

Assessment of Students' Satisfaction And Propensity of Patronage of Intra-Campus Shuttling Bus in Hussainiadamu Federal Polytechnic, Kazaure: A Qualbus Approach

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Abstract: Most of the Students of HussainiAdamu Federal Polytechnic Kazaure, always trek along the main Kano Daura road i.e from the main campus to campus extension, thereby exposing them to danger of car, bus, lorry and motorbike accident and possible attacks by hoodlums. The arrival of campus shuttle bus in 2016 has however, solved almost all the problems in addition to bridging gap between the rich and poor amongst the students, and has also led to students making friends easily. The general aim of this research was to investigate the effectiveness of the Campus Shuttling bus operation through customer satisfaction and to foresee the propensity of persistent patronage. This was ascertained with the use of QUALBUS dimensions and how each influences students' satisfaction. The research focused respondents from two major perspectives; this involve the students that have been using the bus service and the future prospective users. The research methodology was a cross sectional survey at the two designated bus stops for the HussainiAdamu Federal Polytechnic's bus shuttling service at Main campus (North Campus) and Campus extension (South) for the former while accidental sampling approach was adopted for the latter campus. The results of the study indicated that 64.5% of the respondents were male; 73.3% were above 19 years of ages; 43.2 % used the shuttle every other day and 42.2% used the campus shuttle because of the lower transport fares. Furthermore, the results revealed that only reliability and empathy variable have a significant relationship with student satisfaction because they have a p-value smaller than $\alpha = 0.05$. Attempts to improve on service quality to influence student satisfaction should be directed at assurance tangibility variables. Surprisingly, out of 68.2% of the future prospective campus shuttle bus users that presently utilize the service for academic trip only, a mere 56% of them prefer the shuttle bus above some other modes of transport.

Keywords: Service quality, students' satisfaction, Campus shuttle bus, QUALBUS.

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I. INTRODUCTION

An effective and efficient transportation system has a significant impact on the quality of life, it showers opportunity for recreation, education, social, businesses and the other facets of life. The age long history of transportation coupled with unceasing technological development has dished varying competing means of transportation to Passengers. In developing countries, beside private automobiles and walking, the most used means of transportation is public transport which includes taxi, minibus and paratransit. The majority of public transportation in developed countries is usually funded by the state where both capital and operating costs are subsidized. Public transports in developing countries are partly funded by the states and there are a number of privately owned operators resulting in greater diversity in service provision (Agyeman, 2013). It is however characterized by unplanned and unscheduled services as in contract to what is obtainable in the developed countries. Most government funded public transport services are bedeviled with a lot of challenges such as poor management, financial constraint and apathy towards state owned enterprises (Fadare, 2001). This was the sole reason Nigeria Mass Transit Company (NMTC) desist from operation and went into dormancy and consequently extinction. This does not only affect the profitability of such a venture. The passengers are the most hit as they are left with no option than to make use of privately owned operators with high transport fares. Tertiary institution such as universities, colleges of education and polytechnics across the globe are not left out in the provision of transport services on campus to students and other passengers in order to cushion the efforts of the government and private operators and largely enhance the safety of students. Many universities are now taking the lead to identify and develop strategies that help to sustain the quality of campus life in terms of

students commuting, (Arthur, 2005). While these institutions have the ability to implement policy that effects how students arrive, depart and shuttle within campuses, they cannot overlook the growth management image it conveys to the public. In order to achieve this it becomes imperatives integrating alternative forms of transportation that can effectively influence the current travel patterns of students and their future travel practices.

