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Transportation Service Quality and Its Impact on Staff's Satisfaction

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Abstract:
The aim of this study is to investigate the transportation service quality and its impact on staff's satisfaction of the two selected Ethiopian higher education institutions Dilla and Wolayita Sodo Universities. To asses service quality of the transportation service and its impact on staff satisfaction the data were collected from 201 survey participants from both universities. The study employed both descriptive analysis and confirmatory factor analysis by using structural equation modeling. The multiple regressions as a basis for causal paths were used to test all hypotheses by controlling the demographic background of the respondents. Based on the empirical results all proposed service quality dimensions of transportation services reliability, convenience, security, empathy and comfort ability have direct positive impact on staff satisfaction with transportation services.

Keywords: *Staff satisfaction, service quality, service dimensions*

1. Introduction

According to Kunri(2005) transportation was referred as the engine for economy and hence its lack of management suffers the economy as a whole. It is also true that transportation system enables mobility and accessibility and shape countries, influencing social and economic activity, affect size of cities and the life of the dwellers by facilitating trade, simplify access to resources, and enabling greater economies of scale through bridging the gaps that exist between producers or suppliers and the ultimate consumers (Zuidgeest 2005: Kunri 2005). As it was reviewed by Ricky Boakye Yiadom (2014) transportation account 46% of the total physical distribution cost of manufacturing and 28% for trade companies. In the same study it was also indicated that transportation takes one third of the logistic costs and highly influence performance of manufacturing companies.

As Transportation Research Board (2010) stated the efficient and effective flexible public transportation services should use responsive technologies that can handle customer requests, fast process to make the services feasible and reliable transportation communication systems. Universities can be regarded as a mini city which needs bus services to create smooth work environment within the campus for both students and staffs. More specifically, a good and efficient bus services have been also current practices of many universities around the world (Edelman, 2009: Palomo et al 2011)

The study conducted by Ricky Boakye Yiadom Company (2014) indicated that poor transportation management jeopardizes the other services of the company by hindering easy movement of people and materials. The study also underlined that the mobility of people and materials are the greatest needs that should be fulfilled in the society and the economy at large. Hence, in order to keep and attract more passengers, transportation service has to have high service quality to satisfy and fulfill more wide range of different customer's needs (Oliver 1980; Anable 2005). Relating with this, it is important to summarize knowledge about what drives customer satisfaction and dissatisfaction in public transport area to design an attractive and efficient public transport.

As the efficiency issue is important in service of transportation (Hirschhausen and Cullmann, 2010) it is only natural to extend the understanding on the service quality of the transportation problem. Parasuraman (1988) defined service quality as comparison between customer expectation and perception of service. He also indicated that service quality in general consists of five different dimensions: tangibles (physical facilities, equipment and appearance of personnel), reliability (ability to perform the promised service dependably and accurately), responsiveness (willingness to help customer and provide punctual service), assurance (knowledge and courteousness of employees and their ability to inspire trust and confidence) and understanding (caring, individualized attention the firm provide its customer). Therefore, it may be stated that unreliability in public transport drives away existing and potential passengers. In addition, the reliability and facility of buses and the attitude of drivers should the major concern in universities (Zahayu et al, 2014)

Customer satisfaction is something that includes apparent assessment of all the services and products (Leem and Yoon, 2004). The research conducted by Antouvakis and Lymperopoulos, (2008) the survey responses of 338 passengers showed that people want very efficient transportation that saves their time and outstanding appearance of buses. In their

finding they concluded that the bus appearance and cleanness, its time and money saving are the major factors affecting customer satisfaction level. Hence, many companies implement some strategies and technologies to increase customer satisfaction (Chien,2002: Singh, 2009).

Though efforts have been continuously taken by the University, there are rooms for improvement on the quality of bus services in Ethiopian Higher Education. Some complaints from University community and students include insufficient of buses operating during peak hour, long waiting time, lack of quick response, inappropriateness of terminals this will eventually cause staffs to arrive late for their classes and works. The reliability of the buses, the facilities of buses and also the attitudes of the bus drivers are also of concerns (Zerihun, 2015).

Therefore, evidence-based assessment of the transport service quality and level of satisfaction in terms of services quality dimensions and service perception for future improvement is crucial for Ethiopian Higher Education institutions. In this context, the rationale of this study is the persistence of the knowledge gap in terms of transportation service quality (in service dimensions) and level of service satisfaction by identifying the gap between expected and perceived services in Ethiopian Higher Education Institutions by taking two universities Dilla and Wolayita Sodo Universities

1.1. Research Hypothesis

The researcher developed five basic research hypotheses to test whether the basic service quality dimensions have positive effect on staff satisfaction.

- H_1: Reliability has positive effect on staff satisfaction
- H_2: Convenience of the bus has positive effect on staff satisfaction
- H_3 Security while transportation has positive effect on staff satisfaction
- H_4: Empathy of transportation personnel has positive effect on staff satisfaction
- H_5:The Comforts of the buses has positive effect on the staff satisfaction

2. Methodology of the Study

This study is an exploratory in nature where the purpose is to describe the level of Staff's satisfaction on university transportation service. This study is both descriptive study and inferential and hypothesis were developed and tested on major transportation service quality dimensions.

