A Synopsis

On

Service Quality Measurement of Public Healthcare Facility - A Comparative Study on Urban and Rural Consumers of Surat District

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SERVICE QUALITY MEASUREMENT OF PUBLIC HEALTHCARE FACILITY: A COMPARATIVE STUDY ON URBAN AND RURAL CONSUMERS OF SURAT DISTRICT

A. Abstract

The major focus of any healthcare system is the patients. Well-being of patients is the fundamental objective of healthcare system. Today's consumers are educated and smart. They command satisfaction in all the services. Healthcare services are low in search attributes because it is difficult for the customer/patient to evaluate the service before selecting the healthcare facility or experiencing service of a particular service provider. Patients are not the decision maker of their own treatments and remain passive. The present study makes an attempt to understand the dimensions of healthcare service quality in Surat District. The study considered two groups of people, separated by their area of residence i.e. urban and rural. A total of 910 (415 from rural area and 495 from urban area) respondents of Surat district have been considered. The study explored and confirmed six factors affecting quality of healthcare services such as Medical Service, Service Responsiveness, Discharge, Admission, Hygiene and Visual Facility using exploratory and confirmatory factor analysis, respectively. Impact of service quality factors on patient satisfaction and behavioral intention has also been studied by using 826 responses (after removing 84 outliers using Cook's distance score). Further, the effect of length of stay on service quality gap has been studied. The urban and rural consumers were compared on the basis of service quality gaps using Levene's statistics and Student's t statistics.

Keywords: Confirmatory Factor Analysis, Exploratory Factor Analysis, Public Health Care Facility, Service Quality, SERVQUAL Model.

B. Brief description on the state of the art of the research topic

Healthcare needs to be sustainable as the demands are increasing and the resources are limited (Faezipour and Ferreira, 2013). Just accurate diagnosis and treatment are not enough, patients need performance in each and every services they receive (Angelopoulou et al., 1998). The main goal of healthcare system is to offer services to improve quality of life and health of people. Patients are the major focus of any healthcare system. The public health care system in India has many problems and because of that it is losing faith of people, therefore, the system requires urgent and immediate attention to deploy strategies with which the quality of health care services

can be improved (Narang, 2010). Therefore, it is essential for the healthcare service providers to be aware of what patients are looking for. To determine whether the healthcare services are effective, one has to ensure that the patients are satisfied with the services provided. By improving effectiveness of healthcare services offered to patients, patients' wellbeing would be improved (Carlson and Gabriel, 2001). Knowledge about perception of patient towards health care quality is the most important to introduce reform in the health care sector (Brahmbhatt et al., 2011).

Quality has come to be recognized as a strategic tool for attaining operational efficiency and improved business performance (Anderson and Zeithaml, 1984; Babakus and Boller, 1992; Garvin, 1983), for not only manufacturing but also services sectors. Due to high involvement property of healthcare services, they have a distinct position among the other services. Healthcare quality is the application of medical science and technology in a manner that maximizes its benefit to health without correspondingly increasing the risk (Donabedian, 1980). Service quality has been considered as an important element while consumer is making choice of a hospital (Lynch and Schuler, 1990). In healthcare, quality can be defined as the totality of features and characteristics of product/service that depends on its ability to satisfy stated and/or implied needs (Korwar, 1997).

The SERVQUAL model provided a comprehensive conceptualization of service quality with an instrument to measure perceived service quality (Parasuraman et al., 1991, 1994; Angur et al., 1999). Parasuraman et al. (1988) have defined service quality as the gap between customers' expectations of service and perception of their service experience. They have proposed SERVQUAL model to assess perceived service quality for various sectors. Rust and Oliver (1994) developed a three dimensional concept of service quality with service product, service environment and service delivery as dimensions. The SERVQUAL model framework has been applied to many areas such as Airline Services (Saha and Theingi 2009; Ghorabaee et al., 2017), Banking services (Sayani, 2015; Paul et al., 2016; Kashif et al., 2016), Fast Foods (Yelkur and Chakrabarty, 2006; Tan et al., 2014; Namin, 2017; Health care (Carman,1990; Babakus and Boller, 1992; Cronin and Taylor, 1992; Dabholkar et al., 1996; Youssef, 1996; Aghamolaei et al., 2014; Li et al., 2015; Rezaei et al., 2016; Lupo, 2016; Mohebifar, 2016; Shabbir and Malik, 2016; Yin et al., 2016; Al Fraihi et al., 2016; Al Neyadi et al., 2016; Lee, 2017; Kim et al., 2017; Behdioglu et al., 2017; Izadi et al., 2017; Rafidah et al., 2017; Karassavidou et al., 2017; Owusu

et al., 2017; Ahmed et al., 2017; Moura et al., 2017; Ghahramanian et al., 2017; Fatima et al., 2017; Meesala and Paul, 2018; Jakupovic et al., 2018; Kim, 2018), Higher Education (Mai, 2005; Tan and Kek, 2004; Abdullah, 2006; Zakaria et al., 2010; Mohammadi and Vakili, 2010; Asaduzzaman et al., 2014; Bhardwaj, 2015; Gupta, 2016; Mukhopadhyay et al., 2016, Noaman et al., 2017; Weerasinghe and Fernando, 2018; Garcia et al., 2018; Kargari, 2018), Hospitality and Tourism (Timur, 2018; Nadji et al., 2018), Hotel (Akbaba, 2006; Ladhari, 2009; Ren et al., 2016), Logistics services (Baki et al., 2009; Lai and Chen, 2011; Roslan et al., 2015; Gulc, 2017), Retailing (Tsai and Huang, 2002; Kumar et al., 2012; To et al., 2013; Liu et al., 2017), Telecommunication (Arokiasamy and Abdullah, 2013; Alnsour et al., 2014; Ngwenya (2017).

Many researchers have studied service quality for health care sector and used popular models of SERVQUAL and SERVPERF. It is advised that SERVQUAL should be adapted as required (Parasuraman et al., 1988). The service quality measures which are developed in one culture may not capture the same service quality sentiments of consumers from other culture (Kettinger et al., 1995; Karatepe et al., 2005; Ladhari, 2008). The construct of health care service quality has different factor structures in different studies. Therefore, further testing and validation is required before any one factor structure has been accepted for the construct of the health care service quality (Aagja and Garg, 2010). Majority of the studies have been carried out in the developed country context, which cannot be generalized to the Indian context. According to the requirement of the industry/sector, the dimensions are added and/or modified to fit the industry specific characteristics (Aagja and Garg, 2010; Padma et al., 2010; Amin and Zahora, 2013).

Also, people differ in their expectations and perceptions according to the demographics and geographical area. An individual is more or less likely to use health services based on demographics, position within the social structure, and beliefs of health services benefits (Andersen, 1968; Majumder and Upadhyay, 2004). According to Wolinsky (1988), an individual would use a particular health service by the recommendation of resources found within households and the community. Household resources include economic status and the location of residence (Wolinsky, 1988). Community resources contain access to health care facilities and the availability of medical personnel for assistance (Wolinsky, 1988). A study of Kamgnia et al. (2008) suggested that the satisfaction derived from the healthcare services was correlated with the type of service received and the area of residence. Therefore, there is a need to focus on measurement of service quality aspects of public healthcare in rural as well as urban area.

The effects of service quality on customer satisfaction have been studied in various fields (Parasuraman et al., 1985, 1988, 1991; McDougall and Levesque, 1994; Caruana, 2002; Amin and Isa, 2008). Naidu, (2009) found the significant relationship between health care quality and patient satisfaction. A patient is satisfied when hospital service quality matches his/her expectations and requirements (Chahal and Kumari, 2010).

Behavioral intention could be defined as a signal of whether customers would continue or exit the relationship with the service provider (Zeithaml et al., 1996). For making decision to patronize a particular service organization by the consumers, their friends, neighbours and family members have great influence (Ndubusi and Ling, 2005), and in case of hospital setting, patients really depend on the personal recommendation of friends and family (Owusu-Frimpong et al., 2010). It is said and believed that recommendations had strong influence on consumer choice (East et al., 2005). In the context of hospital sector, patients who are satisfied with the hospital are more likely to recommend their treatment to other patients (Finkelstein et al., 1999).

Therefore, it is important to study impact of service quality perceptions on patient satisfaction and behavioral intention. This would help in identifying important service quality factors which affect satisfaction of the patients and drive favorable behavioral intention and these factors could be focused more by the management of the healthcare services.

C. Definition of problem

There is lower utilization of public health facilities in many developing countries (World Bank, 2004). This lower utilization of facilities calls for assessment and assurance of healthcare service quality from user perspective. Though easy access to health facilities will not necessarily lead to appropriate utilization if people are not ready to make themselves available and use the healthcare facilities. If people are not satisfied, they will not use the facility. Therefore, without proper utilization and user satisfaction the effectiveness of the health service is strictly limited. Prior usage of the healthcare services is important which affects future behavior of the patient (Aday and Anderson, 1994). According to WHO (2000), user involvement is not only desirable, but also a social, economic and technical requirement.

Although the SERVQUAL model dimensions have been used and validated in western context, we cannot neglect the fact that the cultural differences of consumers would likely influence its applicability (Amin and Zahora, 2013). As the factor structure for healthcare service quality differs in many settings, the present study uses modified SERVQUAL approach to identify and

confirm factors that contribute to public healthcare service quality. People use any healthcare facility based on their demographic and geographic profiles. The present study has four fold objectives and are covered in detail through the following section.

D. Objectives and scope of the study

Objectives:

- To study factors contributing to the healthcare service quality
    a. To identify factors contributing to the healthcare service quality
    b. To confirm factors contributing to the healthcare service quality
- To study the impact of service quality perceptions on patient satisfaction and behavioural intention
- To study significance of length of stay at healthcare facility on service quality gaps
- To identify and compare the service quality gap independently for urban and rural respondents

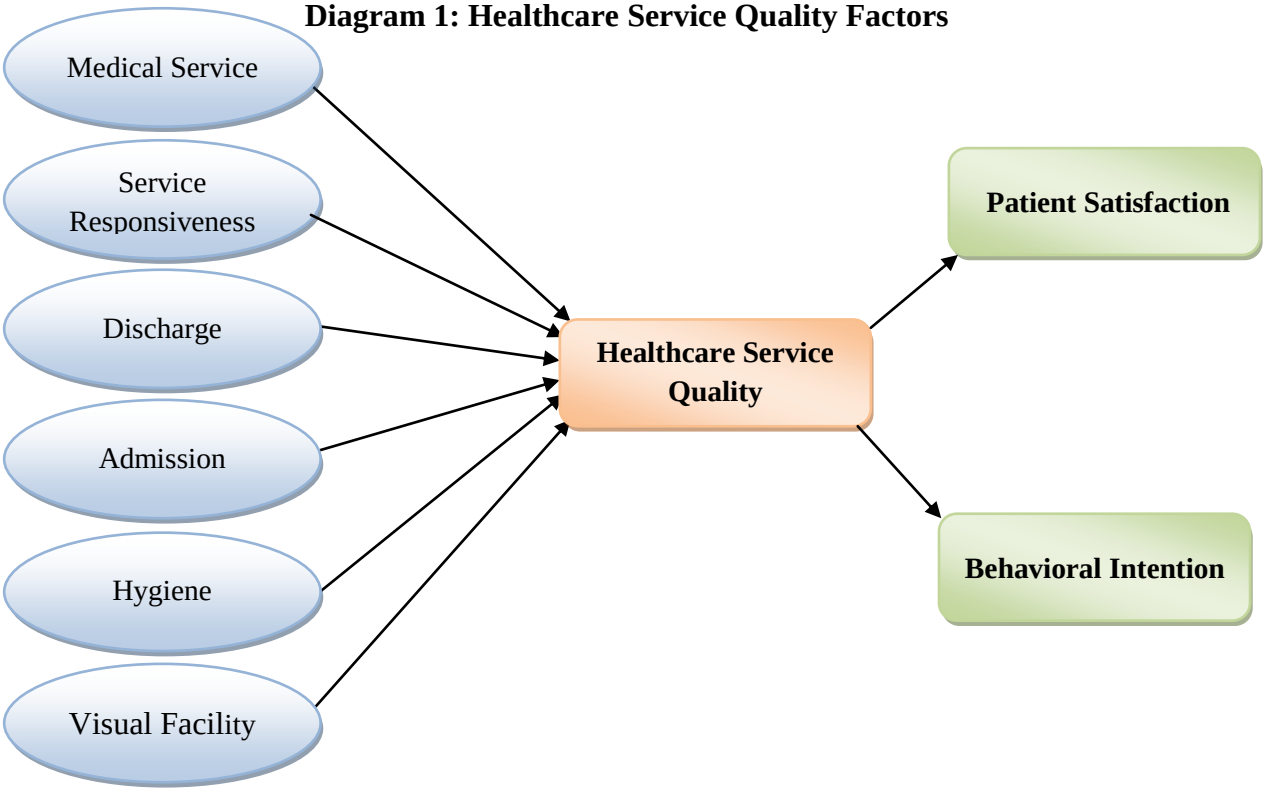
Scope of the study:

The study makes an attempt to identify factors of service quality in public healthcare setting for urban and rural area of Surat district. The study considers inpatient department patients those who have stayed at least overnight in the healthcare center i.e. emergency and outpatient department were excluded. Time frame of the study was from June 2017 to September 2017. The study deals only with public health facilities and therefore private health facilities were excluded. Study does not consider the healthcare programs run by state or central Government.

E. Original contribution by the thesis

The present study is an effort to extend to the existing body of knowledge spread by earlier researchers (Aagja and Garg, 2010; Amin M. and Zahora, 2013; Padma et al., 2010). The focus of Aagja and Garg (2010) was to identify and confirm the service quality measures for public hospitals but did not extend its impact, further, on customer satisfaction and behavioral intention. Amin and Zahora (2013) extended to the impact of the service quality measures, using responses from both private and public hospitals, on customer satisfaction and behavioral intension in Malaysian context.

Diagram 1: Healthcare Service Quality Factors



Padma et al. (2010) identified and focused on eight dimensions of service quality measures for both private and public hospitals. The study concludes with constructing model for measurement of impact of service quality dimensions on behavioral intention by considering customer satisfaction as mediating variable. Though the study was conducted in Indian context, the study considered combine impact of private and public hospitals.

