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The service quality on the usage of Telecommunication Technology in Batticaloa District

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ABSTRACT

The aim of this study is to find out the impact of service quality on use of telecommunication technology in Batticaloa District. Using a modified Technology Acceptance Model (TAM) as a research framework, a sample of 200 telecommunication technology users from Sri Lanka Telecom (SLT), Dialog, Mobitel and Airtel based on convenience sampling method were surveyed on their responses, to explain their service experience and intention to use telecommunication technology. The telecommunication technologies such as telephone connection, broad band connection, television network and 3G, 3.5 G and 4 G networks are considering for this study. Data were analyzed using univariate and bivariate modeling and the results showed that service quality is significantly and positively impact on intention to use telecommunication technology. Based on the analyses of dimensions of service quality that reliability, assurance and responsiveness have highest impact on intention to use followed by tangible and empathy. Further, 48.8% of variance in intention to use is explained by service quality. Implications of the findings were also discussed.

Keywords: Technology Acceptance Model (TAM), Telecommunication Technology, Intention to Use, Service Quality.

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1. Background of the Research

As the importance and size of the service sector of the global economy grows, the study of services is becoming increasingly important. In the current times, there have been significant changes that took place in the service sector and these include the telecommunication sector. Understanding how companies should interact with their customers and deliver services in electronic environments is of decisive importance (Parasuraman & Zinkhan, 2002). Service quality is the ability of the organization to meet or exceed customer expectations. Customer expectation may be defined as the “desires and wants of consumers” i.e. what they feel a service provider should offer rather than would offer (Parasuraman, Zeithaml and Berry, 1988). In other words, service quality reflects the difference between the expected quality prior to the process of purchase and the actual quality experienced by the consumer post-purchase (Joudeh, 2017). On the other hand, customer expectations are related to his/her desires, interests, feelings and needs. Service based organizations need the attention on the quality that they are offering to the consumers.

Service quality in the telecommunication sector is measured by the provisioning of services such as clear voice, presence of signal even in remote areas, in best possible way. For service providers, the pursuit of service quality is essential for competitiveness and gaining momentum (Seth, Gupta, & Momaya, 2006). Consumers' use of mobile communication devices is increasing rapidly, and devices based on mobile technology are now commonplace in everyday life (Balasubramanian, Peterson, & Jarvenpaa 2002). Over the last five decades, the telecommunication technologies have evolved and in the current times, supported by research into semiconductors and digital electronics, analog representations of voice, images and video have been made possible in digital representations. In essence, the acceptance and understanding of the significance of telecommunications among societies is well established as evidenced by its ubiquitous proliferation and usage (Ali, Alnawafleh, Tambi, & Abdullah, 2018).

In the business and industrial settings, technology acceptance was conventional for developers and procurers of technology to rely on organizational authority to ensure that technology was used. The technology acceptance model (TAM) has been introduced to explain customer behaviors (Davis, 1989). The importance of service quality has been highlighted in Sri Lanka telecommunication sector, where it is one of the fastest growing sectors that in turn, expedited the commercial and industrial sectors growth, and contributed to the development of the nation's economy. The telecommunication industry in Batticaloa has been liberalized, with six service providers including Sri Lanka Telecom (SLT), Dialog, Mobitel, Airtel, Hutch and Etisalat. This study investigates the impact of service quality on use of telecommunication technology such telephone connection, broad band connection, television network and 3G, 3.5G and 4G network provided by Sri Lanka Telecom (SLT), Dialog, Mobitel and Airtel in Batticaloa. The existing service providers are trying to capture other competitors' customers. As a technique to increase their market they use different strategies through service quality. This study primarily attempts to examine the impact of service quality on intention to use telecommunication technology.

Research Problem

In today's competitive environment, any service organization cannot survive successfully without delivering high quality service. Many research studies have been investigated using Technology Acceptance Model (TAM), but few have been tackled using service quality as independent variable in this model in telecommunication industry. Ali et al., (2018) reviewed the impact of service quality and subjective norms in Technology Acceptance Model (TAM) among Telecommunication Customers in Jordan and the study recommended that telecommunication firms to be strengthen the link between their service quality and usage purpose. Therefore, it is essential to investigate the relationship between service quality and intention to use. Further, there has been dearth of research investigation carried out to reveal the impact of service quality on use of telecommunication technology in telecommunication industry in Sri Lankan context, particularly in Manmunai North Divisional Secretariat area, Batticaloa. Thus, there exists a clear empirical knowledge gap with respect to service quality on use of telecommunication technology. Therefore, the following research problem is advanced in this study.