The population under this investigation is the entire staffs the three Ethiopian Higher Education Institutions. To achieve reliable results the entire of 6900 total populations of the two universities were considered.

From the above given population size the researchers used simple random sampling and took the sample of 200 respondents regardless of gender, age, race, religion and nationality. The sample size for this investigation was proportionally selected from the three universities targeted for the investigation.

While determining the sample size of the study, the formula of Kothari (2004) was utilized. This method was used for the reason that it is one of the best methods in determining the sample size in probability sampling. By using this formula and assuming 5 percent of accepted error (true value) with 90 percent confidence. Then the sample size was computed as:

$$n = \frac{Z^2 * p * q * N}{e^2(N-1) + Z^2 * p * q}$$

Where,
p = sample proportion, q = 1 – p;
z = the value of the standard variate at a given confidence level and to be worked out from table showing area under normal curve;
n= size of sample.

S. N	Universities	N_i (number of Respondents in Each University)	$y_i = \frac{Nixi}{N}$
1	Dilla	3800	110
2	Wolayita Sodo	3100	90
	Total	6900	200

Table 1: Sample of the Study

Where:
Ni is the number of respondents in respected university.
Yi is the number of sample size selected from each university.
Xi is desired sample size

2.1. Data Collection Methods

The survey questionnaire designed was composed of two parts: staff's profile and questions about transportation service quality and satisfaction provided by the university. The questions comprised both dependent and independent variables.

Respondents who would participate in the survey were required to select one of the scales that accord with their real feeling. Each of the questions had five scales, which is 1-strongly disagree, 2-disagree, 3-neutral, 4-agree and 5-

strongly agree. It was assumed that all specific service quality attributes have a significant positive relation with overall satisfaction. This means that when satisfaction with a specific service quality attributes increases; overall satisfaction increases too. In addition to correlation and regression overall satisfaction scores were regressed on supporting transport service quality attributes.

3. Results and Discussions

The analysis was begun with the mapping of demographic characteristics of the respondents by using frequency distribution tables. The relationship between the proposed five latent variables(unobserved variable) to predict the staff satisfaction in the study institutions also analyzed based on Pearson correlation. Hence, the researcher took reliability, convenience, security, and empathy and comfort ability to measure the staff's transportation service satisfaction. Finally, the proposed hypotheses were analyzed to see the impact of independent variable on the independent variable.

3.1. Regression Model

$Y = \alpha + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + \mu$

Y= the value of dependent variable (Staff Satisfaction)

α = the constant value (intercept)

b_1 =beta coefficient for X_1

b_2=beta coefficient for X_2

b_3=beta coefficient for X_3

b_4=beta coefficient for X_4

b_5=beta coefficient for X_5

X_1 =first independent variable(Reliability)

X_2=second independent variable (Convenience)

X_3 =third independent variable (Security)

X_4 = fourth independent variable (Empathy)

X_5= fifth independent variable (Comforts)

3.2. Demographic Characteristics of the Respondents

The data related with sex, age, service year, work experience, educational background of the respondents was collected and shown in the following table 2

It is shown that (table 2)majority of the respondents were male and this is due to the fact that female participation as teaching staff of higher education institutions in Ethiopia is very low. The age distribution of the respondents indicates that younger group is dominating the teaching of the targeted study institutions during the study period. It is also illustrated that high number of respondents (75.1%) are having 1-5 service years. Majority of the respondents who filled the questionnaire were from academic work area because the researcher intentionally preferred for the sake of accessibility and reliability of the data to be collected. It should be also clear that most of the academic staffs frequently use university buses rather than other means of transportation to go to class and vise verse in the study organizations. The responses of the study participants regarding their level of education also show that significant number of staffs is master holder in the study universities.

		Frequency	**Percent**
Gender	Male	171	85.1
	Female	28	13.9
Age	20-25	24	11.9
	26-30	117	58.2
	31-35	44	21.9
	36-40	6	3.0
	41-45	8	4.0
	46-50	2	1.0
Service year	1-5	151	75.1
	6-10	34	16.9
	11 and above	16	8.0
Work areas	Academic	167	83.1
	Administrative	34	16.9
Level of Education	Diploma and Below	4	2.0
	Bachelor Degree	53	26.4
	Master	140	69.7
	PhD and above	4	2.0

Table 2: Demographic Characteristics of the Respondents

3.3. Regression Analysis

The researcher used the regression model to show the effect of the five latent variables proposed on the staff satisfaction of university transportation services. This was done to predict the dependent variable by controlling the demographic factor of the research participants.