The above studies lack either Indian context (Amin and Zahora, 2013), or extension for customer satisfaction and behavioral intention (Aajga and Garg, 2010), or considers united impact of private and public hospitals (Padma et al., 2010). The present study finds an opportunity to delimit above three studies. Therefore, the present study contributes significantly towards not only measuring dimensions of service quality in Indian context for only public hospitals but also extends its applicability, in terms of impact, on patient satisfaction and behavioral intention.

The study enlightens the direction of thinking for the state and federal policy makers in India to understand the dimensions and provide enough weightages to the dimensions for improving patient satisfaction and behavioral intention.

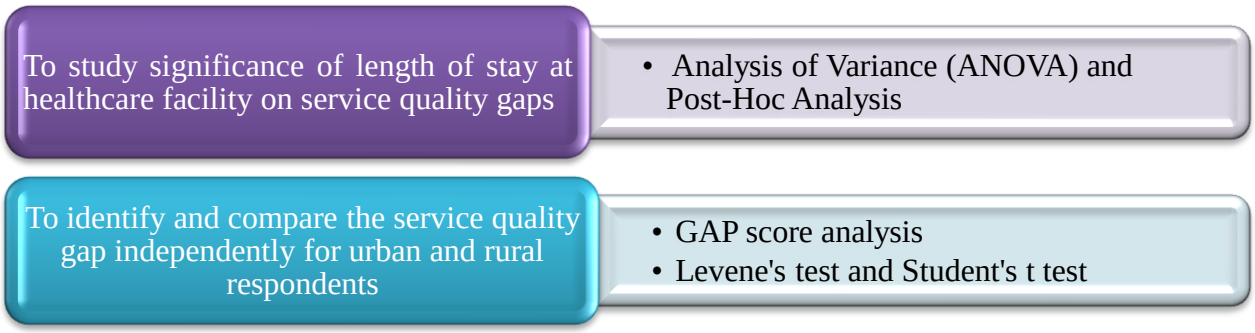
F. Methodology of Research, Results / Comparisons

The data collection instrument was borrowed from the existing PubHosQual scale (Aagja and Garg, 2010) developed for Indian context. There were 24 statements originated for measuring public hospital service quality on 5 point likert scale, of which cost statement was not considered for the present study as public healthcare services are free from cost. Pilot testing on 77 respondents was carried out and two more statements were found to be irrelevant. The final questionnaire consists of 22 statements to measure service quality, 4 statements to measure patient satisfaction and 3 statements to measure behavioral intention.

Only those patients who received inpatient services and stayed at least overnight at the public healthcare facility were considered for the survey. To cross verify their status, question on the length of stay in ward, is asked. Using convenient sampling technique, there are 1090 questionnaire circulated (of which 510 questionnaire to urban and 580 questionnaire to rural) for responses among 2 urban public hospitals, 28 primary health centers and 10 community health centers. The questionnaire is translated to Gujarati language (local language) in order to capture the true responses from respondents. The patients are approached and the objective of data collection is explained in detail. Total 933 respondents have responded to it (Response rate of 85.6%) was achieved, probably, due to personal touch of the researcher and constant follow ups. Out of 933 responses, after deleting 23 erroneous responses, analysis is carried out for 910 valid responses.

Tools for Analysis:

Objectives of the study	• **Statistical Tools used for analysis**
To study factors contributing to the healthcare service quality	• Exploratory Factor Analysis • Confirmatory Factor Analysis
To study the impact of service quality perceptions on patient satisfaction and behavioural intention	• Multiple Regression Analysis



G. Achievements with respect to objectives

Objective 1: To study factors contributing to the healthcare service quality

The above mentioned objective has been achieved in two phases:

Phase I: To identify factors contributing to the healthcare service quality

Phase II: To confirm factors contributing to the healthcare service quality

Composite variables for service quality were developed as Gap score and is defined as the difference between the expectations and perceptions score value (GAP = E – P) for the present study. Factor analysis is a method of transforming the original variables into new, non-correlated variables, called factors (Malhotra, 2007). For the achievement of first objective i.e. to study factors contributing to the health care service quality, two sub objectives were selected. I) to identify factors and II) to confirm the factors. To achieve the same, the dataset was split into two parts randomly. For identification of healthcare service quality factors, exploratory factor analysis was carried out on 22 statements collected originally. After checking communalities it is found that three of the statements are having communality score less than 0.5 and therefore only remaining 19 statements are considered for further analysis. To confirm the factors, confirmatory factor analysis was carried out. Total 455 responses (245 from urban and 210 from rural area) were used to perform confirmatory factor analysis. The following section represents the results of exploratory factor analysis and confirmatory factor analysis.

The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.777, above the commonly recommended value of 0.5, and Bartlett's test of sphericity was significant (χ^2 = 2800.824, df = 171) , p <0.05). This represents that data are adequate to run exploratory factor analysis.

Table 1: Factors extracted through exploratory factor analysis						
	Component					
	1	2	3	4	5	6
Knowledgeable and experienced nurses	.904					
Knowledgeable and experienced staff members	.886					
Knowledgeable and experienced physicians	.872					
Precautions taken to prevent hospital acquired infection	.842					
Equal treatment to all		.782				
Sense of responsibility		.771				
Never too busy to respond		.762				
Patients' best interest at heart		.758				
Willingness to help patient		.721				
Explaining discharge process			.807			
Knowing needs of patients at a time of discharge			.767			
Prompt discharge			.683			
Explaining precautions to be taken after discharge			.681			
Polite Employees				.855		
Prompt Admission				.838		
Clean wash rooms					.842	
Clean wards					.813	
Visually appealing materials						.755
Visually attractive and comfortable facilities						.745

The above table represents the factors extracted through exploratory factor analysis using principal component analysis with varimax rotation converged in five iterations. There are six factors extracted and named as under:

Factor 1 (F1)
Medical Service (MS)

- Knowledgeable and experienced physicians
- Knowledgeable and experienced nurses
- Knowledgeable and experienced staff members
- Precautions taken to prevent hospital acquired infection

Factor 2 (F2)
Service Responsiveness (SR)

- Willingness to help patient
- Never too busy to respond
- Patients' best interest at heart
- Equal treatment to all
- Sense of responsibility

Factor 3 (F3)
Discharge (Dis)

- Prompt discharge
- Explaining discharge process
- Knowing needs of patients at a time of discharge
- Explaining precautions to be taken after discharge

Factor 4 (F4) Admission (Adm)	Factor 5 (F5) Hygiene (Hyg)	Factor 6 (F6) Visual Facility (VF)
• Prompt admission • Polite employees	• Clean wash rooms • Clean wards	• Visually appealing materials • Visually attractive and comfortable facilities

Confirmatory factor analysis is used to confirm the extent to which factor structure derived from the exploratory factor analysis (EFA) represents the actual data. It is a confirmatory test of measurement theory (Hair et al., 2010). A Measurement Theory states how measured variables logically and systematically represent the constructs involved in a theoretical model.

For the present study, total six factors (Medical Service, Service Responsiveness, Discharge, Admission, Hygiene, Visual Facility) are extracted as result of Exploratory Factor Analysis and on the basis of which following factor structure is developed (Refer Diagram 2). Confirmatory factor analysis is used to verify and confirm this structure. For the present structure, the study tries to confirm the relationship strength amongst Medical Service, Service Responsiveness, Discharge, Admission, Hygiene, Visual Facility as observed variables. The validity of the model is established through Confirmatory Factor Analysis (CFA) fit indices. The following section represents output/results of CFA run through SPSS AMOS 18.

Diagram 2: Confirmatory Factor Structure

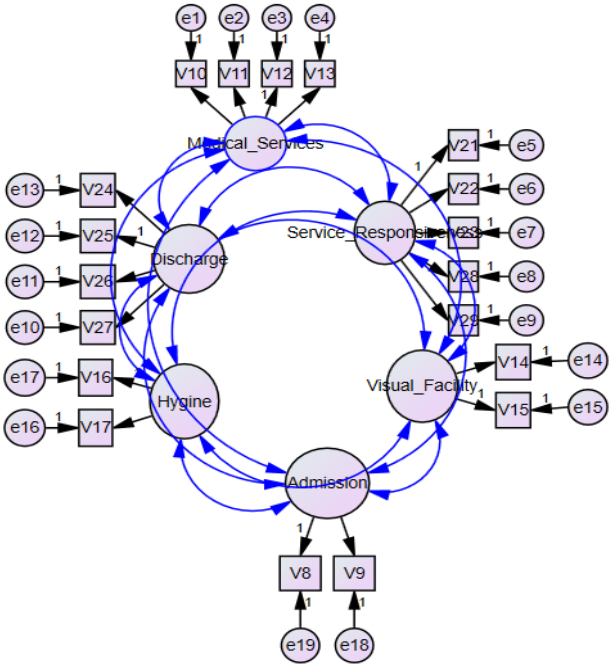


Table 2: Model Fit	
Ratio of Chi-Square to Degrees of Freedom (CMIN/DF)	1.495
Goodness-of-fit index (GFI)	0.944
Adjusted GFI (AGFI)	0.922
Normed fit index (NFI)	0.906
Tucker-Lewis Index (TLI)	0.958
Incremental Fit Index (IFI)	0.967
Relative Fit Index (RFI)	0.882
Comparative Fit Index (CFI)	0.966
Root Mean Square Error of Approximation (RMSEA)	0.037

The minimum value of chi-square to degrees of freedom value is less than 2, which is one indicator of good fit (Hair et. al, 2010). Next indicator is Goodness-of-fit index (GFI) and Adjusted GFI (AGFI). GFI is higher than 0.9 and AGFI is close to 0.9 indicating good model fit. Tucker-Lewis Index (TLI), Incremental Fit Index (IFI) and Relative Fit Index (RFI) values are higher than (nearer to 0.9 in case of RFI) 0.9 which signify the model is fit for the data. The Comparative Fit Index (CFI) is an incremental fit index, which assesses overall improvement of a proposed model and in the above model, CFI value is higher than 0.90 showing a good model fit. The last indicator is Root Mean Square Error of Approximation (RMSEA) that is related to residuals in the model. RMSEA value of 0.06 or less indicates a good model fit. For given data set, the RMSEA value is within acceptable range, indicates good model fit (Hair et. al, 2010).

Objective 2: To study the impact of service quality perceptions on patient satisfaction and behavioural intention

Multiple Regression Analysis is a statistical technique that can be used to analyze the relationship between a single dependent variable and several independent (predictor) variables (Hair et. al, 2010). The assumptions of multiple regression such as normally distributed residuals, presence of no multi-collinearity and no autocorrelation were confirmed through histogram plot, variance inflation factor (VIF) & tolerance values and a Durbin-Watson test, respectively. The above objective is divided into two sub-objectives:

Sub-objective 2.1: To study the impact of service quality perceptions on patient satisfaction

After removing 84 outliers, using Cook's distance score (calculated value of 0.004425 for sample size of 910 and six independent variables), the model summarizes the value of adjusted R square as 0.636 for remaining 826 responses. It indicates that 63.6% of the variability in the measurement of patient satisfaction is explained by five service quality factors F1, F2, F3, F5 and F6. Analysis of Variance (ANOVA) statistics are significant at 5% level of significance with calculated value of F as 289.899 at 0.000 level of significance. All five factors significantly contribute to satisfaction as t value for each factor is significant at 5% level of significance. F4 is found to have no significant impact on satisfaction.

From the results, the regression model can be formulated as under:

$$\text{Satisfaction} = \alpha + \beta_1 F_1 + \beta_2 F_2 + \beta_3 F_3 + \beta_5 F_5 + \beta_6 F_6$$

$$\text{Satisfaction} = 0.044 + 0.275(\text{MS}) + 0.584(\text{SR}) + 0.092(\text{Dis.}) + 0.191(\text{Hyg.}) + 0.128(\text{VF})$$

Sub-objective 2.2: To study impact of service quality perceptions on behavioral intention

After removing 84 outliers, using Cook's distance score (calculated value of 0.004425 for sample size of 910 and six independent variables), the model summarizes the value of adjusted R square as 0.551 for remaining 826 responses which indicates that 55.1% of the variability in behavioral intention is explained by five service quality factors F1, F2, F3, F5 and F6. ANOVA statistics are significant at 5% level of significance with calculated value of F as 203.405 at 0.000 level of significance. All five factors significantly contribute to recommendation behavior as t values for all are significant at 5% level of significance. F4 (Admission) had no significant impact on behavioral intention.

From the results, the regression model can be formulated as under:

Behavioral Intention = $\alpha + \beta_1 F_1 + \beta_2 F_2 + \beta_3 F_3 + \beta_5 F_5 + \beta_6 F_6$

Behavioral Intention = (-0.601) + 0.284(MS) + 0.503(SR) + 0.118(Dis.) + 0.178(Hyg.) + 0.159(VF)

Objective 3: To study significance of length of stay at healthcare facility on service quality gaps

ANOVA was carried out to assess the significant difference among four categories of length of stay.

H_{01}: There is no significant difference between the mean gap scores of service quality factors for four categories of length of stay in ward (i.e. 1-2 days, 3-4 days, 5-6 days, > 6 days)

Considering average gap score of 19-items scale for 826 responses, the analysis shows F value of 8.734 and is found significant at 0.000. Applying Post-Hoc analysis, Tukey's Honestly Significant Difference identifies two homogeneous subsets with length of stay over six days as one subset and length of stay for 1-2, 3-4, and 5-6 as another subset.

Objective 4: To identify and compare the service quality gap independently for urban and rural respondents

The study calculates mean GAP scores for each factor independently for urban and rural responses. The gap scores for each variables/items in each factor have been calculated as under:

Table 3: Mean Gap Scores for urban and rural responses					
Dimensions	**Mean GAP score**		**Dimensions**	**Mean GAP score**	
	Urban	Rural		Urban	Rural
Medical Service	0.468	0.308	Admission	0.906	0.738
Service Responsiveness	0.085	0.097	Hygiene	0.130	0.474
Discharge	0.443	0.303	Visual Facility	0.214	0.227

For each factor the mean gap score is found positive and the lowest mean gap score is found for Service Responsiveness for both urban and rural while the highest mean gap score is found for Admission for both urban and rural responses.