Whether there is impact among service quality and intention to use telecommunication technology in Manmunai North Divisional Secretariat area, Batticaloa?

Research Questions

- To what extent service quality influence on intention to use telecommunication technology in Manmunai North Divisional Secretariat area, Batticaloa?
- What is the impact of service quality on intention to use telecommunication technology in Manmunai North Divisional Secretariat area, Batticaloa?

Research Objectives

- To identify the extent of service quality on intention to use telecommunication technology in Manmunai North Divisional Secretariat area, Batticaloa.
- To identify the impact of service quality on intention to use telecommunication technology in Manmunai North Divisional Secretariat area, Batticaloa.

2. Literature Review

The telecommunications technology industry deals with the delivery of electronic communication as well as a variety of products and services including cellular phone audio and text-based communication, access to the internet, streaming entertainment and online video games. This delivery is accomplished either through wired digital subscriber lines or wireless connections that use satellites to relay data through a number of different devices, including cellular phones, computers and home entertainment devices. At every level, from source to relay station to destination, telecommunications technologists and technicians are needed to build and maintain the necessary technology. Telecommunications technology has many roles, including transmitting information, improving efficiency and productivity and helping businesses expand.

Technology Acceptance Model (TAM) was one of many theories that have helped in providing theoretical framework for research in the adoption of using information technology over decades due to its popularity with high credibility. Davis presented in 1989 the Technology Acceptance Model (TAM) to explain the determinants of user acceptance of a wide range of end-user computing technologies. TAM points out that the intention to use affects the real usage behaviour. It is worth bearing in mind that, prior research having individual's acceptance of mobile services as their central research focus have used TAM to understand the adoption of a different mobile (advanced) services (Bouwman, López–Nicolás, Molina–Castillo, & Hattum, 2012).

Behavioural intention has been defined as the individual willingness to use a technology system (Venkatesh, Thong, & Xu, 2012). Moreover, there is consensus among researchers that intention to use a certain technology system is a strong predictor and determinant of the actual use of technology, and predicts users' later usage. Due to this, the behavioural intention to use a technology is a central concept of the technology acceptance models (Venkatesh, Morris, Davis, & Davis, 2003).

Previous research has not captured the full range of potential behaviours likely to be triggered by service quality. In many studies, positive word of mouth, willingness to recommend and repurchase intentions are used to measure behavioural intentions (Theodorakis & Alexandris, 2008; Ozdemir & Hewett, 2010). Vijayadurai (2008) revealed that customers experience is related to behavioural intentions. The more positive the customer's experience, the more likely he or she is willing to reuse the service.

Service quality is one of the most important and widely researched topics in service industry (Adat, Noel, & Penceliah, 2014). It has become a significant differentiator and the most powerful competitive weapon, which all the service organizations want to possess. Service based organizations need the attention of the service providers on the quality that they are offering to the consumers. So, service providers need to identify the expectations of target customers concerning service quality. Service quality can be analyzed and divided into several qualities.

Assessing the service quality means knowing the strengths and weaknesses of service which will help to devise new techniques to eliminate those weaknesses. By measuring the quality of service, a company is able to analyze its position among the competitors to maintain strategic edge. There is a subjective comparison that customers have between the quality of service, which they receive and what they actually get (Gefen, 2002). The service quality is determined by the total utility received by the beneficiary of the service (Alsamydai, Rudaina, & Mohammad, 2012). The study uses the SERVQUAL model. It was developed and proposed by Parasuraman, Zeithaml and Berry in 1988 for the measurement of service quality using five dimensions namely, reliability, responsiveness, assurance, empathy and tangibles.

Tangibles refers to the appearance of physical facilities, equipment, personnel, documents etc. Reliability is the ability to deliver the promised service perfectly and within a predefined time period. Responsiveness refer to responding to customer as and when required. Assurance refers to knowledge and courtesy of employees and their ability to inspire trust and confidence. Empathy means understanding. The service provider must have a clear-cut understanding that what customer requires.