The yearly growth in students' population across tertiary institutions especially in Nigeria has led to resultant rise in automobile. This is consequential to the general national population growth and respective introduction of news courses in different tertiary institution in the country. As a result, this rise has direct effects on vehicle congestion, parking shortages, and increased pollution and some other environmental implication (Juarez, 2011). Campus shuttle service strives to attract new riders and shift students from other forms of transportations, especially where students are used to long trekking, services must meet their needs to a greater extent. This is accomplished through increased frequency and direct routes serving the campus and to increase student' access as well as engage students in local community activities, (Bond & Steiner, 2013). More so, as campus shuttle service is less expensive compared to the privately owned operators, students are expected to patronized it more than the relatively expensive ones. Contrarily, it is surprising to see very few students queuing at the two terminals where the campus shuttle takes off. During this period, commercial motorcyclists leave their conventional stations to pick students that might be in haste to their destinations. Detesting enough, these two bus terminals lack seat-outs and shelter for passengers. As students leave for lectures on during the weekdays, they are usually subjected to harsh elements of weather in their waiting and queues. Studies such as Aidoo et al (2011); Baah-Mintah& Adams (2012); Agyeman (2013) Kwabena et al (2013) have been conducted to assess quality of public transport service on selected routes and cities in Ghana. Ibrahim et al (2015) and some other notable scholarly works also address campus shuttle service in Nigeria. Some of these studies used modified SERVQUAL (SERVICE QUALITY) model and other ad hoc methods to assess quality of service. None of the mentioned studies used the QUALBUS approached specifically designed to measure quality of bus service. It is against this background that the study seeks to investigate the effectiveness of the five months old school management owned intra campus shuttling bus operation and visualize the tendency of students' future patronage in Hussaini Adamu Federal Polytechnic, Nigeria. The specific objectives are to elucidate the purpose and reason for using campus shuttle; to analyze the dimensions of QUALBUS scale influencing students' perception of service quality and analyze the relationship between QUALBUS dimensions and service effectiveness of campus shuttle service.

The hypotheses for this study; which cover both side of the research i.e the prevailing shuttling bus users and the future prospective users, are as follow:

1. H1: There is a significant relationship between reliability and student satisfaction about campus shuttle bus service.
2. H2: There is a significant relationship between assurance and students' satisfaction about campus shuttle bus service
3. H2: There is a significant relationship between tangibility and students' satisfaction about campus shuttle bus service
4. H2: There is a significant relationship between empathy and students' satisfaction about campus shuttle bus service
5. H5: Marginal increase in the trip fare would not affect anticipatory patronage of the campus shuttling bus
6. H6: There is going to be prospective effectiveness in the future operation of the campus shuttle bus.

II. CONCEPTUAL AND THEORETICAL PERSPECTIVES

Service as a series of processes lead to an outcome meant to solve customer problems. The customer problems may be partly solved in the course of delivering the service or while the service is perceived. In order for this to take place there should be a medium for the service to be delivered and perceived. To Bosch (2009) these are organizations which meet the needs of society and are designated as "public services".

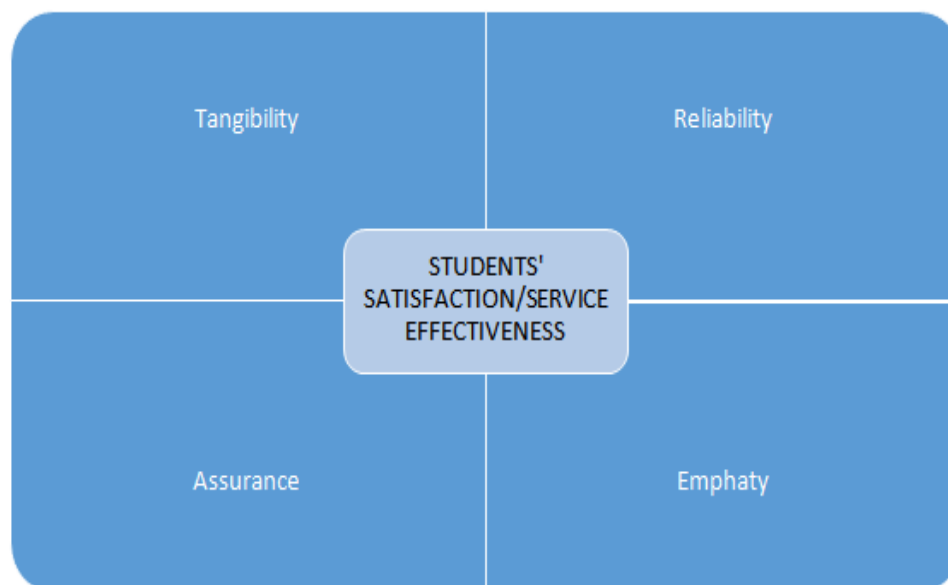
Shuttle bus service as "public service" uses small buses or vans for public mobility (Rohani et al., 2013).

