 3. The gaps from the perception and experience was identified from this model. Internet service will reveal two service quality received by staff and students

$$SQ = \sum_{i=1}^{k} \left(p_{ij}\right) - \left(E_{ij}\right) \tag{3}$$

Where SQ = overall service quality, k = number of attributes, P_{ij} = perception of service quality i with respect to attribute j, and E_{ij} = experience of service quality I with respect to attribute j

3. RESULTS AND DISCUSSION

To have a reliable and valid assessment, the minimum sample size to conduct this test was determined based on Equation 1 as one hundred and thirty five for academic staff and one hundred and thirty for students. After distributing of the questionnaire, the valid response exceeded the minimum requirement both for Academic staff and students as shown in Table 2.

Table 2: Minimum sample size and the valid response.

Minimum sample size		Valid response	
Academic staff	Students	Academic staff	Students
135	130	136	210

The redesigned internet service evaluation questionnaire was first subjected to reliability tests using the Cronbach alpha test. Based on Equation (2), the reliability of the students and staff response was determined considering the number of items in the respective questionnaires.

For students:

$\boldsymbol{\delta}^2$x = 209.8698

$\boldsymbol{\delta}^2$y =34.46751

M= 26

Reliability =0.877291

For staff:

$\boldsymbol{\delta}^2$x = 76.52844

$\boldsymbol{\delta}^2$y =12.0274

M= 27

Reliability =0.844291

These reliability values 0.7 showed that both staff and students questionnaire had the ability to represents their response in a manner worthy of statistical inference. Taber (2018). With this appreciable value, the questionnaire response was analyzed using the Equation 3. After analyzing the response of the developed University of Benin internet service questionnaire of both staff and students by determining the gap between their expectation of service quality and what they experienced on each of the service quality factor, the average gaps score on each factor for staff and students as shown in Table 3. The average staff gap scores from the factors in Table 3 shows that in the students' response, the lowest satisfaction in service is reliability followed by responsiveness, tangibility, assurance and the highest satisfaction is observed in empathy. On the other hand, the staff response also recorded reliability as the lowest gap in satisfaction followed by tangibility, responsiveness empathy and the highest satisfaction shown in assurance.

Table 3: Average gap score of factors for students and staff

Factors	Mean gap score on factors for students	Mean gap score on factors for staff
Reliability	-3.689063	-3.22695
Empathy	-1.423958	-1.694149
Tangibility	-1.947917	-2.654846
Assurance	-1.607031	-1.414894
Responsiveness	-2.681250	-2.323404

4. CONCLUSION

The internet service which is a vital ingredient for assessing online services have been evaluated by staff and students. This study has been able to identify the gaps of service delivery which leads to dissatisfaction and poor patriotism of the university's internet service. These gaps have been able to expose unto management, the areas of internet service that requires urgent attention to stimulate improved service delivery. Another observation is the difference in staff and student's perspective of internet service quality factors. The factors like reliability is most preferred by both respondents but students preferred responsiveness to tangibility which was opposed to staff which saw tangibility more importantly than responsiveness. Also, students choose assurance over empathy while the staff decided that empathy was preferred to assurance. In summary, this has brought to light the aspect of internet service quality that is closest to the heart of their internet customers which could be used to enhance service delivery.

5. ACKNOWLEDGMENT

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6. CONFLICT OF INTEREST

There is no conflict of interest associated with this work.

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