The hypotheses for the comparison of service quality gap have been formulated as under:

H_{02}: There is no significant difference in the variance of gap scores of service quality factors between urban and rural consumers

H_{03}: There is no significant difference in the mean gap scores of service quality factors between urban and rural consumers

The following table represents results of Levene's test and Student's t test:

Table 4: Results of Levene's test and Student's t test					
	Levene's test value		Student's t-test value		
	F - Value	Sig. Value	t - Value	Df	Sig. Value
Medical Service	18.592	0.000	2.363	824	0.018
Service Responsiveness	1.892	0.169	-0.183	824	0.855
Discharge	0.824	0.364	1.851	824	0.065*
Admission	3.872	0.049	1.683	824	0.093*
Hygiene	3.993	0.046	-4.458	824	0.000
Visual Facility	1.646	0.200	-0.153	824	0.879

* Significance level of 10%

The Levene's statistics of variance analysis identifies Medical Service, Admission and Hygiene to be significant at 5% between urban and rural responses. The student's t statistics shows that Medical Service and Hygiene are found significant at 5%, whereas Discharge and Admission are found significant at 10% between urban and rural responses.

H. Findings, Conclusion and Suggestions

Healthcare service quality and its factors have been studied by various authors previously, but as suggested by majority of the authors, the factors contributing to healthcare service quality differ according to different healthcare settings. The present study focuses on the inpatients of both urban and rural public healthcare facilities of Surat district and finds and confirms six factors named as Medical Service, Responsiveness, Discharge, Admission, Hygiene and Visual Facility. All the factors, except Admission, are found to have significant impact on patient satisfaction and behavioral intention. Therefore, the service providers should focus more on the five factors to provide quality services to the customers.

The length of the stay at healthcare facility identifies that the service quality gap for the stay length over six days significantly differs from the three other categories such as length of stay of 1-2 days, 3-4 days and 5-6 days with 5% significance level using Tuckey's HSD statistics. The lowest and highest gap score, for both urban and rural responses, are found at Service Responsiveness and Admission respectively. Also, the variance of service quality gap, between urban and rural, is found to be significant for Medical Service, Admission and Hygiene at 5% significance level. The mean service quality gap scores, between urban and rural, is found significant for Medical Service and Hygiene at 5% significance level where as Discharge and Admission at 10% significance level. Rural healthcare services lack in terms of Medical Service as compared to urban while urban healthcare services have deficiencies in terms of Hygiene as compared to the same for rural.

It is concluded that Admission is not significant factor to focus on as it has no significant impact on patient satisfaction or behavioral intention. Also, the longer the length of stay at healthcare facility, the more different the perception about the service quality and therefore the management of the healthcare facility needs to design the service quality to satisfy the patients with longer stay as well. Responses from urban and rural respondents found to be different between Medial Services, Admission and Hygiene and therefore the management of the rural healthcare facility should focus more on Medical Services and the management of the urban healthcare facility should emphasis on Hygiene.

I. List of all publications arising from the thesis

1. Khambhati R. K. (2017).Service quality measurement of training institute. *International Journal of Engineering and Management Sciences*, *8*(2), 108-113.

2. Khambhati R. K. (2017). A study on consumer perceptions towards adoption of 4G technology. *RESEARCH HUB – International Multidisciplinary Research Journal (RHIMRJ)*, *4*(7), 1-7.

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SERVICE QUALITY MEASUREMENT OF TRAINING INSTITUTE

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ABSTRACT
Educational institutes are starving for the sustainability due to various new and new institutes coming up with various courses. Gaining competitive advantage has become a major concern for the educational institutes. They have to offer excellent service quality in order to attract more and more students. Also, they must continuously check for the quality of the services provided from the students' perspectives. The study aims at assessment of quality of services provided by a training institute. The study uses well known service quality model SERVQUAL. It is found that the demographic factors have relatively significant impact on the dimensions of service quality**.**

KEYWORDS: SERVQUAL Model, excellent service quality, liberalization, Globalization,

INTRODUCTION

Post liberalization, education sector is opening up, especially the higher education sector. Globalization creates a marketplace where only the best provider of the service would survive. Indian educational institutes are left with no option except improving its quality (Sharma and Kaur, 2004). Education is being driven toward commercial competition imposed by economic forces (Seymour, 1992). This competition is the result of the development of global education markets and less of governmental funds which forces public organizations to search for finance from other resources (Freeman, 1993). To remain competitive, academic institutions need to continuously innovate their structure and find new ways of delivering the services more effectively to their customers. According to Stone (2005), in extremely competitive environment, students have become more astute in the selection of the educational institute and more demanding of the colleges and universities they opt for. Therefore, it is important for institutes to understand their expectations. A constant research and analysis is a necessary to improve education service quality (Stone, 2005). Customer orientation and adoption of total quality management concepts are the basic requirements of the today's educational institutes.

LITERATURE REVIEW

Service quality

Service quality is a multi-dimensional concept (Naser A. J., 2002), it means different things to different people (Bennington & Cummane, 1998). The concept of service quality has been developed by various researchers: Nordic view (by Gronroos, 1984) and the American view (by Parasuraman et al., 1985). The Nordic view describes service quality in two dimensions: Functional quality (the manner in which the service is delivered) and Technical quality (technical accurateness of the medical procedures and diagnoses) (Donabedian, 1980). American school of thoughts explains service quality as the difference between the overall gap in the perception and expectation of service delivery (Parasuraman et al., 1985, 1988, 1991, and 1994). Parasuraman et al., 1985 have developed a service quality model with ten dimensions which were then reduced to five dimensions of tangibility (physical facilities, equipment, personnel and communication materials), reliability (ability to perform the promised services dependably and accurately), responsiveness (willingness of service providers to help customers and provide prompt service), empathy (the provision of caring and individualized attention to customers) and assurance (knowledge and courtesy of employees and their ability to convey trust and confidence) (Parasuraman et al., 1988, 1991). Many studies have been done on service quality assessment (Harvey and Green, 1993; McDougall and Levesque, 1994; Mohr and Bitner, 1995; Dabholkar et al., 1996; Owlia and Aspinwall, 1996; Srikanthan and Dalrymple, 2003; Sahney et al., 2006,).

The SERVQUAL model framework has been applied to many areas like retail store (Dabholkar et al., 1996), hotel (Ingram and Daskalais, 1999), hospitals (Babakus & Mangold, 1989), a dental school patient clinic, business school placement centre, tire store and acute care hospital (Carman, 1990), a utility company (Babakus & Boller, 1992), banking, pest control, dry cleaning and fast food (Cronin & Taylor, 1992), and banking industries (Angur et al., 1999).

Service quality in higher education

Quality in education has been defined differently by researchers such as "value addition in education" (Feigenbaum, 1951), "conformance of education output to planned goals, specifications and requirements" (Gilmore, 1974; Crosby, 1979), "defect avoidance in education process" (Crosby, 1979) and "excellence in education" (Peters and Waterman, 1982). According to Parasuraman et al. (1985) quality in education is "meeting or exceeding

customer's expectations of education". Reynolds (1986) and Tang and Zairi (1998) defined it as "fitness for purpose." It is the "Fitness of educational outcome and experience for use" (Juran, 1988). According to Gordon and Partigon (1993) service quality in education is"The success with which an institution provides educational environments that enable students effectively to achieve valuable learning goals including appropriate academic standards." Allen and Davis (1991) and Holdford and Patkar (2003) concluded that educational service quality as a student's overall evaluation of services received as part of their educational experience.

The service quality in educational institutes have been evaluated by various researchers for various academic programs such as university computer labs (Hughey, Chawla & Khan, 2003); MBA (Rapert, Smith, Velliquette & Garretson, 2004); teachers and courses (Clewes, 2003; Mustafa & Chiang, 2006); engineering (Sakthivel & Raju, 2006) and additional services like registration and advising (Abouchedid & Nasser, 2002). Oldfield and Baron (2000) have used SERVQUAL to measure students' perceptions of service quality in a university in the UK. According to the study the students' perceived service quality has three dimensions: 1) Requisite elements which are essential to fulfill study obligations, 2) Acceptable elements that are desirable but not essential to students and 3) functional elements which possess a practical nature. Hughey et al. (2003) have used SERVQUAL model to measure quality of university computer labs. A 22 item scale was used and they found three dimensions: staff, service and professionalism. Authors concluded that the instrument is also reliable over time and can be used across a wide range of service environments. O'Neill (2003) has studied the application of SERVQUAL with 21 items in a university orientation setting. Three factors were extracted: contact (a combination of responsiveness and assurance), empathy and logistics (a combination of tangibility and reliability). Negative mean scores of P minus E indicted that the expectations of the students are not fulfilled. SERVQUAL was used by Tan and Kek (2004) to the field of engineering in two local universities. The study concluded that there was a large negative service quality gaps because of higher level of expectations and lower perception. Also, the foreign students perceived the service quality higher than the local students. Sahney, Banwet, and Karunes (2004) suggested that SERVQUAL model is uni-dimensional. They have used the model to assess student perceptions of service quality in the higher education in India. Arambewela and Hall (2006) measured international education satisfaction in five universities in Victoria, Australia with 36 items. According to this study for students of China, India and Thailand, quality of teaching is the most important variable in the reliability construct while for Indonesian student, quality of lecture material is most important. For all students, responsiveness was the most important factor for service quality. In a study to investigate expectations and perceptions of service quality among post graduate Chinese students at a management school in the UK, Barnes (2007) used modified SERVQUAL with 42 items. It was concluded that the SERVQUAL instrument is suitable in Chinese post graduate context. The students had high expectations in terms of willingness of staff to help the student, providing punctual service, providing academic guidance and having appropriate knowledge to answer questions of students (Barnes, 2007).

Need to study service quality in education system

It is necessary for any educational institutes to monitor the quality of their services and also to have commitment for continuous improvements in order to respond to the needs of their customers. Thus, identification of the service quality dimensions has become necessary. There are two ways to assess service quality, one can be from the service provider's perspective and another can be from the customer's perspective. As the customers are going to actually use the services, it is better to consider their views of the quality of services provided. Education system directly deals with the societal development, so it is important that the system provides quality services to the students. Assessment of the educational institutes' quality might help the authorities to target the areas in which improvements are required. Also, it may help the providers to know students' views about a particular institute. Keeping this in mind, the current study aims at measuring service quality at a training institute and assess dependency of service quality dimensions on demographic factors like age, gender and qualification.

RESEARCH METHODOLOGY

The present study uses the popular SERVQUAL model (developed by Parasuraman et al., 1985, 1988) with five service quality dimensions: tangibility, reliability, responsiveness, empathy and assurance. Total of 25 items were considered on a scale of 1 to 5 (1 being strongly disagree and 5 being strongly agree) for the questionnaire. A total of 82 students were selected conveniently as samples from the information technology training institute in Surat.

HYPOTHESES

Two separate types of hypotheses (for expectations and for perceived performance) were formed.

(I) Expectation Hypotheses

Age

H_0: Expectations for tangibles are independent of Age

H_1: Expectations for tangibles are not independent of Age

Similarly for other dimensions Responsiveness, reliability, empathy and assurance, hypotheses can be formed.

Gender

H_0: Expectations for tangibles are independent of Gender

H1: Expectations for tangibles are not independent of Gender

Similarly for other dimensions Responsiveness, reliability, empathy and assurance, hypotheses can be formed.

Qualification

H_0: Expectations for tangibles are independent of Qualification

H_1: Expectations for tangibles are not independent of Qualification

Similarly for other dimensions Responsiveness, reliability, empathy and assurance, hypotheses can be formed.

(II) Perceived performance hypothesis:

Age:

H_0: Perceived performance for tangibles are independent of age

H_1: Perceived performances for tangibles are not independent of age

Similarly for other dimensions Responsiveness, reliability, empathy and assurance, hypotheses can be formed.

Gender

H_0: Perceived performance for tangibles are independent of gender

H_1: Perceived performances for tangibles are not independent of gender

Similarly for other dimensions Responsiveness, reliability, empathy and assurance, hypotheses can be formed.

Qualification

H_0: Perceived performance for tangibles are independent of qualification

H_1: Perceived performances for tangibles are not independent of qualification

Similarly for other dimensions Responsiveness, reliability, empathy and assurance, hypotheses can be formed.

ANALYSIS AND INTERPRETATIONS

As mentioned earlier, there were 82 respondents and the details are given in table 1. Majority of the students were graduates with the age of 21 to 23 years.

Table 1: Profile of respondents

Particulars	No. of respondents
Age (in years)	
18 – 20	12
21 – 23	62
24 – 26	7
More than 26	1
Gender	
Male	48
Female	34
Qualification	
Up to 12^{th}	9
Graduation	71
Post Graduation	2

The gap scores of P – E were calculated for all statements and mean gap score was derived (Table 2).

Table 2 : (Perception - Expectation) and Mean Values

Sr. No.	Questions	P – E	MEAN
1	Availability of educational equipments	-76	-0.927
2	Educational Facilities	-68	-0.829
3	Staff appearance	-16	-0.195
4	Facilities needed	-70	-0.854
5	Relationship with students	-45	-0.549
6	Interest to solve students' problem	-39	-0.476
7	Willingness to help students	-38	-0.463
8	Providing relevant Information	-54	-0.659
9	Prepared for responding to students' needs	-66	-0.805
10	Convenient working hours	-108	-1.317
11	Safe and reliable service	-126	-1.537
12	Sufficient knowledge of staff	-60	-0.732
13	Skills and abilities	-45	-0.549
14	Knowledge to perform educational service	-66	-0.805
15	Reliable Behaviour	-52	-0.634
16	Creating peaceful environment	-115	-1.402
17	Personal attention to students	+1	+0.0122
18	Respect to students' feedback	-87	-1.060
19	Listens students comments	-57	-0.695
20	Responds students patiently	-26	-0.317
21	Keep promises	-176	-2.146
22	Provide service without mistakes	-132	-1.610
23	Confronting all students equally	-18	-0.220
24	Giving service at determined time	-132	-1.609
25	Speed in operation	-169	-2.060

The positive values of mean of P – E indicate that the expectations of students were met where as negative values indicate that the expectations were not met with the perceived performance. From table 2, for all dimensions, the service quality expectations have not met with the perceived performance except one variable of personal attention.

Table 3 provides chi square values for age, gender and education with the five dimensions of tangibles, responsiveness, reliability, empathy and assurance.