It is generally used for shorter trips. Rohani, et al (2013) posit that various cities in different countries such as Hong Kong, Buenos Aires, Calcutta (India), Manila (Filipina), Istanbul (Turkey) and Cairo use a mini bus operation service as city shuttle services. Campus shuttle service as a program is necessitated by a couple of important factors. One of such is off-campus housing based on student density (Juarez, 2011). Another reason is the location of halls of residence or hostels and lecture rooms or aerial difference in location campuses as the case is of Hussaini Adamu Federal Polytechnic, Kazaure, Nigeria. The University of Pittsburgh transit program in USA allows students to move away from housing located near the university and into outlying areas that have better housing opportunities and lower rent (Brown et al., 2003). In Nigeria, students have choice to determine their residence, some prefer staying in the campus hostel, class of other prefer staying outside although in trekkable distance to the campus while multitude of other stay far away of the campus, (Amole, 2001).

Table 1 - Qualbus Attributes

Qualbus Dimensions	Attributes
1. Reliability	<ol style="list-style-type: none"> 1. The Shuttle Bus Always Arrives At The Destination On Time. 2. The Bus Never Breaks Down On The Road. 3. Customers Don't Queue To Buy A Ticket 4. The Shuttle Buses Have Regular Schedules. 5. Drivers Are Always Polite.
2. Assurance	<ol style="list-style-type: none"> 1 Customers Feel Safe In Their Transactions With Staff While Obtaining Ticket 2 Drivers Have In-Depth Occupational Knowledge Of Their Jobs. 3 The Behavior Of Driver Instills Confidence In The Passengers
3. Tangible	<ol style="list-style-type: none"> 1 Drivers Are Neatly Dressed And Smart 2 Shuttle Buses Have Adequate Shed For Customers Obtaining Tickets 3 Shuttle Buses Have Spacious Seats For Passengers On Board 4 Shuttle Buses Are Well Maintained And Neat
4. Empathy	<ol style="list-style-type: none"> 1. Campus Shuttle Always Look After The Best Interests Of Their Customers 2. Campus Shuttle Has Operating Hours Convenient To Alltheir Customers.:

Fig. 1



Source: Perez et al., (2007) and Kian et al., (2012)

Juarez (2011) identifies four practical ideal models in the literature assessing university transit program best practices in the US. This includes the following key categories: Operations model, funding model, scope of service model and Environmental responsiveness model.

QUALBUS as the short term of Quality of Bus Services falls under the third category. It was developed by Perez et al (2007). The study adapted the SERVQUAL and SERVPERF scale to build up a new model QUALBUS which is suitable for assessment of the bus services (Kian et al., 2012). All the five dimensions of SERVQUAL were included in the QUALBUS model which is tangibility, reliability, receptivity, assurance and empathy. The model measures the perception of service quality like SERVPERF without considering the expectation components of SERQUAL. In essence, the QUALBUS does not take into consideration the gap score between expectations and perceptions of service quality as espoused in SERVQUAL.

The involvement of school management in students' transportation should be a holistic practice that transcends beyond social and economic benefit. (Jain, 2012) stated that the following motive are vital establishing campus shuttle programme