Establishing a link between service quality and customer behavioural intention is an important task for researchers and practitioners, since it is evidence for the value of service quality research. Furthermore, the relationships between specific service quality dimensions and behavioural intentions are not yet clear, due to the different service quality models used and the different contexts of the published studies (Theodorakis & Alexandris, 2008). In numerous researches, it has been found that quality of service affected the behavioural intentions. Perez, Abad, Carrillo and Fernandez (2007) found that service quality has a significant effect on behavioural purchase intentions and the findings confirm a relationship between the five dimensions of service quality and purchase intentions. SERVQUAL has a direct positive effect on behavioural intention and a good SERVQUAL will help increase behavioural intentions (Kanthachai, 2015). Thus, the following hypothesis was proposed:

H1: Service quality is significantly and positively impact on intention to use telecommunication technology.

3. Methodology

This paper followed the mono method by using only qualitative data, and the information, which is mainly in textual form, is analyzed by employing qualitative data analysis techniques.

Participants

There are currently 15 National universities in Sri Lanka, which are under the authority of the University Grants Commission (UGC). Accordingly, to reduce any biasness in this study, 20 undergraduates were selected from 04 universities, namely, Uva Wellassa University, Sabaragamuwa University, Wayamba University and Ruhuna University. In order to enhance the diversity of the population chosen for the sample, 5 undergraduates representing 5 different faculties from each of the 04 universities were selected. Apart from that, 3 employed graduates were selected in order to validate the qualitative information gathered from interviews. Of the undergraduates selected from these universities seven were majoring in Science subjects – Chemistry (a), Fisheries (b), Agriculture (c), Art (d), Management (e), Geomatics (f), and Applied Science (g). Among the selected undergraduates there were both males (M) and females (F). 50% of the undergraduates were female and 50% were male. Selected undergraduates belonged to four age categories as follows:

23 years – 10%	24 years – 15%
25 years – 60%	26 years – 15%

Data collection

Semi-structured interviews were used to collect information from the selected 20 undergraduates and 3 graduates from the field. The Structured questions (Interview guidelines) were prepared ahead of time. This allowed interviewer to be fully prepared and feel confident during the interviews. In-depth interviews with respondents allowed interviewer to delve deeply into the career aspirations of undergraduates in Sri Lanka within an average time of 30-45 minutes per respondent.

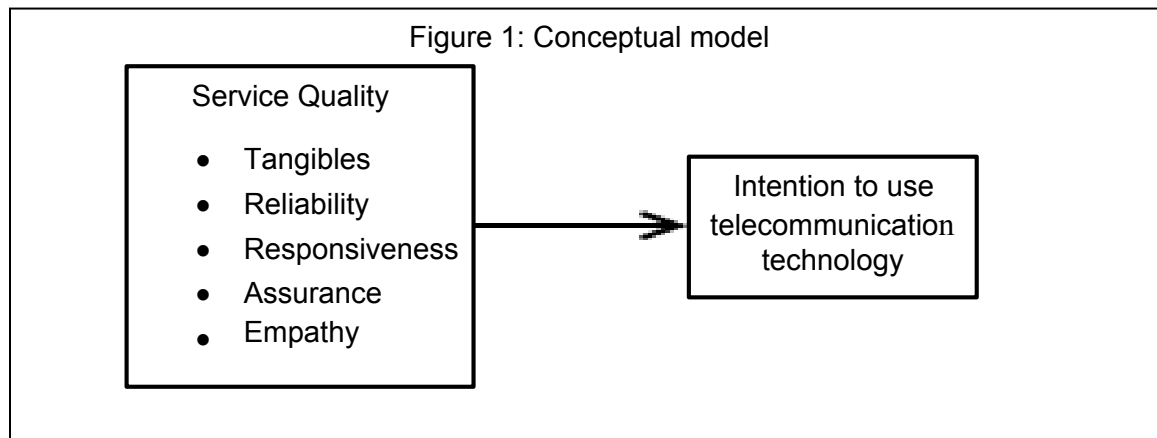
Data Analysis and data validation

The objective of this study was to identify the career aspirations of undergraduates. This was done using thematic analysis techniques, which identified specific patterns of qualitative data that were organized using NVivo 8.

Apart from that, as per Ismail, students' career aspirations are being moulded under a social context of norms, values and beliefs. Therefore, it can be concluded that the social factors are a must in determining one's own career aspirations. As it is also a good indication of the success of a career, there is a direct correlation between the "accepted" success of a career and the background society. Therefore, to conduct the case studies, the researcher selected some "recognized successful career holders," namely Dr. GHI (Senior Lecturer – Ruhuna University), Dr. XYZ (Senior Lecturer – Uva Wellassa University), and Mr. ABC (CEO, Leo Engineering Private Limited). The selected personalities here were strictly chosen based on their successful career achievements and as per the social recognition extended to them.