Table 3 Chi square values

	Factors	p – value for Expected Performance	p – value for Perceived Performance
AGE	Tangible	0.0	0.088
	Responsiveness	0.721	0.173
	Reliability	0.014	0.891
	Empathy	0.629	0.488
	Assurance	0.317	0.689
GENDER	Tangible	0.362	0.548
	Responsiveness	0.446	0.877
	Reliability	0.352	0.658
	Empathy	0.010	0.287
	Assurance	0.188	0.406
QUALIFICATION	Tangible	0.364	0.584
	Responsiveness	0.884	0.628
	Reliability	0.975	0.054
	Empathy	0.574	0.0
	Assurance	0.529	0.011

From table 3, it can be said that, the null hypotheses for expectations: responsiveness, empathy and assurance are not rejected. That means, expectations of respondents do not depend on their age. Whereas for tangibles and reliability, the expectation null Hypotheses are rejected. So it can be said that the expectations of respondents for these dimensions depend on age. Similarly for perception hypotheses, for all the dimensions, H0 are not rejected, meaning perceived performances do not depend on age.

For expectations: responsiveness, assurance, reliability and tangibles are not rejected. Meaning expectations of respondents do not depend on the gender. Whereas for empathy, the expectation null hypotheses are rejected. So it can be said that the expectations of respondents for empathy is depend on gender. For perception, for all the dimensions, H0 are not rejected, meaning perceived performance do not depend on gender.

For expectation, for all the dimensions (empathy, reliability, responsiveness, tangible and assurance), H0 are not rejected, meaning expected performance do not depend on qualification. It can be said that, the null hypotheses for perception: tangibles, responsiveness and reliability are accepted. That means perceived performance do not depend on the qualifications. Whereas for empathy and assurance null hypotheses rejected. Meaning perceived performance of respondents for empathy and assurance depends on qualifications.

CONCLUSION

It can be concluded from the study that the expectations of the students are not met with the perceived performance of the training institute. The institute should try to improve upon the quality of the services provided to the students. Expectations for tangibility, reliability depend on age whereas expectations for empathy depend on gender. Perceived performance do not depend on age and gender, whereas perceived performance for empathy and assurance depends on qualifications.

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A Study on Consumer Perceptions towards Adoption of 4G Technology

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Abstract: ***The 4G technology is new in the market; it is the major high lights of the telecommunication industry in the world. The 3G technology was launched in the India in 2010 and it was a new era in the world of internet. It was the fastest way to communicate and connect with the world, the launching of the 4G was the evolution in the era in the very short period of time. The current study aims at studying perception of consumers towards adoption of 4G technology. The study includes 300 respondents and majority of them possess positive perceptions regarding 4G. It is concluded that the major factors contributing to adoption of 4G are attitude, easiness, behavioural intention and usefulness. The perceptions do not differ between various age groups and occupational groups.***

Keywords: consumer perception, 4G technology, Technology acceptance model

I. INTRODUCTION

Success or failure of any service industry depends on the consumer adoption of the services. Due to tremendous development in technology especially internet and social media and development of smart phones, the mobile dependency has been increased. Mobile and internet has become integral parts of human life nowadays. For this, it is required to understand consumer perception about a particular service organization.

Perception is the cognitive process which involves the organism selecting, organizing and interpreting the stimulus. Thus perception is the process of selecting, organizing and interpreting or attaching meaning to the events happening in the environment. According to Robbins, "Perception may be defined as a process by which individuals organize and interpret their sensory impressions in order to give meaning to the environment." Customer perception is the process to assess how customers perceive services, how they assess, whether they have experienced quality service and whether they are satisfied or not. Customer perception is directly related to customer expectation. Due to the dynamic nature of expectation perception of any person may also shift over time, person, place or culture. Customers perceive services in terms of the quality of the service and how satisfied they are overall with their experiences.

Mobile communication technology

Mobile communication permits transmission of voice and multimedia data via mobile device or a computer without any physical link. Mobile communication technology benefits the businesses to improve performance and it helps in raising the standard of living of people. Increased population calls for the need for better communication. For that, advancement in technology is required and invention of telephone is the best example of this. Also, continuous improvement and innovation took place such as introduction of mobile phone. Basically, mobile communication systems are identified by its generation designations. 1G, the first generation was introduced in early 1980's and second generation, 2G system was introduced in late 1980's. Both of these were used for voice transmission and reception. 3G networks succeed 2G ones, by offering faster data transfer rates and are the first to enable video calls, which makes them suitable for use in modern smart phones that require constant high-speed internet connection for many applications. Thus, journey of mobile communication technology has started with the first generation mobile technology and reached till 4th generation which has changed the image of whole communication mode. Due to this kind of unbelievable development in technology, the earth has turned into a global village.

In last few years, there has been a incredible rise in Indian mobile market. It is estimated that over a billion phones will be sold by 2020. The major reason behind this is 4G connectivity, which has been rolling out in phases since 2012. In addition to this, an estimated nine crore subscribers will use 4G services in India by 2018, and thus there is a huge potential for the cell phone providers to upgrade their infrastructure to support 4G.

II. LITERATURE REVIEW

The indication of the users' acceptance of advanced wireless 4G technology is, significantly increased number of users. The Technology Acceptance Model (TAM) was proposed by Davis, Bagozzi, and Warshaw (1985) based on construct and relationships in view of the Theory of Reasoned Action (TRA) by Fishbein and Ajzen (1975). TAM suggests that individuals'

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willingness, decision- making, attitude and subjective norm positively affect their behavioral intention (Davis, Bagozzi, and Warshaw, 1992). The subjective norm deals with individuals' certainty that they should express particular behavior which is expected by those they consider important (Davis et al., 1989; Rawashdeh, 2011). TRA shows that attitude and subjective norms independently affect intentions (Davis et al., 1989; Rawashdeh, 2013), whereas in the TAM, perceived usefulness and perceived ease of use have been found to directly affect attitude (Davis et al., 1989; Rawashdeh, 2013). According to Davis et al. (1992), the subjective norm had no significant effect on the intentions more than perceived usefulness and perceived ease of use, and therefore, it was omitted from the original TAM.

Till now, many of the researchers have used TAM to identify and/or confirm factors affecting intention to use a particular technology. Performance expectancy positively influences behavioral intention and user behavior (Carlsson et al., 2006; Martins et al., 2014). Pagani, M, (2004) identified perceived usefulness, ease of use, price, and speed of use as the most important determinants of adoption of 3G multimedia mobile services. The importance of determinants differs by age groups or segments to some extent. Ortega, Martinez, and De Hoyos (2006), have tested the basic constructs of TAM, without external variables, on the acceptance of online business management and industry effect. Elwood et al. (2006) studied perceptions of students and their acceptance of implementing a laptop program by adopting TAM as the theoretical framework. Karjaluoto (2007) investigated examined the success factors and user acceptance of the 3G mobile network and its services. Y. L. Wu et. al, (2010) the factors which positively contribute towards behavioral intention user behavior are performance expectancy, facilitating conditions, social influence, attitude towards technology change and adoption of 3G mobile telecommunication services. According to authors, Technology Acceptance Model (TAM) has been considered very useful for predicting the usage of technology. Fadare et al.,(2011) identified the factors affecting students' intention to use mobile learning based on TAM. Soon et al. (2012) identified four variables, namely perceived ease of use, perceived usefulness, subjective norm and perceived enjoyment which influence the intentions of Malaysian college and university students to adopt 4G Mobile for academic purpose and for pleasure purposes. Abubakar and Ahmed (2013) studied the factors affecting 3G technology perception and adoption by using theoretical framework of TAM and unified theory of acceptance and use of technology. Authors have used perceived usefulness, perceived ease of use, price, variety of 3G services, service quality and social influence as external variables to analyze users' perception and behavioral intention. The study concluded that perceived usefulness, variety of 3G services, service quality and social influence the factors that affect behavioral intention of 3G usage (Abubakar & Ahmed, 2013).

Technology Acceptance Model (TAM)

The following figure provides conceptual model of the TAM.

Perceived Usefulness (PU)

According to Davis et al. (1989) perceived usefulness can be defined as "the prospective user's subjective probability that using a specific application system will increase his/her job performance within an organizational context". Based on this, Adams et al. (1992) found PU a major determinant of usage behavior and intention. Also, usefulness was ascertained as the key determinant in the usage behavior and intention (Pynoo et al., 2012).

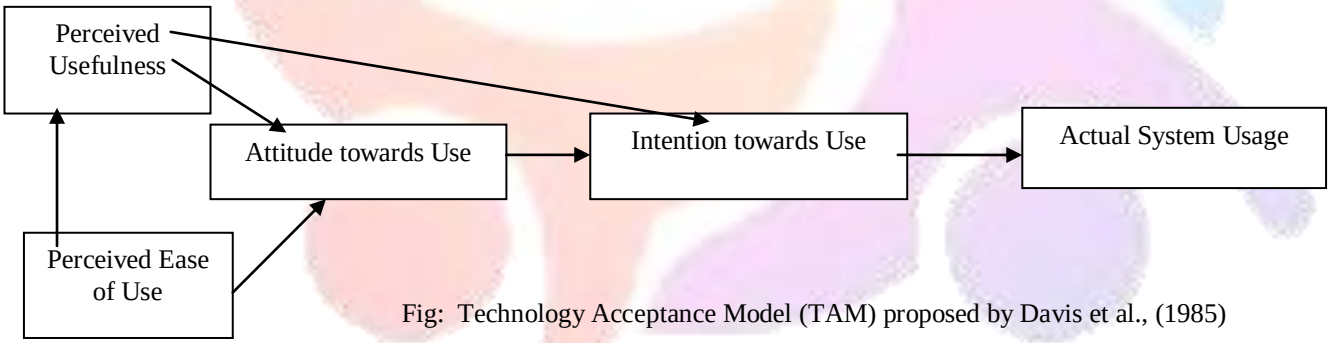

Fig: Technology Acceptance Model (TAM) proposed by Davis et al., (1985)

Perceived Ease of Use (PEOU)

Rawashdeh, A. (2015) defines perceived ease of use as the degree to which the use of the 4G mobile services by the user is perceived as easy or effortless. Davis (1989) and Davis et al. (1992) concluded that perceived ease of use influences perceived usefulness, and perceived usefulness and perceived ease of use both influence behavioral intention and actual usage. Also, perceived ease of use is a significant determinant of perceived usefulness meaning, the easier use of technology makes it more useful (Davis et al., 1989; Venkatesh et al., 2001). In the studies it was identified that PEOU is totally independent of external variable effects (Compeau et al., 1999; Venkaetesh et al., 2001).

There are significant evidence of the linkages between PEOU, PU and attitude in TAM theory. Chau (1996) concluded that behavioral intention to use a particular technology is dependent on the two variables, which are perceived usefulness and perceived ease of use. Perceived ease of use influences behavioral intention to use indirectly through perceived usefulness (Norazah et al., 2008).

Attitude (ATD)

Most of the customers are exposed to 4G mobile phones and they must have formed an attitude towards the use which may be favorable or unfavorable. Rawashdeh A., (2015), has hypothesized attitude as a result of the influences of the intention toward using 4G mobile services. It is the degree to which attitude of an individual is disposed, favorably or unfavorably, towards usage of the 4G mobile services (Rawashdeh A., 2015). Previous empirical studies confirmed existence of attitude and its influences on the evaluation of new technology (Lederer et al., 2000; Moon and Kim, 2001; O'Cass and Fenech, 2003; Vijayasarathy, 2004).

Behavioral Intention (BI)

Behavioral Intention is a measure of the likelihood that a person will adopt the application. Suki N. M (2011) has adopted individual intention as behavioral intention to used 3G services.

III. RESEARCH METHODOLOGY

The present research has been conducted on 300 respondents of Surat city during January to March 2017. The non probability convenience sampling technique was used for selection of respondents. A structured questionnaire has been used for collection of data. Data has been analyzed by SPSS using descriptive statistics, ANOVA and factor analysis.

Objectives of the study:

1. To study the perception of customer towards 4G Technology
2. To study factors contributing to adoption of 4G services

IV. DATA ANALYSIS

Table 1: Demographic profile of respondents

Particulars	No. of respondents
Age (in years)	
Less than 20	7
20 – 40	265
40 – 60	28
Gender	
Male	153
Female	147
Occupation	
Student	124
Service	156
Business	20

Reliability of Data

A reliability test using SPSS has been performed and the cronbach's alpha value is 0.744 (which is under the acceptable range). Hence, the data collected was reliable.

A descriptive statistics was used to analyze consumer perception towards adoption of 4G technology.

Table 2: Descriptive Statistics

Variables	Mean	Standard deviation
Convenient to use	4.24	.630
Effectiveness of use	4.32	.540
Connectivity provided	4.48	.569

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Easy to understand	3.75	.943
Easy to learn	3.65	1.018
Easy to use	3.55	1.009
Willingness of use	3.16	1.190
Interested to use	3.41	1.114
Recommendation to others	3.73	1.065
Status Showoff	3.14	1.163
To test the services	3.64	1.200

Parameter with a mean higher than 3 is considered to be agreed whereas mean equals to 3 implies unbiased response of respondent and mean lesser than 3 is considered to be disagree. From table 1, for the parameter connectivity, mean is highest (4.48), meaning most of the respondents perceive that the 4G technology provides higher connectivity. Also, for the parameters of convenience and effectiveness, the means are higher, which indicate the users perceive that the 4G technology is convenient and effective to use.

The adequacy of data for factor analysis was measured by Kaiser-Meyer-Olkin and Bartlett's Test of Sphericity. Kaiser-Meyer-Olkinvalue should be greater then 0.6and also the p-value of Bartlett's Test of Sphericity should be less then 0.05. From table 3, Kaiser-Meyer-Olkin Measure of Sampling Adequacy value is 0.797 which is greater then 0.6 which satisfies the condition of factor analysis were as value of Bartlett's Test of Sphericity is 0.000 which is less then 0.05 and thus factor analysis can be performed.

Table 3 : KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.797
Bartlett's Test of Sphericity	Approx. Chi-Square	1115.775
	Df	55
	Sig.	.000

The following table represents the components extracted for the study.