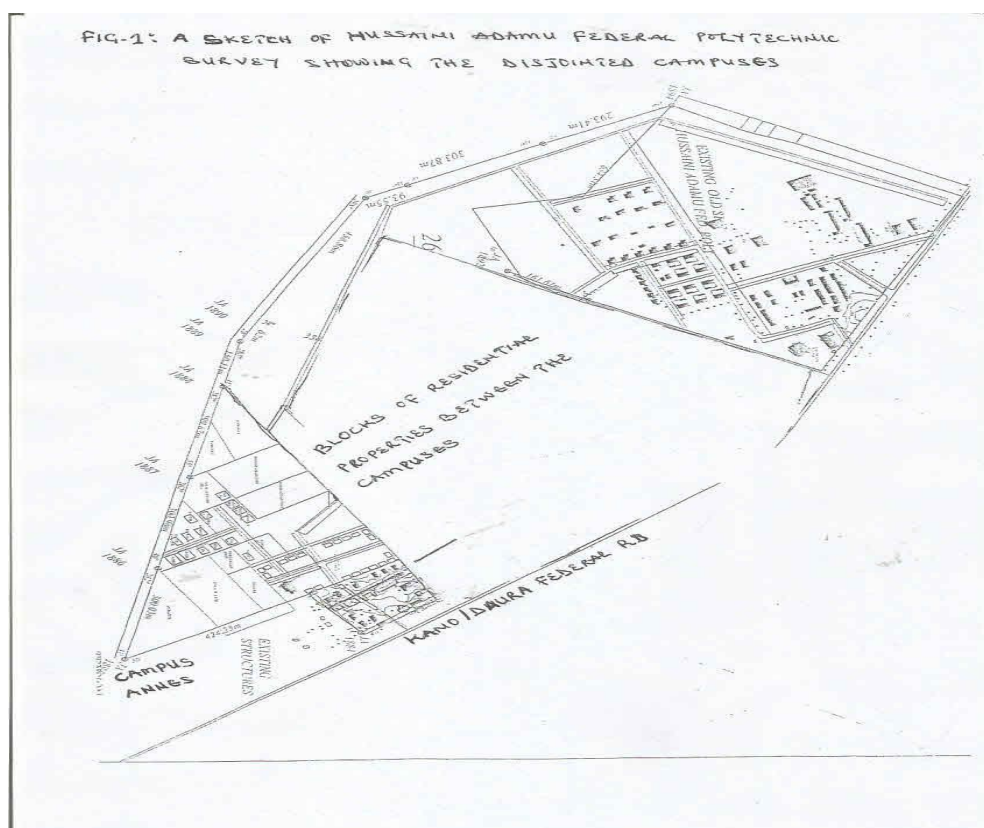
1. To improve the condition and reliability of bus operation through the introduction of appropriate measure.
2. To alter the traffic balance in favour of buses at those locations where this can be properly justified.
3. To improve the conditions for bus passengers at stops and interchange.

4. To improve road safety generally and in particular for pedestrians, cyclists and people with disabilities.
 5. To establish and implement the coordinated and coherent application of waiting, parking and loading enforcement regimes on bus route corridor
- Customer satisfaction should be the ultimate goal of all firms because it is known to be one of the most important and serious issues towards success in today's competitive business environment, both theoretical and empirical research link it to a company's market shares, performance or organizational profitability and customer retention (Ojo, et al., 2011). This study adopts the perception of the end users' (the institution's students) service satisfaction to measure the effectiveness of the school shuttling bus because of the close relationship between service quality and customer satisfaction. Researchers in general acknowledge that customer satisfaction is based on the level of service quality delivery (Arthur, 2009) while Asubonteng et al (1996) on the other hand supports the notion that satisfaction leads to quality.

III. STUDY AREA AND RESEARCH METHODOLOGY

Hussaini Adamu Federal Polytechnic formerly known as Jigawa state polytechnic was established in 1991 and had it college of Engineering and Technology located at Kazaure while the three other colleges were randomly spread to some other emirates of the state. In 2006, Hussaini Adamu Polytechnic transformed into Hussaini Adamu Federal Polytechnic, Kazaure when it was taken over by the Federal Government of Nigeria. Since the time, the school has been witnessing rapid growth in term of infrastructural facilities, building structure and human resources. Hussaini Adamu Federal Polytechnic is located in the north western Nigeria. It remains the only federal polytechnic around Jigawa, Kano and Katsina states till the moment which strengthens its centrifugal forces of attracting students from far and near. The Polytechnic is separated into two campuses that are not connected internally by a road except by the Kano/Daura federal road. More than 50% of the population of students stays in halls of residence located in the main campus while the campus extension is presently an academic area for the College of Administration and Management Studies, College of Agriculture and College of Environmental Studies (CES) under construction.

The polytechnic has programmes for National Diploma and Higher National Diploma across its various department. However, in the College of Environmental Studies (CES) and College of Agriculture (COA) that have been recently established national diploma are obtainable. In this descriptive research, cross sectional survey was utilized by the administration of copies of questionnaires to students who patronized the campus shuttling bus service i.e students in CAMS and COA while same was done to the prospective service users i.e students CES.