It is seen that the selected Career holders have successfully achieved their career aspirations and the researcher has affirmed this via the interviews too. The group of people chosen for the case studies had also been undergraduates once and they possessed the same career aspirations that are common to all Sri Lankan Undergraduates. Therefore, studying their career paths may help in analyzing how the social and other factors have influenced them in orienting their career aspirations. This helps in validating the results that were obtained from the research, especially with reference to the Sri Lankan social background.

Conceptual Framework



(Source: Parasuraman et al., 1988; Davis et al., 1989)

4. Methodology

Researcher applied quantitative methodology for this study. Thus, survey method has been adopted. Constructs such as service quality and intention to use telecommunication technology are well defined and measurable. Therefore, researcher used quantitative methodology for this study.

Population and Sample

This study covers telecommunication technology users from Manmunai North Divisional Secretariat area, Batticaloa as the population. Thus, the telecommunication technology users from the Sri Lanka Telecom (SLT), Dialog, Mobitel, and Airtel have been considered as a population for this study purpose. In this study, 200 telecommunication technology users were selected as the sample of this study based on the conveniences sampling method.

Methods of Data Collection

Data can be obtained from primary or secondary. The questionnaire survey has been mainly used for primary data collection. The primary data were collected through questionnaire from two hundred telecommunication technology users. The secondary data were collected based on various sources such as journal articles and published papers, web sites of the relevant institutions to support the literature review.

Reliability Analysis

According to Sekaran (2006), the reliability of a measure is an indication of the stability and consistency of an instrument, in this study the cronbach's test will be used for analyzing the reliability instrument, this model analyses the internal consistency of the instrument, based on the alpha value above 0.7 is considered as good reliable instrument (George and Mallery, 2003).

Survey Instrument Development

A well-structured questionnaire was used as research instrument in order to collect the relevant data from the respondents. This questionnaire was divided into two parts, which are personal information and research information.

Table 1: Questionnaire Development

Variable	Dimensions	No.of items	Source
Service Quality	Tangibles	03	Parasuraman, Zeithaml and Berry (1988)
	Reliability	03	
	Responsiveness	04	
	Assurance	04	
	Empathy	03	
Intention to Use		02	Davis et al., (1989)

(Source: Developed for Study Purpose)

Measurement of Variables

The variables in the research were measured through questionnaires with five point Likert scale and nominal scale which were filled by the respondents themselves appropriately as they perceived respond to each and every questions. Likert’s scale 1-5 which ranges from “Strongly Disagree” to “Strongly Agree” was applied in the part II of the questionnaire to identify responses.

Data Presentation, Data Analysis and Evaluation

Research information of questionnaire was presented in frequency table which was analyzed by univariate analysis and bivariate analysis. In order to achieve the purpose of the study and to satisfy the objectives of the study in a measurable way (Statistically) all the data analysis procedures were accomplished with assistance of SPSS 22.0 software (Statistical Package for Social Sciences).

Univariate analysis and mean estimation techniques are applied to explore the level of study variables. This analysis has used in order to achieve the first objective of the study.

Decision criteria for mean values for low level in service quality on intention to usage of telecommunication technology is indicated by the range of $1 \leq X \leq 2.5$, moderate level in service quality on intention to usage of telecommunication technology is indicated by the range of $2.5 < X \leq 3.5$ and high level in service quality on intention to usage of telecommunication technology is indicated by the range of $3.5 < X \leq 5.0$. These ranges for decision criteria was developed for study purpose.

Under the bivariate analysis regression was used to evaluating the collected data. This analysis has used in order to achieve the second objective of the study. Following table describes the decision rule for the result of regression.

Table 2: Decision Rule for Result of Regression

$P \geq 0.05$	There is no influence between independent on dependent variable
$P \leq 0.05$	There is influence between independent on dependent variable

(Source: Developed for Study Purpose)

4. Results and Discussion

The research information discusses about the main two objectives. It discusses about the level of the variables and impact among the variables.

Objective One: To identify the level of service quality and intention to use telecommunication technology.