Table 4: Factor analysis on the variables

Factors under study	1	2	3	4
Convenient to use				.657
Effectiveness of use				.791
Connectivity provided				.629
Easy to understand		.692		
Easy to learn		.828		
Easy to use		.622		
Willingness of use	.794			
Interested to use	.755			
Recommendation to others			.753	
Status Showoff	.765			
To test the services			.761	

There are four factors contributing to the adoption of 4G services. First factor consists of willingness of use, interest in using the technology and status showoff and it is named as attitude towards adoption. Second factor consists of variables such as easy to understand, learn and use the technology, named as easiness. Third component consists of variables like recommendation to others and testing the services, named as behavioral intention. Fourth factor consists of variables like convenience, effectiveness and connectivity ease of use, named as usefulness. The study revealed four factors which are more or less similar to the study by Ramnandani N. et al. (2015).

ANOVA

One way ANOVA was used to check whether there are significant differences among various age groups regarding perceptions of 4G services.

Hypotheses:

1.

H0: There is no significant difference in consumer perception of convenience of 4G mobile technologies among various age groups.

H1: There is a significant difference in consumer perception of convenience of 4G mobile technologies among various age groups.

Similarly other hypotheses of all variables can be formulated. Following table 5 represents ANOVA table with F values and p values.

Table 5:

Variables	F	Sig.
Convenient to use	1.004	.368
Effectiveness of use	.384	.681
Connectivity provided	2.210	.111
Easy to understand	2.440	.089
Easy to learn	1.748	.176
Easy to use	1.192	.305
Willingness of use	2.852	.059
Interested to use	2.678	.070
Recommendation to others	1.843	.160
Status Showoff	.550	.578
To test the services	1.605	.203

From the above table it can be said that all variables p values are greater than 0.05. Thus, H0 will be accepted meaning there is no significant difference in consumer perception of 4G mobile technologies among various age groups.

2.

H0: There is no significant difference in consumer perception of convenience of 4G mobile technologies among people from different occupation.

H1: There is a significant difference in consumer perception of convenience of 4G mobile technologies among people from different occupation.

Similarly other hypotheses of all variables can be formulated. Following table 6 represents ANOVA table with F values and p values

Table 6: ANOVA Results

Variables	F	Sig.
Convenient to use	.466	.628
Effectiveness of use	.019	.981
Connectivity provided	.549	.578
Easy to understand	.391	.677
Easy to learn	.831	.436
Easy to use	.342	.710
Willingness of use	1.726	.180
Interested to use	1.507	.223
Recommendation to others	.302	.739

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Status Showoff	1.721	.181
To test the services	.026	.975

From the above table it can be said that all variables p values are greater than 0.05. Thus, H0 will be accepted meaning there is no significant difference in consumer perception of 4G mobile technologies among people from different occupation.

V. CONCLUSION

According to descriptive statistics, the respondents have positive perceptions regarding adoption of 4G technology. The main factors which contribute to user perception about adoption of 4G are attitude, easiness, behavioral intention and usefulness. One way ANOVA results concluded that there are no significant differences regarding consumer perception towards 4G technology between various age groups and occupational groups.

VI. SCOPE FOR FURTHER STUDY

The current study aimed at consumer perceptions towards adoption of 4G technology. A small sample could be the limitation for the study and it might be difficult to generalize the study results. A further study could be considered by explaining effects of other demographic variables like educational qualifications, area of residence (urban or rural) on the perception of users.

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Service Quality In Healthcare: A Literature Review

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Abstract: ***Healthcare needs to be sustainable as the demands are increasing and the resources are limited (Faezipour and Ferreira, 2013). Factors like rising income levels, ageing population, growing health awareness and changing attitude towards preventive healthcare are going to boost the demand of healthcare services in future. Today's consumers are more aware and motivated to process the available information related to healthcare services. The main goal of healthcare system is to offer services to improve quality of life and health of people. Patients are the major focus of any healthcare system. They are the customers of healthcare system with various expectations. Health care institutions are required to go beyond a medical view and should have holistic social approach. Just accurate diagnosis and treatment are not enough, patients need performance in each and every services they receive (Angelopoulou et al., 1998). So it is required to check quality of the healthcare services provided from the patients' perspectives. The findings suggest that the scale for the measurement of healthcare service quality should be modified according to the setting that has been studied.***

Keywords: Service quality, health care services, SERVQUAL

I. INTRODUCTION

The service quality concept has two major views: Nordic view/European school of thought (developed by Gronroos, 1984) and the American view (developed by Parasuraman et al., 1985).

The Nordic view explains service quality with two dimensions: Functional quality and Technical quality (Donabedian, 1980). Technical quality can be defined on the basis of technical accurateness of the medical procedures and diagnoses whereas functional quality refers to the manner in which the service is delivered to the patients (Donabedian, 1980). European school of thought overlooks the importance of physical environment of the service encounter. American school of thoughts considers service quality as the difference between the overall gap in the perception and expectation of service delivery (Parasuraman et al., 1985, 1988, 1991, and 1994). Also, according to American view, service quality has five dimensions: tangibility, reliability, responsiveness, empathy and assurance. In the very beginning, Parasuraman et al, (1985) in the study: A conceptual model of service quality and its implications for future research derived ten dimensions of service quality; Reliability (consistency of performance and dependability), responsiveness (willingness of employees to provide service), competence (required skills and knowledge to carry out the service), access (accessibility and ease of reach), courtesy (politeness, respect, consideration and friendliness of staff), communication (keeping customers informed in a language they can understand, listening to them), credibility (trustworthiness, believability, honesty), security (freedom from danger, risk, doubt), understanding the customer (making efforts to understand needs of customers), tangibles (physical aspects of service, appearance of personnel, tools, equipment) that consumers use in forming expectations and perceptions about the services. After that Parasuraman et al, (1988) developed a five dimensional SERQUAL model with the service quality dimensions as tangibility, reliability, responsiveness, assurance and empathy.

The SERVQUAL model provided a comprehensive conceptualization of service quality with an instrument to measure perceived service quality. (Parasuraman et al., 1991, 1994; Angur et al., 1999). Parasuraman et al. (1988) have defined service quality as the gap between customers' expectations of service and perception of their service

experience. They have proposed SERVQUAL model to assess perceived service quality for various sectors. Rust and Oliver (1994) developed a three dimensional concept of service quality with service product, service environment and service delivery as dimensions. The SERVQUAL model framework has been applied to many areas. The following table represents various Studies on application of SERVQUAL in different service industries.

Sr. No.	Industry	Studies
1	Healthcare	Carman (1990); Babakus and Boller (1992); Cronin and Taylor (1992); Brown et al. (1993); Anderson(1995); Dabholkar et al. (1996); Youseff (1996); Lam (1997); Sewell (1997); Angelopoulou et.al.(1998); Cheng and Tang(2000); Wong (2002); Jabnoun and Chaker(2003); Rohini and Mahadevappa (2006); Ramsaran-Fowdar (2008)
2	Banks	Howcroft (1993) ; Blanchard and Galloway (1994); Bahia and Nantel (2000) ; Lassar et al., (2000); Zhu et al. (2002); Sureshchandar et al. (2002a)
3	Retailing	Teas (1993); Finn and Lamb (1991); Tsai and Huang (2002); Dabholkar et al. (1996); Trocchia & Janda (2003); Long & McMellon (2004); Bhaskar and Shekhar (2011); Naik et al. (2010); Kumar A.et al. (2012)
4	Fast Foods	Lee and Ulgado (1997)
5	Airline Service	Natalisa and Subroto (1998)
6	Hotel	Ingram and Daskalais (1999)
7	Library services at Yale University	Nitecki and Hernon (2000)
8	Logistics service quality	Mentzer et al. (2001)
9	Spanish public services like university and hospital	Bigne et al. (2003)
10	Higher education	Mai (2005)
11	Hospitality and Tourism	Akan (1995); Parasuraman et al. (1985), Alexandris et al. (2002); Akama and Kieti (2003); Nadiri and Hussein (2005)
12	Information system	Jiang et al. (2000); Carr (2002)
13	Insurance industry	Stafford et al. (1998); Leste and Vittorio, (1997); Mehta et al.(2002); Goswami (2007); Gayathri et al.(2005); Siddiqui et al. (2010)
14	Telecommunications	Van der Wal et al. (2002)
15	Gaming industry	Wu and Hsu (2012)

Table 1: Studies on application of SERVQUAL In various service industries

SERVQUAL is a reliable and valid model in the hospital environment (Babakus and Mangold, 1992) and suitable instrument to analyze the perceptual gap in understanding patient expectations (O'Connor et. al., 2001). It is a useful model to measure the differences between patients' preferences and their actual experiences (Pakdil and Harwood, 2005). It is 'parsimonious' and has standardized analysis procedure to aid interpretations and results in hospital setting (Rohini and Mahadevappa, 2006). It helps to understand what the customers' value is all about and how well an organization meets the needs and expectation of consumers of hospitals (Chunulaka, 2010).

II. SERVICE QUALITY IN HEALTH CARE

The quality of health care services can be defined as the degree to which health services increase the likelihood of desired health outcomes and consistent with current professional knowledge (Institute of Medicine, 2001, p. 21). Service quality research has gained much of the attention in today's era but due to intangible nature of services, it is extremely difficult to define and measure service quality (Boltan and Drew, 1991; Boulding et al., 1993). Also, service quality in health care is very complex as compared to other services because health care sector greatly involves risk (Rashid & Jusoff, 2009). Service quality receives special attention because it is within the control of the service provider and by improving quality; customer satisfaction could be improved (Padma et al., 2010). Service quality not only influences the satisfaction of buyers but also their purchase intentions and thus, delivering quality service is essential to drive satisfaction. (Padma et al., 2010). Quality of the relationship between patients and doctors has a considerable impact on the patient satisfaction measure (Moret et al., 2008; Mercer et al., 2008; Alhashem et al., 2011).

Various studies have been carried out to assess service quality in hospital sector in various countries. Majority of the studies have used the well-known SERVQUAL model directly or with modified dimensions. Following table represents various studies with same and/or modified dimensions of SERVQUAL model.

Sr. No.	Author(s)	Factors/Dimensions/Attributes of Healthcare quality
1	Donabedian (1966)	Proposed seven attributes of healthcare quality: efficacy, effectiveness, efficiency, optimality, acceptability, legitimacy, and equity
2	Takeuchi and Quelch (1983)	Six dimensions: reliability, service quality, prestige, durability, punctuality and ease of use

3	Maxwell (1984)	Six dimensions: accessibility, relevance, effectiveness, equity, social acceptability and efficiency
4	Jun et al. (1988)	Identified eleven dimensions of quality of health care. Eight dimensions are part of the SERVQUAL model (Parasuraman et al., 1985) and other three are caring (personal and human involvement), patient outcomes (relief from pain, saving of life, anger or disappointment with life after medical intervention) and collaboration.
5	Schmnner (1986)	Six dimensions for quality evaluation: Tangibles, responsiveness, recovery, knowledge, accessibility and flexibility
6	John (1989)	Three dimensions of healthcare service quality: caring, access and physical environment
7	Carman (1990)	Confirmed admission, tangibles accommodation, tangible food, tangible privacy, nursing, explanation visitor access, courtesy, discharge planning, and patient accounting as the dimensions of perceived service quality.
8	Reidenbach E. R. and Smallwood B. S (1990)	Used ten dimensions of tangibles, accessibility, understanding, courtesy, reliability, security, credibility, responsiveness, communication and competence
9	Vandamme and Leunis (1993)	According to authors tangibles, medical responsiveness, nursing staff quality, assurance and personal beliefs and values are dimensions of hospital service quality
10	Haddad, Fournier and Potvin (1998)	Developed and validated a 20-item instrument for use in Guinea with the dimensions, like health care delivery, personnel, health facility, overall services, personnel's technical competence, effectiveness of care, personnel's attitudes and conduct, availability and adequacy of resources and accessibility of services
11	Andaleeb (2001)	Explored five dimensions of perceived quality of care: responsiveness, assurance, communication, discipline, and 'bribe money' paid to health staff
12	Brady and Cronin (2001)	Three dimensions: interaction quality, physical environment quality, and outcome quality
13	Baltussen et al. (2002)	Proposed five dimensions: health personnel practices and conduct, adequacy of resources and services, healthcare delivery, financial, and physical accessibility of care
14	Sohail (2003)	Five dimensions: tangibles, reliability, responsiveness, assurance, and empathy
15	Otani and Kurz (2004)	Admission process, physician care, nursing care, compassion to family and friends, pleasantness of surroundings, and discharge process
16	Duggirala et al. (2008)	Seven dimensions: personnel quality, infrastructure, administrative process, process of clinical care, safety, overall experience of medical care, and social responsibility
17	Arasli et al. (2008)	Six service quality dimensions in public and private hospitals as empathy; giving priority to the inpatient needs, relationship between staff and patients, professionalism, food and the physical environment
18	Kim et al., (2008)	Four dimensions of service quality: medical doctor, procedure of care, hospital facility and reliability
19	Aagja and Garg (2010)	Five dimensions like admission, medical service, overall service, discharge and social responsibility
20	Padma et al. (2010)	Eight dimensions like infrastructure, personnel quality, process of clinical care, administrative procedures, safety indicators, hospital image, social responsibility, trustworthiness
21	Chahal and Kumari (2010)	Three dimensions: physical environment, interaction quality and outcome quality

Table 2: Studies using SERVQUAL and/or modified SERVQUAL

III. CONCLUSION

The factor structure for the same sector, i.e. hospital sector is not constant in different countries and/or areas. It varies from one region to another and from one sector to another sector. Numerous studies have used SERVQUAL model in various service settings and it has been noticed that there is no standardized scale for measuring service quality. The scales are not generic and they may not able to capture industry specific dimensions underlying the quality perceptions (Carman, 1990; Finn and Lamb, 1991; Cunningham and Young, 2002; Zhao et al., 2002; Banwet and Datta, 2002). It is suggested that when service quality is adapted to various industries, previous dimensions may need

to be modified and/or deleted or new factors specific to the particular service industry may need to be added (Carman, 1990). Service quality relationship varies from industry to industry (Taylor and Baker, 1994). According to Reynoso and Moore (1995) as SERVQUAL dimensions are somewhat applicable, researchers should keep some of the more generic SERVQUAL dimensions, but other dimensions should also be added according to a specific situation. SERVQUAL is considered to be a useful and valid instrument to measure service quality, although it requires subsequent refinement of quality dimensions relevant to service considered (Curry, 1999). Although the SERVQUAL model dimensions have been used and validated in western context, we cannot neglect the fact that the cultural differences of consumers would likely influence its applicability (Amin and Zahora, 2013). The service quality measures which are developed in one culture may not capture the same service quality sentiments of consumers from other culture (Kettinger et al., 1995; Karatepe et al., 2005; cited in Ladhari, 2008). Also there is a difference between private hospital, government hospital and foreign hospital however they are providing the complementary products and services and competing in the same market (Taner and Antony, 2006). There is a need to modify the dimensions according to the health care setting being studied. Many of the studies have moved their effort from adaption of SERVQUAL model to the development of industry specific measure (Ladhari, 2008). The SERVQUAL instrument has been empirically evaluated and found to be valid and reliable for the hospital setting (Babakus and Mangold, 1992). In some studies, it has been modified by dropping irrelevant dimensions or adding relevant dimensions (Sohail, 2003; Fowdar, 2005). It is advised that SERVQUAL should be adapted as required (Parasuraman et al., 1988). The construct of health care service quality has different factor structures in different studies. Thus, further testing and validation is required before any one factor structure has been accepted for the construct of the health care service quality (Aagja, & Garg, 2010). Majority of the studies have been done in the developed country context, which cannot be generalized to the Indian context. According to the requirement of the industry/sector, the dimensions are added and/or modified to fit the industry specific characteristics. Thus, it is suggested that, SERVQUAL model dimensions should be modified and validated according to the industry setting being studied.