The questionnaire was gathered through accidental sampling. The prevailing service respondents were located at the bus stations while waiting for the bus while the prospective ones were met in their various departments to get the required data required of the study. The administration of the questionnaires was carried out early April from 8am-6pm when lectures were at its peak in all departments. This is because there would be high commuting by students within the Polytechnic environment necessitating the use of the Campus shuttle service.

IV. RESULTS AND DISCUSSIONS

It is revealed in Table 2 that majority of the respondents are male representing 64.5% while 35.5% are female. The highest percentage of the respondents representing 73.3% is aged above 19 years and 16-18 years accounts for 11 respondents which is 24.4%. The highest percentage of respondents representing 43.2% use the campus shuttle after every other day, 29.5% use it about twice a week, 18.2% use the bus once in a week and 9.1% have never used it for any purpose. The highest percentage of respondents representing 42.25% use the campus shuttle because of the lower transport fares, 26.7% use it because it saves time and 17.8% of the respondents use the bus because of safety/security., 11.1% of the respondents use the school shuttle bus because of convenience/comfortability while a scanty percentage of 2.2% patronize the bus because of avoidance of traffic congestion.

Table 2 - Background Characteristics And Travel Behaviour Of The Prevailing Shuttling Bus Users

Background characteristics	Frequency	Percentage
Gender		
MALE	29	64.5
FEMALE	16	35.6
TOTAL	45	100.00
Age		
16-18 YRS	11	24.4
ABOVE 19 YRS	33	73.3
TOTAL	44	97.8
MISSING	1	2.2
TOTAL	45	100.00
Frequency of patronage		
NEVER	4	9.1
ONCE IN A WEEK	8	18.2
TWICE IN A WEEK	13	29.5
AFTER EVERY OTHER DAY	19	43.2
Total	44	2.2
Missing System	1	1.2
Total	45	100.00
The best reason for the students' bus patronage		
CONVENIENCE	5	11.1
CHEAPNESS	19	42.2
TIME SAVING	12	26.7
REDUCING TRAFFIC CONGESTION	1	2.2
SAFETY	8	17.8
TOTAL	45	100.00

Table 3 - Mean Analysis Ranking

Dependent Variable	Mean	Standard Deviation
Students' Satisfaction	2.05	0.81
Independent Variables		
Reliability	2.01	0.50
Assurance	2.27	0.64
Tangibility	2.40	0.64
Empathy	2.34	0.71

Source: fieldwork, 2017.

The table 3 shows that, the independent variable i.e the shuttle bus users' satisfaction has the means of 2.05. The table also reveals that among the four independent variables tangibility has the highest means of 2.40. The next one is empathy with the means of 2.34 followed by assurance and reliability with means of 2.27 and 2.01 respectively.

V. HYPOTHESIS TESTING

5.1 H1: There is a significant relationship between reliability and student satisfaction about campus shuttle bus service.

As indicated in Table 4 below, the p-value = 0.081 as the significant level is at 5%. This implies that the p-value for reliability is slightly higher than $\alpha = 0.05$. It means that H0 is being accepted at 5% significant level. This proves that reliability dimension does not influence the students' satisfaction and there is no significant relationship between reliability campus shuttle bus users' satisfaction. Furthermore, despite its insignificant relationship it has the highest beta of 0.279 which means it still remains the most influential reason why student still patronize the campus shuttle bus.

Table 4 – Multiple Linear Regression Analysis

Independent variable	Standard coefficient (Beta)	T-Value	Sig (p-value)
Reliability	0.279	4.341	0.081
Assurance	0.141	1.740	0.083
Tangibility	0.058	0.755	0.451
Empathy	0.011	0.147	0.884

Source: fieldwork, 2017.

5.2 H2: There is a significant relationship between assurance and students' satisfaction about campus shuttle bus service

The table further indicates that the significant p-value of assurance is 0.083. This value is higher than $\alpha = 0.005$ which results in H0 being accepted at 5% significant level. This proves that assurance dimension does not influence students' satisfaction. Therefore there is no significant relationship between assurance and campus shuttle bus users.