Table 3: Level of Service Quality and Intention to Use

Service Quality Dimensions	Mean	Standard Deviation
Tangibles	3.59	0.636
Reliability	3.49	0.638
Responsiveness	3.37	0.594
Assurance	3.69	0.490
Empathy	3.53	0.630
Service Quality	3.53	0.479
Intention to Use	4.0	0.613

(Source: Survey Data)

The service quality is measured by five dimensions. The overall mean value of service quality is 3.53 and it is deviated from 0.479. It shows service quality is in high level among respondents. Tangible is the first dimension of service quality and its' mean value is 3.59. It clearly shows high level of attributes. Reliability is the second dimension of service quality and its' mean value is 3.49. It shows moderate level of attributes, but close to high level. Responsiveness is the third dimension of service quality and its' mean value is 3.37. It clearly shows moderate level of attributes. Assurance is the fourth dimension of service quality and its' mean value is 3.69. It clearly shows high level of attributes. Empathy is the fifth dimension of service quality and its' mean value is 3.53. It clearly shows high level of attributes. The overall mean value of intention to use is 4.00 and it is deviated from 0.613. It shows, respondents have high level of intention to use telecommunication technology.

Objective Two: To identify the impact of service quality on intention to use telecommunication technology.

Table 4: Model Summary: The Impact of Service Quality on Intention to Use

Model	R	R Square	Adjusted R Square	Std. Error
1	0.698 ^a	0.488	0.485	0.4404

a. Predictors: (Constant), Service quality

(Source: Survey Data)

Table 5: Regression Result of Service Quality on Intention to Use

Variable	B Value	t value	p-value
(Constant)	0.831	3.571	0.000
Service Quality	0.895	13.733	0.000

Dependent Variable: Intention to use

(Source: Survey Data)

Table 6: Regression Result of Service Quality Dimensions on Intention to Use

Service Quality Dimensions	B Value	t-value	p-value	Remark
(Constant)	0.822	3.227	0.001	
Reliability	0.208	2.890	0.004	Supported
Responsiveness	0.192	2.497	0.013	Supported
Tangibles	0.153	2.522	0.012	Supported
Assurance	0.201	2.256	0.025	Supported
Empathy	0.144	2.044	0.042	Supported
Dependent Variable: Intention to Use				
(Source: Survey Data)				

According to table 4, R square statistic indicated that the 48.8% of the variation in the intention to use is explained by service quality. Regression result in Table 5 indicates that, service quality ($p < 0.05$, $B = 0.895$) had statistically and positively impact on intention to use. According to Perez et al., (2007) the service quality has a significant effect on behavioral purchase intentions and the findings confirm a relationship between the five dimensions of service quality and purchase intentions. Another study found that SERVQUAL has a direct positive effect on behavioural intention and a good SERVQUAL will help increase behavioural intentions (Kanthachai, 2015). Regression result in Table 6 indicates that, tangibles ($p < 0.05$, $B = 0.153$), reliability ($p < 0.05$, $B = 0.208$), responsiveness ($p < 0.05$, $B = 0.192$), assurance ($p < 0.05$, $B = 0.201$) and empathy ($p < 0.05$, $B = 0.144$) are significantly and positively impact on intention to use. A previous study by Perez et al., (2007) demonstrated that the five dimensions of service quality were significant with intention to use. Hence this finding is consistent with the previous findings and it is confirming the formed hypothesis (H1).

5. Conclusion

Conclusions have been derived from the findings to meet the research objectives. The first objective of this research study is to find out the existing level of service quality and intention to use of telecommunication technology in Manmunai North Divisional Secretariat area, Batticaloa. The existing level of service quality indicated that there is high level of service quality. The results of the study showed that intention to use is remained high level. The second objective of this research is find out the impact among service quality and intention to use of telecommunication technology in Manmunai North Divisional Secretariat area, Batticaloa. Simple and multiple regression analysis were used to find out the impact among the variables. The results of simple regression analysis indicated that, service quality is significantly and positively impact on intention to use. The result of multiple regression analysis indicated that service quality dimensions are significantly and positively impact on intention to use.

Contribution of the Study

Based on the finding of the study the key implication hold for the telecommunication industry is showed that service quality is significantly and positively impact on use of telecommunication technology and from a

managerial standpoint, the findings of this study reveal that, in order to foster individual intention to use telecommunication technology, positive perception of the technology's usefulness is crucial, whereas customers' intention to use telecommunication technology.

Direction for Future Research

This study was limited by the modified Technology Acceptance Model. Researcher suggests additional factors to be included in the model such user experience and user characteristics. Accordingly, future studies should investigate the role of adding such variables. This research could not be generalized to the entire population of Batticaloa, because the study was conducted only in Manmunai North Divisional Secretariat area, Batticaloa which is a small-sized sample. The future research should study other Divisional Secretariat areas in Batticaloa. These areas were considered large-sized sample that should be considered in future to increase reliability.

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