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SERVICE QUALITY MEASUREMENT OF TRAINING INSTITUTE

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ABSTRACT
Educational institutes are starving for the sustainability due to various new and new institutes coming up with various courses. Gaining competitive advantage has become a major concern for the educational institutes. They have to offer excellent service quality in order to attract more and more students. Also, they must continuously check for the quality of the services provided from the students' perspectives. The study aims at assessment of quality of services provided by a training institute. The study uses well known service quality model SERVQUAL. It is found that the demographic factors have relatively significant impact on the dimensions of service quality**.**

KEYWORDS: SERVQUAL Model, excellent service quality, liberalization, Globalization,

INTRODUCTION

Post liberalization, education sector is opening up, especially the higher education sector. Globalization creates a marketplace where only the best provider of the service would survive. Indian educational institutes are left with no option except improving its quality (Sharma and Kaur, 2004). Education is being driven toward commercial competition imposed by economic forces (Seymour, 1992). This competition is the result of the development of global education markets and less of governmental funds which forces public organizations to search for finance from other resources (Freeman, 1993). To remain competitive, academic institutions need to continuously innovate their structure and find new ways of delivering the services more effectively to their customers. According to Stone (2005), in extremely competitive environment, students have become more astute in the selection of the educational institute and more demanding of the colleges and universities they opt for. Therefore, it is important for institutes to understand their expectations. A constant research and analysis is a necessary to improve education service quality (Stone, 2005). Customer orientation and adoption of total quality management concepts are the basic requirements of the today's educational institutes.

LITERATURE REVIEW

Service quality

Service quality is a multi-dimensional concept (Naser A. J., 2002), it means different things to different people (Bennington & Cummane, 1998). The concept of service quality has been developed by various researchers: Nordic view (by Gronroos, 1984) and the American view (by Parasuraman et al., 1985). The Nordic view describes service quality in two dimensions: Functional quality (the manner in which the service is delivered) and Technical quality (technical accurateness of the medical procedures and diagnoses) (Donabedian, 1980). American school of thoughts explains service quality as the difference between the overall gap in the perception and expectation of service delivery (Parasuraman et al., 1985, 1988, 1991, and 1994). Parasuraman et al., 1985 have developed a service quality model with ten dimensions which were then reduced to five dimensions of tangibility (physical facilities, equipment, personnel and communication materials), reliability (ability to perform the promised services dependably and accurately), responsiveness (willingness of service providers to help customers and provide prompt service), empathy (the provision of caring and individualized attention to customers) and assurance (knowledge and courtesy of employees and their ability to convey trust and confidence) (Parasuraman et al., 1988, 1991). Many studies have been done on service quality assessment (Harvey and Green, 1993; McDougall and Levesque, 1994; Mohr and Bitner, 1995; Dabholkar et al., 1996; Owlia and Aspinwall, 1996; Srikanthan and Dalrymple, 2003; Sahney et al., 2006,).

The SERVQUAL model framework has been applied to many areas like retail store (Dabholkar et al., 1996), hotel (Ingram and Daskalais, 1999), hospitals (Babakus & Mangold, 1989), a dental school patient clinic, business school placement centre, tire store and acute care hospital (Carman, 1990), a utility company (Babakus & Boller, 1992), banking, pest control, dry cleaning and fast food (Cronin & Taylor, 1992), and banking industries (Angur et al., 1999).

Service quality in higher education

Quality in education has been defined differently by researchers such as "value addition in education" (Feigenbaum, 1951), "conformance of education output to planned goals, specifications and requirements" (Gilmore, 1974; Crosby, 1979), "defect avoidance in education process" (Crosby, 1979) and "excellence in education" (Peters and Waterman, 1982). According to Parasuraman et al. (1985) quality in education is "meeting or exceeding

customer's expectations of education". Reynolds (1986) and Tang and Zairi (1998) defined it as "fitness for purpose." It is the "Fitness of educational outcome and experience for use" (Juran, 1988). According to Gordon and Partigon (1993) service quality in education is"The success with which an institution provides educational environments that enable students effectively to achieve valuable learning goals including appropriate academic standards." Allen and Davis (1991) and Holdford and Patkar (2003) concluded that educational service quality as a student's overall evaluation of services received as part of their educational experience.

The service quality in educational institutes have been evaluated by various researchers for various academic programs such as university computer labs (Hughey, Chawla & Khan, 2003); MBA (Rapert, Smith, Velliquette & Garretson, 2004); teachers and courses (Clewes, 2003; Mustafa & Chiang, 2006); engineering (Sakthivel & Raju, 2006) and additional services like registration and advising (Abouchedid & Nasser, 2002). Oldfield and Baron (2000) have used SERVQUAL to measure students' perceptions of service quality in a university in the UK. According to the study the students' perceived service quality has three dimensions: 1) Requisite elements which are essential to fulfill study obligations, 2) Acceptable elements that are desirable but not essential to students and 3) functional elements which possess a practical nature. Hughey et al. (2003) have used SERVQUAL model to measure quality of university computer labs. A 22 item scale was used and they found three dimensions: staff, service and professionalism. Authors concluded that the instrument is also reliable over time and can be used across a wide range of service environments. O'Neill (2003) has studied the application of SERVQUAL with 21 items in a university orientation setting. Three factors were extracted: contact (a combination of responsiveness and assurance), empathy and logistics (a combination of tangibility and reliability). Negative mean scores of P minus E indicted that the expectations of the students are not fulfilled. SERVQUAL was used by Tan and Kek (2004) to the field of engineering in two local universities. The study concluded that there was a large negative service quality gaps because of higher level of expectations and lower perception. Also, the foreign students perceived the service quality higher than the local students. Sahney, Banwet, and Karunes (2004) suggested that SERVQUAL model is uni-dimensional. They have used the model to assess student perceptions of service quality in the higher education in India. Arambewela and Hall (2006) measured international education satisfaction in five universities in Victoria, Australia with 36 items. According to this study for students of China, India and Thailand, quality of teaching is the most important variable in the reliability construct while for Indonesian student, quality of lecture material is most important. For all students, responsiveness was the most important factor for service quality. In a study to investigate expectations and perceptions of service quality among post graduate Chinese students at a management school in the UK, Barnes (2007) used modified SERVQUAL with 42 items. It was concluded that the SERVQUAL instrument is suitable in Chinese post graduate context. The students had high expectations in terms of willingness of staff to help the student, providing punctual service, providing academic guidance and having appropriate knowledge to answer questions of students (Barnes, 2007).

Need to study service quality in education system

It is necessary for any educational institutes to monitor the quality of their services and also to have commitment for continuous improvements in order to respond to the needs of their customers. Thus, identification of the service quality dimensions has become necessary. There are two ways to assess service quality, one can be from the service provider's perspective and another can be from the customer's perspective. As the customers are going to actually use the services, it is better to consider their views of the quality of services provided. Education system directly deals with the societal development, so it is important that the system provides quality services to the students. Assessment of the educational institutes' quality might help the authorities to target the areas in which improvements are required. Also, it may help the providers to know students' views about a particular institute. Keeping this in mind, the current study aims at measuring service quality at a training institute and assess dependency of service quality dimensions on demographic factors like age, gender and qualification.

RESEARCH METHODOLOGY

The present study uses the popular SERVQUAL model (developed by Parasuraman et al., 1985, 1988) with five service quality dimensions: tangibility, reliability, responsiveness, empathy and assurance. Total of 25 items were considered on a scale of 1 to 5 (1 being strongly disagree and 5 being strongly agree) for the questionnaire. A total of 82 students were selected conveniently as samples from the information technology training institute in Surat.

HYPOTHESES

Two separate types of hypotheses (for expectations and for perceived performance) were formed.

(I) Expectation Hypotheses

Age

H_0: Expectations for tangibles are independent of Age

H_1: Expectations for tangibles are not independent of Age

Similarly for other dimensions Responsiveness, reliability, empathy and assurance, hypotheses can be formed.

Gender

H_0: Expectations for tangibles are independent of Gender

H1: Expectations for tangibles are not independent of Gender

Similarly for other dimensions Responsiveness, reliability, empathy and assurance, hypotheses can be formed.

Qualification

H_0: Expectations for tangibles are independent of Qualification

H_1: Expectations for tangibles are not independent of Qualification

Similarly for other dimensions Responsiveness, reliability, empathy and assurance, hypotheses can be formed.

(II) Perceived performance hypothesis:

Age:

H_0: Perceived performance for tangibles are independent of age

H_1: Perceived performances for tangibles are not independent of age

Similarly for other dimensions Responsiveness, reliability, empathy and assurance, hypotheses can be formed.

Gender

H_0: Perceived performance for tangibles are independent of gender

H_1: Perceived performances for tangibles are not independent of gender

Similarly for other dimensions Responsiveness, reliability, empathy and assurance, hypotheses can be formed.

Qualification

H_0: Perceived performance for tangibles are independent of qualification

H_1: Perceived performances for tangibles are not independent of qualification

Similarly for other dimensions Responsiveness, reliability, empathy and assurance, hypotheses can be formed.

ANALYSIS AND INTERPRETATIONS

As mentioned earlier, there were 82 respondents and the details are given in table 1. Majority of the students were graduates with the age of 21 to 23 years.

Table 1: Profile of respondents

Particulars	No. of respondents
Age (in years)	
18 – 20	12
21 – 23	62
24 – 26	7
More than 26	1
Gender	
Male	48
Female	34
Qualification	
Up to 12^{th}	9
Graduation	71
Post Graduation	2

The gap scores of P – E were calculated for all statements and mean gap score was derived (Table 2).

Table 2 : (Perception - Expectation) and Mean Values

Sr. No.	Questions	P – E	MEAN
1	Availability of educational equipments	-76	-0.927
2	Educational Facilities	-68	-0.829
3	Staff appearance	-16	-0.195
4	Facilities needed	-70	-0.854
5	Relationship with students	-45	-0.549
6	Interest to solve students' problem	-39	-0.476
7	Willingness to help students	-38	-0.463
8	Providing relevant Information	-54	-0.659
9	Prepared for responding to students' needs	-66	-0.805
10	Convenient working hours	-108	-1.317
11	Safe and reliable service	-126	-1.537
12	Sufficient knowledge of staff	-60	-0.732
13	Skills and abilities	-45	-0.549
14	Knowledge to perform educational service	-66	-0.805
15	Reliable Behaviour	-52	-0.634
16	Creating peaceful environment	-115	-1.402
17	Personal attention to students	+1	+0.0122
18	Respect to students' feedback	-87	-1.060
19	Listens students comments	-57	-0.695
20	Responds students patiently	-26	-0.317
21	Keep promises	-176	-2.146
22	Provide service without mistakes	-132	-1.610
23	Confronting all students equally	-18	-0.220
24	Giving service at determined time	-132	-1.609
25	Speed in operation	-169	-2.060

The positive values of mean of P – E indicate that the expectations of students were met where as negative values indicate that the expectations were not met with the perceived performance. From table 2, for all dimensions, the service quality expectations have not met with the perceived performance except one variable of personal attention.

Table 3 provides chi square values for age, gender and education with the five dimensions of tangibles, responsiveness, reliability, empathy and assurance.

Table 3 Chi square values

	Factors	p – value for Expected Performance	p – value for Perceived Performance
AGE	Tangible	0.0	0.088
	Responsiveness	0.721	0.173
	Reliability	0.014	0.891
	Empathy	0.629	0.488
	Assurance	0.317	0.689
GENDER	Tangible	0.362	0.548
	Responsiveness	0.446	0.877
	Reliability	0.352	0.658
	Empathy	0.010	0.287
	Assurance	0.188	0.406
QUALIFICATION	Tangible	0.364	0.584
	Responsiveness	0.884	0.628
	Reliability	0.975	0.054
	Empathy	0.574	0.0
	Assurance	0.529	0.011

From table 3, it can be said that, the null hypotheses for expectations: responsiveness, empathy and assurance are not rejected. That means, expectations of respondents do not depend on their age. Whereas for tangibles and reliability, the expectation null Hypotheses are rejected. So it can be said that the expectations of respondents for these dimensions depend on age. Similarly for perception hypotheses, for all the dimensions, H0 are not rejected, meaning perceived performances do not depend on age.

For expectations: responsiveness, assurance, reliability and tangibles are not rejected. Meaning expectations of respondents do not depend on the gender. Whereas for empathy, the expectation null hypotheses are rejected. So it can be said that the expectations of respondents for empathy is depend on gender. For perception, for all the dimensions, H0 are not rejected, meaning perceived performance do not depend on gender.