5.3 H3: There is a significant relationship between tangibility and students satisfaction about campus shuttle bus service

The significant p-value for tangibility as shown in the table 4 is $p = 0.451$ which is greater than $\alpha = 0.05$. At 5% significant level, H0 is being that tangibility has Beta value of 0.058 and t- value of 0.755.

5.5 H4: There is a significant relationship between empathy and students' satisfaction about campus shuttle bus service

For empathy, $\alpha = 0.001$ is greater than the significant $p = 0.884$ and H0 is not being is not being rejected at 5% significant level. This also means that empathy does not influence students' satisfaction. Therefore there is no significant relationship between empathy and students' satisfaction about campus shuttle bus service

5.6 H5: Marginal increase in the trip fare would not affect anticipatory patronage of the campus shuttling bus

The Hypothesis, which speculates that marginal increase in the trip fare would not affect anticipatory patronage of the campus shuttling bus is being rejected because of the highest percentage (97.52%) of the prospective shuttle bus users that responded otherwise

5. 7 H6: There is going to be prospective effectiveness in the future operation of the campus shuttle bus.

Surprisingly, investigation into the possibility of improvement in the effectiveness of the campus shuttle bus operation in the future yielded acceptable response to the hypothesis. This was though done through frequency count. It was observed that a glaring 98.5% of the respondents agreed with the assertion that effectiveness of the bus service shall improve. The hypothesis is thus accepted because of the highest value of frequency of respondents that support the assertion. This could be due to a speculative believe arisen from the recent up growing resuscitation in infrastructural facilities and structural upgrading been witnessed in the school recently.

Table 5 Summary Of Hypothesis

S/N	HYPOTHESIS	P-VALUES	DECISION
1	There is a significant relationship between reliability and student satisfaction about campus shuttle bus service.	0.081	Rejected
2	There is a significant relationship between assurance and students' satisfaction about campus shuttle bus service	0.083	Rejected
3	There is a significant relationship between tangibility and students' satisfaction about campus shuttle bus service	0.451	Rejected
4	There is a significant relationship between empathy and students' satisfaction about campus shuttle bus service	0.884	Rejected
5	Marginal increase in the trip fare would not affect anticipatory patronage of the campus shuttling bus	2.48% of Respondent	Rejected
6	There is going to be prospective effectiveness in the future operation of the campus shuttle bus.	98.5% of Respondent	Accepted

VI. CONCLUSION AND RECOMMENDATION

The original QUALBUS in Perez et al's (2007) study was used to ascertain the relationship between QUALBUS and behavioral purchase intentions. Kian et al (2012) on the other hand espoused it by focusing on the relationship of QUALBUS with customer satisfaction. This study lent on the study of Kian et al (2012) conducted in Malaysia on public transport focusing more specifically on domestic bus as a mode of transport. Similarly, this study applied the QUALBUS model comprising of four dimensions with 26 attributes in relation to student satisfaction of Campus Shuttle Bus service provided by the management of Hussaini Adamu Federal Polytechnic, Kazaure. The QUALBUS framework was built. The students indicated that campus shuttle bus service is of poor effective. The results portray that the students are not satisfied with the services. On this note, the Investment Unit of the Polytechnic should look at the attributes of reliability, assurance, tangibility and empathy as investigated by the research to improve perception of service quality. This will help them to maintain the number of customers and woo new ones. Satisfied students will make positive recommendations to other students. The dual campuses and the location of halls/hostels of residence and lecture halls make commuting essential as the best alternative to campus shuttle is low passengers' commercial cars. These cars can carry only five (5) passengers which will increase the volume of traffic within the campus and cause a noticeable reduction in time wasting in waiting for the bus, queuing in the bus stop and spent on the trip. Involvement of non-management owned commercial cars will not only improve the effectiveness of the service but also increase the revenue generation capacity of the Investment Unit. For future study, researchers may focus on the differences in the expectation and perception of service quality and its relationship with customer satisfaction by widening the four dimensions adopted in this study. Future studies may also focus on customer satisfaction in more details. More so, this study focused on campus shuttle bus service in Hussaini Adamu Federal Polytechnic, Nigeria; researchers may replicate this model in other tertiary institutions in the country where campus shuttle services exist in order to enhance its' effectiveness.

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