For expectation, for all the dimensions (empathy, reliability, responsiveness, tangible and assurance), H0 are not rejected, meaning expected performance do not depend on qualification. It can be said that, the null hypotheses for perception: tangibles, responsiveness and reliability are accepted. That means perceived performance do not depend on the qualifications. Whereas for empathy and assurance null hypotheses rejected. Meaning perceived performance of respondents for empathy and assurance depends on qualifications.

CONCLUSION

It can be concluded from the study that the expectations of the students are not met with the perceived performance of the training institute. The institute should try to improve upon the quality of the services provided to the students. Expectations for tangibility, reliability depend on age whereas expectations for empathy depend on gender. Perceived performance do not depend on age and gender, whereas perceived performance for empathy and assurance depends on qualifications.

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A Study on Consumer Perceptions towards Adoption of 4G Technology

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Abstract: ***The 4G technology is new in the market; it is the major high lights of the telecommunication industry in the world. The 3G technology was launched in the India in 2010 and it was a new era in the world of internet. It was the fastest way to communicate and connect with the world, the launching of the 4G was the evolution in the era in the very short period of time. The current study aims at studying perception of consumers towards adoption of 4G technology. The study includes 300 respondents and majority of them possess positive perceptions regarding 4G. It is concluded that the major factors contributing to adoption of 4G are attitude, easiness, behavioural intention and usefulness. The perceptions do not differ between various age groups and occupational groups.***

Keywords: consumer perception, 4G technology, Technology acceptance model

I. INTRODUCTION

Success or failure of any service industry depends on the consumer adoption of the services. Due to tremendous development in technology especially internet and social media and development of smart phones, the mobile dependency has been increased. Mobile and internet has become integral parts of human life nowadays. For this, it is required to understand consumer perception about a particular service organization.

Perception is the cognitive process which involves the organism selecting, organizing and interpreting the stimulus. Thus perception is the process of selecting, organizing and interpreting or attaching meaning to the events happening in the environment. According to Robbins, "Perception may be defined as a process by which individuals organize and interpret their sensory impressions in order to give meaning to the environment." Customer perception is the process to assess how customers perceive services, how they assess, whether they have experienced quality service and whether they are satisfied or not. Customer perception is directly related to customer expectation. Due to the dynamic nature of expectation perception of any person may also shift over time, person, place or culture. Customers perceive services in terms of the quality of the service and how satisfied they are overall with their experiences.

Mobile communication technology

Mobile communication permits transmission of voice and multimedia data via mobile device or a computer without any physical link. Mobile communication technology benefits the businesses to improve performance and it helps in raising the standard of living of people. Increased population calls for the need for better communication. For that, advancement in technology is required and invention of telephone is the best example of this. Also, continuous improvement and innovation took place such as introduction of mobile phone. Basically, mobile communication systems are identified by its generation designations. 1G, the first generation was introduced in early 1980's and second generation, 2G system was introduced in late 1980's. Both of these were used for voice transmission and reception. 3G networks succeed 2G ones, by offering faster data transfer rates and are the first to enable video calls, which makes them suitable for use in modern smart phones that require constant high-speed internet connection for many applications. Thus, journey of mobile communication technology has started with the first generation mobile technology and reached till 4th generation which has changed the image of whole communication mode. Due to this kind of unbelievable development in technology, the earth has turned into a global village.

In last few years, there has been a incredible rise in Indian mobile market. It is estimated that over a billion phones will be sold by 2020. The major reason behind this is 4G connectivity, which has been rolling out in phases since 2012. In addition to this, an estimated nine crore subscribers will use 4G services in India by 2018, and thus there is a huge potential for the cell phone providers to upgrade their infrastructure to support 4G.

II. LITERATURE REVIEW

The indication of the users' acceptance of advanced wireless 4G technology is, significantly increased number of users. The Technology Acceptance Model (TAM) was proposed by Davis, Bagozzi, and Warshaw (1985) based on construct and relationships in view of the Theory of Reasoned Action (TRA) by Fishbein and Ajzen (1975). TAM suggests that individuals'

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willingness, decision- making, attitude and subjective norm positively affect their behavioral intention (Davis, Bagozzi, and Warshaw, 1992). The subjective norm deals with individuals' certainty that they should express particular behavior which is expected by those they consider important (Davis et al., 1989; Rawashdeh, 2011). TRA shows that attitude and subjective norms independently affect intentions (Davis et al., 1989; Rawashdeh, 2013), whereas in the TAM, perceived usefulness and perceived ease of use have been found to directly affect attitude (Davis et al., 1989; Rawashdeh, 2013). According to Davis et al. (1992), the subjective norm had no significant effect on the intentions more than perceived usefulness and perceived ease of use, and therefore, it was omitted from the original TAM.

Till now, many of the researchers have used TAM to identify and/or confirm factors affecting intention to use a particular technology. Performance expectancy positively influences behavioral intention and user behavior (Carlsson et al., 2006; Martins et al., 2014). Pagani, M, (2004) identified perceived usefulness, ease of use, price, and speed of use as the most important determinants of adoption of 3G multimedia mobile services. The importance of determinants differs by age groups or segments to some extent. Ortega, Martinez, and De Hoyos (2006), have tested the basic constructs of TAM, without external variables, on the acceptance of online business management and industry effect. Elwood et al. (2006) studied perceptions of students and their acceptance of implementing a laptop program by adopting TAM as the theoretical framework. Karjaluoto (2007) investigated examined the success factors and user acceptance of the 3G mobile network and its services. Y. L. Wu et. al, (2010) the factors which positively contribute towards behavioral intention user behavior are performance expectancy, facilitating conditions, social influence, attitude towards technology change and adoption of 3G mobile telecommunication services. According to authors, Technology Acceptance Model (TAM) has been considered very useful for predicting the usage of technology. Fadare et al.,(2011) identified the factors affecting students' intention to use mobile learning based on TAM. Soon et al. (2012) identified four variables, namely perceived ease of use, perceived usefulness, subjective norm and perceived enjoyment which influence the intentions of Malaysian college and university students to adopt 4G Mobile for academic purpose and for pleasure purposes. Abubakar and Ahmed (2013) studied the factors affecting 3G technology perception and adoption by using theoretical framework of TAM and unified theory of acceptance and use of technology. Authors have used perceived usefulness, perceived ease of use, price, variety of 3G services, service quality and social influence as external variables to analyze users' perception and behavioral intention. The study concluded that perceived usefulness, variety of 3G services, service quality and social influence the factors that affect behavioral intention of 3G usage (Abubakar & Ahmed, 2013).

Technology Acceptance Model (TAM)

The following figure provides conceptual model of the TAM.

Perceived Usefulness (PU)

According to Davis et al. (1989) perceived usefulness can be defined as "the prospective user's subjective probability that using a specific application system will increase his/her job performance within an organizational context". Based on this, Adams et al. (1992) found PU a major determinant of usage behavior and intention. Also, usefulness was ascertained as the key determinant in the usage behavior and intention (Pynoo et al., 2012).

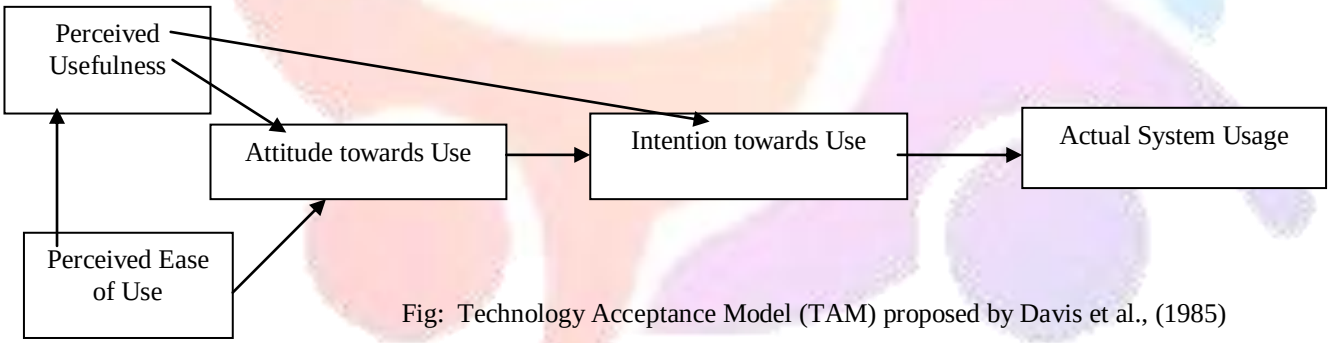

Fig: Technology Acceptance Model (TAM) proposed by Davis et al., (1985)

Perceived Ease of Use (PEOU)

Rawashdeh, A. (2015) defines perceived ease of use as the degree to which the use of the 4G mobile services by the user is perceived as easy or effortless. Davis (1989) and Davis et al. (1992) concluded that perceived ease of use influences perceived usefulness, and perceived usefulness and perceived ease of use both influence behavioral intention and actual usage. Also, perceived ease of use is a significant determinant of perceived usefulness meaning, the easier use of technology makes it more useful (Davis et al., 1989; Venkatesh et al., 2001). In the studies it was identified that PEOU is totally independent of external variable effects (Compeau et al., 1999; Venkaetesh et al., 2001).

There are significant evidence of the linkages between PEOU, PU and attitude in TAM theory. Chau (1996) concluded that behavioral intention to use a particular technology is dependent on the two variables, which are perceived usefulness and perceived ease of use. Perceived ease of use influences behavioral intention to use indirectly through perceived usefulness (Norazah et al., 2008).

Attitude (ATD)

Most of the customers are exposed to 4G mobile phones and they must have formed an attitude towards the use which may be favorable or unfavorable. Rawashdeh A., (2015), has hypothesized attitude as a result of the influences of the intention toward using 4G mobile services. It is the degree to which attitude of an individual is disposed, favorably or unfavorably, towards usage of the 4G mobile services (Rawashdeh A., 2015). Previous empirical studies confirmed existence of attitude and its influences on the evaluation of new technology (Lederer et al., 2000; Moon and Kim, 2001; O'Cass and Fenech, 2003; Vijayasarathy, 2004).

Behavioral Intention (BI)

Behavioral Intention is a measure of the likelihood that a person will adopt the application. Suki N. M (2011) has adopted individual intention as behavioral intention to used 3G services.

III. RESEARCH METHODOLOGY

The present research has been conducted on 300 respondents of Surat city during January to March 2017. The non probability convenience sampling technique was used for selection of respondents. A structured questionnaire has been used for collection of data. Data has been analyzed by SPSS using descriptive statistics, ANOVA and factor analysis.

Objectives of the study:

1. To study the perception of customer towards 4G Technology
2. To study factors contributing to adoption of 4G services

IV. DATA ANALYSIS

Table 1: Demographic profile of respondents

Particulars	No. of respondents
Age (in years)	
Less than 20	7
20 – 40	265
40 – 60	28
Gender	
Male	153
Female	147
Occupation	
Student	124
Service	156
Business	20

Reliability of Data

A reliability test using SPSS has been performed and the cronbach's alpha value is 0.744 (which is under the acceptable range). Hence, the data collected was reliable.

A descriptive statistics was used to analyze consumer perception towards adoption of 4G technology.

Table 2: Descriptive Statistics

Variables	Mean	Standard deviation
Convenient to use	4.24	.630
Effectiveness of use	4.32	.540
Connectivity provided	4.48	.569

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Easy to understand	3.75	.943
Easy to learn	3.65	1.018
Easy to use	3.55	1.009
Willingness of use	3.16	1.190
Interested to use	3.41	1.114
Recommendation to others	3.73	1.065
Status Showoff	3.14	1.163
To test the services	3.64	1.200

Parameter with a mean higher than 3 is considered to be agreed whereas mean equals to 3 implies unbiased response of respondent and mean lesser than 3 is considered to be disagree. From table 1, for the parameter connectivity, mean is highest (4.48), meaning most of the respondents perceive that the 4G technology provides higher connectivity. Also, for the parameters of convenience and effectiveness, the means are higher, which indicate the users perceive that the 4G technology is convenient and effective to use.

The adequacy of data for factor analysis was measured by Kaiser-Meyer-Olkin and Bartlett's Test of Sphericity. Kaiser-Meyer-Olkinvalue should be greater then 0.6and also the p-value of Bartlett's Test of Sphericity should be less then 0.05. From table 3, Kaiser-Meyer-Olkin Measure of Sampling Adequacy value is 0.797 which is greater then 0.6 which satisfies the condition of factor analysis were as value of Bartlett's Test of Sphericity is 0.000 which is less then 0.05 and thus factor analysis can be performed.

Table 3 : KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.797
Bartlett's Test of Sphericity	Approx. Chi-Square	1115.775
	Df	55
	Sig.	.000

The following table represents the components extracted for the study.

Table 4: Factor analysis on the variables

Factors under study	1	2	3	4
Convenient to use				.657
Effectiveness of use				.791
Connectivity provided				.629
Easy to understand		.692		
Easy to learn		.828		
Easy to use		.622		
Willingness of use	.794			
Interested to use	.755			
Recommendation to others			.753	
Status Showoff	.765			
To test the services			.761	

There are four factors contributing to the adoption of 4G services. First factor consists of willingness of use, interest in using the technology and status showoff and it is named as attitude towards adoption. Second factor consists of variables such as easy to understand, learn and use the technology, named as easiness. Third component consists of variables like recommendation to others and testing the services, named as behavioral intention. Fourth factor consists of variables like convenience, effectiveness and connectivity ease of use, named as usefulness. The study revealed four factors which are more or less similar to the study by Ramnandani N. et al. (2015).

ANOVA

One way ANOVA was used to check whether there are significant differences among various age groups regarding perceptions of 4G services.

Hypotheses:

1.

H0: There is no significant difference in consumer perception of convenience of 4G mobile technologies among various age groups.

H1: There is a significant difference in consumer perception of convenience of 4G mobile technologies among various age groups.

Similarly other hypotheses of all variables can be formulated. Following table 5 represents ANOVA table with F values and p values.

Table 5:

Variables	F	Sig.
Convenient to use	1.004	.368
Effectiveness of use	.384	.681
Connectivity provided	2.210	.111
Easy to understand	2.440	.089
Easy to learn	1.748	.176
Easy to use	1.192	.305
Willingness of use	2.852	.059
Interested to use	2.678	.070
Recommendation to others	1.843	.160
Status Showoff	.550	.578
To test the services	1.605	.203

From the above table it can be said that all variables p values are greater than 0.05. Thus, H0 will be accepted meaning there is no significant difference in consumer perception of 4G mobile technologies among various age groups.

2.

H0: There is no significant difference in consumer perception of convenience of 4G mobile technologies among people from different occupation.

H1: There is a significant difference in consumer perception of convenience of 4G mobile technologies among people from different occupation.

Similarly other hypotheses of all variables can be formulated. Following table 6 represents ANOVA table with F values and p values

Table 6: ANOVA Results

Variables	F	Sig.
Convenient to use	.466	.628
Effectiveness of use	.019	.981
Connectivity provided	.549	.578
Easy to understand	.391	.677
Easy to learn	.831	.436
Easy to use	.342	.710
Willingness of use	1.726	.180
Interested to use	1.507	.223
Recommendation to others	.302	.739

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Status Showoff	1.721	.181
To test the services	.026	.975

From the above table it can be said that all variables p values are greater than 0.05. Thus, H0 will be accepted meaning there is no significant difference in consumer perception of 4G mobile technologies among people from different occupation.

V. CONCLUSION

According to descriptive statistics, the respondents have positive perceptions regarding adoption of 4G technology. The main factors which contribute to user perception about adoption of 4G are attitude, easiness, behavioral intention and usefulness. One way ANOVA results concluded that there are no significant differences regarding consumer perception towards 4G technology between various age groups and occupational groups.

VI. SCOPE FOR FURTHER STUDY

The current study aimed at consumer perceptions towards adoption of 4G technology. A small sample could be the limitation for the study and it might be difficult to generalize the study results. A further study could be considered by explaining effects of other demographic variables like educational qualifications, area of residence (urban or rural) on the perception of users.

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Service Quality In Healthcare: A Literature Review

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Abstract: ***Healthcare needs to be sustainable as the demands are increasing and the resources are limited (Faezipour and Ferreira, 2013). Factors like rising income levels, ageing population, growing health awareness and changing attitude towards preventive healthcare are going to boost the demand of healthcare services in future. Today's consumers are more aware and motivated to process the available information related to healthcare services. The main goal of healthcare system is to offer services to improve quality of life and health of people. Patients are the major focus of any healthcare system. They are the customers of healthcare system with various expectations. Health care institutions are required to go beyond a medical view and should have holistic social approach. Just accurate diagnosis and treatment are not enough, patients need performance in each and every services they receive (Angelopoulou et al., 1998). So it is required to check quality of the healthcare services provided from the patients' perspectives. The findings suggest that the scale for the measurement of healthcare service quality should be modified according to the setting that has been studied.***

Keywords: Service quality, health care services, SERVQUAL

I. INTRODUCTION

The service quality concept has two major views: Nordic view/European school of thought (developed by Gronroos, 1984) and the American view (developed by Parasuraman et al., 1985).

The Nordic view explains service quality with two dimensions: Functional quality and Technical quality (Donabedian, 1980). Technical quality can be defined on the basis of technical accurateness of the medical procedures and diagnoses whereas functional quality refers to the manner in which the service is delivered to the patients (Donabedian, 1980). European school of thought overlooks the importance of physical environment of the service encounter. American school of thoughts considers service quality as the difference between the overall gap in the perception and expectation of service delivery (Parasuraman et al., 1985, 1988, 1991, and 1994). Also, according to American view, service quality has five dimensions: tangibility, reliability, responsiveness, empathy and assurance. In the very beginning, Parasuraman et al, (1985) in the study: A conceptual model of service quality and its implications for future research derived ten dimensions of service quality; Reliability (consistency of performance and dependability), responsiveness (willingness of employees to provide service), competence (required skills and knowledge to carry out the service), access (accessibility and ease of reach), courtesy (politeness, respect, consideration and friendliness of staff), communication (keeping customers informed in a language they can understand, listening to them), credibility (trustworthiness, believability, honesty), security (freedom from danger, risk, doubt), understanding the customer (making efforts to understand needs of customers), tangibles (physical aspects of service, appearance of personnel, tools, equipment) that consumers use in forming expectations and perceptions about the services. After that Parasuraman et al, (1988) developed a five dimensional SERQUAL model with the service quality dimensions as tangibility, reliability, responsiveness, assurance and empathy.

The SERVQUAL model provided a comprehensive conceptualization of service quality with an instrument to measure perceived service quality. (Parasuraman et al., 1991, 1994; Angur et al., 1999). Parasuraman et al. (1988) have defined service quality as the gap between customers' expectations of service and perception of their service

experience. They have proposed SERVQUAL model to assess perceived service quality for various sectors. Rust and Oliver (1994) developed a three dimensional concept of service quality with service product, service environment and service delivery as dimensions. The SERVQUAL model framework has been applied to many areas. The following table represents various Studies on application of SERVQUAL in different service industries.

Sr. No.	Industry	Studies
1	Healthcare	Carman (1990); Babakus and Boller (1992); Cronin and Taylor (1992); Brown et al. (1993); Anderson(1995); Dabholkar et al. (1996); Youseff (1996); Lam (1997); Sewell (1997); Angelopoulou et.al.(1998); Cheng and Tang(2000); Wong (2002); Jabnoun and Chaker(2003); Rohini and Mahadevappa (2006); Ramsaran-Fowdar (2008)
2	Banks	Howcroft (1993) ; Blanchard and Galloway (1994); Bahia and Nantel (2000) ; Lassar et al., (2000); Zhu et al. (2002); Sureshchandar et al. (2002a)
3	Retailing	Teas (1993); Finn and Lamb (1991); Tsai and Huang (2002); Dabholkar et al. (1996); Trocchia & Janda (2003); Long & McMellon (2004); Bhaskar and Shekhar (2011); Naik et al. (2010); Kumar A.et al. (2012)
4	Fast Foods	Lee and Ulgado (1997)
5	Airline Service	Natalisa and Subroto (1998)
6	Hotel	Ingram and Daskalais (1999)
7	Library services at Yale University	Nitecki and Hernon (2000)
8	Logistics service quality	Mentzer et al. (2001)
9	Spanish public services like university and hospital	Bigne et al. (2003)
10	Higher education	Mai (2005)
11	Hospitality and Tourism	Akan (1995); Parasuraman et al. (1985), Alexandris et al. (2002); Akama and Kieti (2003); Nadiri and Hussein (2005)
12	Information system	Jiang et al. (2000); Carr (2002)
13	Insurance industry	Stafford et al. (1998); Leste and Vittorio, (1997); Mehta et al.(2002); Goswami (2007); Gayathri et al.(2005); Siddiqui et al. (2010)
14	Telecommunications	Van der Wal et al. (2002)
15	Gaming industry	Wu and Hsu (2012)

Table 1: Studies on application of SERVQUAL In various service industries

SERVQUAL is a reliable and valid model in the hospital environment (Babakus and Mangold, 1992) and suitable instrument to analyze the perceptual gap in understanding patient expectations (O'Connor et. al., 2001). It is a useful model to measure the differences between patients' preferences and their actual experiences (Pakdil and Harwood, 2005). It is 'parsimonious' and has standardized analysis procedure to aid interpretations and results in hospital setting (Rohini and Mahadevappa, 2006). It helps to understand what the customers' value is all about and how well an organization meets the needs and expectation of consumers of hospitals (Chunulaka, 2010).

II. SERVICE QUALITY IN HEALTH CARE

The quality of health care services can be defined as the degree to which health services increase the likelihood of desired health outcomes and consistent with current professional knowledge (Institute of Medicine, 2001, p. 21). Service quality research has gained much of the attention in today's era but due to intangible nature of services, it is extremely difficult to define and measure service quality (Boltan and Drew, 1991; Boulding et al., 1993). Also, service quality in health care is very complex as compared to other services because health care sector greatly involves risk (Rashid & Jusoff, 2009). Service quality receives special attention because it is within the control of the service provider and by improving quality; customer satisfaction could be improved (Padma et al., 2010). Service quality not only influences the satisfaction of buyers but also their purchase intentions and thus, delivering quality service is essential to drive satisfaction. (Padma et al., 2010). Quality of the relationship between patients and doctors has a considerable impact on the patient satisfaction measure (Moret et al., 2008; Mercer et al., 2008; Alhashem et al., 2011).

Various studies have been carried out to assess service quality in hospital sector in various countries. Majority of the studies have used the well-known SERVQUAL model directly or with modified dimensions. Following table represents various studies with same and/or modified dimensions of SERVQUAL model.

Sr. No.	Author(s)	Factors/Dimensions/Attributes of Healthcare quality
1	Donabedian (1966)	Proposed seven attributes of healthcare quality: efficacy, effectiveness, efficiency, optimality, acceptability, legitimacy, and equity
2	Takeuchi and Quelch (1983)	Six dimensions: reliability, service quality, prestige, durability, punctuality and ease of use

3	Maxwell (1984)	Six dimensions: accessibility, relevance, effectiveness, equity, social acceptability and efficiency
4	Jun et al. (1988)	Identified eleven dimensions of quality of health care. Eight dimensions are part of the SERVQUAL model (Parasuraman et al., 1985) and other three are caring (personal and human involvement), patient outcomes (relief from pain, saving of life, anger or disappointment with life after medical intervention) and collaboration.
5	Schmnner (1986)	Six dimensions for quality evaluation: Tangibles, responsiveness, recovery, knowledge, accessibility and flexibility
6	John (1989)	Three dimensions of healthcare service quality: caring, access and physical environment
7	Carman (1990)	Confirmed admission, tangibles accommodation, tangible food, tangible privacy, nursing, explanation visitor access, courtesy, discharge planning, and patient accounting as the dimensions of perceived service quality.
8	Reidenbach E. R. and Smallwood B. S (1990)	Used ten dimensions of tangibles, accessibility, understanding, courtesy, reliability, security, credibility, responsiveness, communication and competence
9	Vandamme and Leunis (1993)	According to authors tangibles, medical responsiveness, nursing staff quality, assurance and personal beliefs and values are dimensions of hospital service quality
10	Haddad, Fournier and Potvin (1998)	Developed and validated a 20-item instrument for use in Guinea with the dimensions, like health care delivery, personnel, health facility, overall services, personnel's technical competence, effectiveness of care, personnel's attitudes and conduct, availability and adequacy of resources and accessibility of services
11	Andaleeb (2001)	Explored five dimensions of perceived quality of care: responsiveness, assurance, communication, discipline, and 'bribe money' paid to health staff
12	Brady and Cronin (2001)	Three dimensions: interaction quality, physical environment quality, and outcome quality
13	Baltussen et al. (2002)	Proposed five dimensions: health personnel practices and conduct, adequacy of resources and services, healthcare delivery, financial, and physical accessibility of care
14	Sohail (2003)	Five dimensions: tangibles, reliability, responsiveness, assurance, and empathy
15	Otani and Kurz (2004)	Admission process, physician care, nursing care, compassion to family and friends, pleasantness of surroundings, and discharge process
16	Duggirala et al. (2008)	Seven dimensions: personnel quality, infrastructure, administrative process, process of clinical care, safety, overall experience of medical care, and social responsibility
17	Arasli et al. (2008)	Six service quality dimensions in public and private hospitals as empathy; giving priority to the inpatient needs, relationship between staff and patients, professionalism, food and the physical environment
18	Kim et al., (2008)	Four dimensions of service quality: medical doctor, procedure of care, hospital facility and reliability
19	Aagja and Garg (2010)	Five dimensions like admission, medical service, overall service, discharge and social responsibility
20	Padma et al. (2010)	Eight dimensions like infrastructure, personnel quality, process of clinical care, administrative procedures, safety indicators, hospital image, social responsibility, trustworthiness
21	Chahal and Kumari (2010)	Three dimensions: physical environment, interaction quality and outcome quality

Table 2: Studies using SERVQUAL and/or modified SERVQUAL

III. CONCLUSION

The factor structure for the same sector, i.e. hospital sector is not constant in different countries and/or areas. It varies from one region to another and from one sector to another sector. Numerous studies have used SERVQUAL model in various service settings and it has been noticed that there is no standardized scale for measuring service quality. The scales are not generic and they may not able to capture industry specific dimensions underlying the quality perceptions (Carman, 1990; Finn and Lamb, 1991; Cunningham and Young, 2002; Zhao et al., 2002; Banwet and Datta, 2002). It is suggested that when service quality is adapted to various industries, previous dimensions may need

to be modified and/or deleted or new factors specific to the particular service industry may need to be added (Carman, 1990). Service quality relationship varies from industry to industry (Taylor and Baker, 1994). According to Reynoso and Moore (1995) as SERVQUAL dimensions are somewhat applicable, researchers should keep some of the more generic SERVQUAL dimensions, but other dimensions should also be added according to a specific situation. SERVQUAL is considered to be a useful and valid instrument to measure service quality, although it requires subsequent refinement of quality dimensions relevant to service considered (Curry, 1999). Although the SERVQUAL model dimensions have been used and validated in western context, we cannot neglect the fact that the cultural differences of consumers would likely influence its applicability (Amin and Zahora, 2013). The service quality measures which are developed in one culture may not capture the same service quality sentiments of consumers from other culture (Kettinger et al., 1995; Karatepe et al., 2005; cited in Ladhari, 2008). Also there is a difference between private hospital, government hospital and foreign hospital however they are providing the complementary products and services and competing in the same market (Taner and Antony, 2006). There is a need to modify the dimensions according to the health care setting being studied. Many of the studies have moved their effort from adaption of SERVQUAL model to the development of industry specific measure (Ladhari, 2008). The SERVQUAL instrument has been empirically evaluated and found to be valid and reliable for the hospital setting (Babakus and Mangold, 1992). In some studies, it has been modified by dropping irrelevant dimensions or adding relevant dimensions (Sohail, 2003; Fowdar, 2005). It is advised that SERVQUAL should be adapted as required (Parasuraman et al., 1988). The construct of health care service quality has different factor structures in different studies. Thus, further testing and validation is required before any one factor structure has been accepted for the construct of the health care service quality (Aagja, & Garg, 2010). Majority of the studies have been done in the developed country context, which cannot be generalized to the Indian context. According to the requirement of the industry/sector, the dimensions are added and/or modified to fit the industry specific characteristics. Thus, it is suggested that, SERVQUAL model dimensions should be modified and validated according to the industry setting being studied.

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