No.	Latent Variables	Indicators
1	Reliability(R)	R3.1.8, R3.1.7, R3.1.6, R3.1.5, R3.1.4, R3.1.3, R3.1.1, R3.1.2
2	Convenience (C)	C3.2.1, C3.2.2, C3.2.3, C3.2.7, C3.2.5, C3.2.4, C3.2.6
3	Security (S)	S3.3.7, S3.3.6, S3.3.5, S3.3.4, S3.3.3, S3.3.2, S3.3.1
4	Empathy(E)	E3.4.1, E3.4.2, E3.4.3, E3.4.4, E3.4.5, E3.4.6, E3.4.7
5	Comfortability (Com)	Com3.5.1, Com3.5.2, Com3.5.3, Com3.5.4, Com3.5.5, Com3.5.6, Com3.5.7

Table 3: Proposed Latent Variable Model

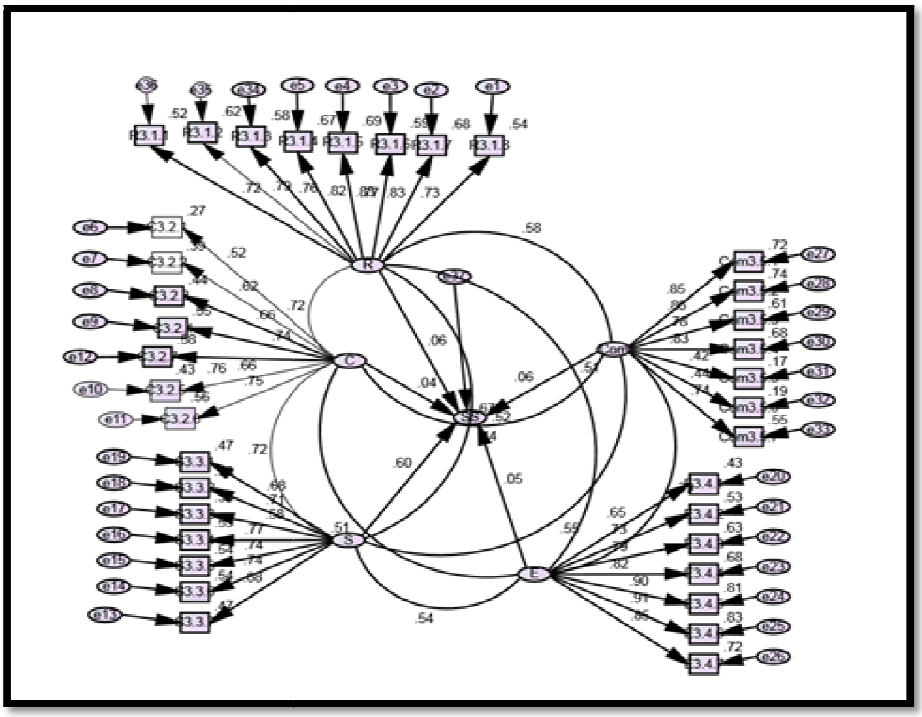

Figure 1: Full Cofactor Analysis of the Measurement Model (Source: Amos output)

Constructs			Correlation	Comment
Com	<-->	R	.582	Discriminant validity holds
R	<-->	E	.512	Discriminant validity holds
R	<-->	S	.668	Discriminant validity holds
Com	<-->	E	.393	Discriminant validity holds
Com	<-->	S	.550	Discriminant validity holds
Com	<-->	C	.445	Discriminant validity holds
S	<-->	E	.538	Discriminant validity holds
C	<-->	E	.521	Discriminant validity holds
R	<-->	C	.732	Discriminant validity holds
C	<-->	S	.722	Discriminant validity holds

Table 4: Discriminant Validity of the Measurement Model (for Fit Measure)
Source: Research Amos out Put

As it can be seen in the above table 4 the correlations of all proposed variables show below the threshold of 0.80 which indicates the existence of discriminant validity. Hence, the overall model fit was acceptable.

Variable	Estimate of SMC	Comment
C3.2.6	.510	Convergence Holds
R3.1.2	.606	Convergence Holds
R3.1.1	.506	Convergence Holds
R3.1.3	.580	Convergence Holds
Com3.5.7	.558	Convergence Holds
Com3.5.4	.678	Convergence Holds
Com3.5.3	.610	Convergence Holds
Com3.5.2	.751	Convergence Holds
Com3.5.1	.723	Convergence Holds
E3.4.7	.717	Convergence Holds
E3.4.6	.826	Convergence Holds
E3.4.5	.806	Convergence Holds
E3.4.4	.680	Convergence Holds
E3.4.3	.628	Convergence Holds
E3.4.2	.529	Convergence Holds
E3.4.1	.428	Convergence Holds
S3.3.1	.449	Convergence Holds
S3.3.2	.478	Convergence Holds
S3.3.4	.595	Convergence Holds
S3.3.5	.566	Convergence Holds
S3.3.6	.567	Convergence Holds
S3.3.7	.454	Convergence Holds
C3.2.7	.644	Convergence Holds
C3.2.4	.550	Convergence Holds
C3.2.3	.420	Convergence Holds
R3.1.4	.666	Convergence Holds
R3.1.5	.679	Convergence Holds
R3.1.6	.588	Convergence Holds
R3.1.7	.685	Convergence Holds
R3.1.8	.540	Convergence Holds

Table5: Squared Multiple Correlations
(Convergence Validity of the Measurement Model)

Table 5 reveals that the convergence validity holds for all observed variable after re-specified. The results are above 0.40 of the thumb rules for all variables which shows the relationship between latent variables and observed variables. Hence, the model was fit or inadmissible.

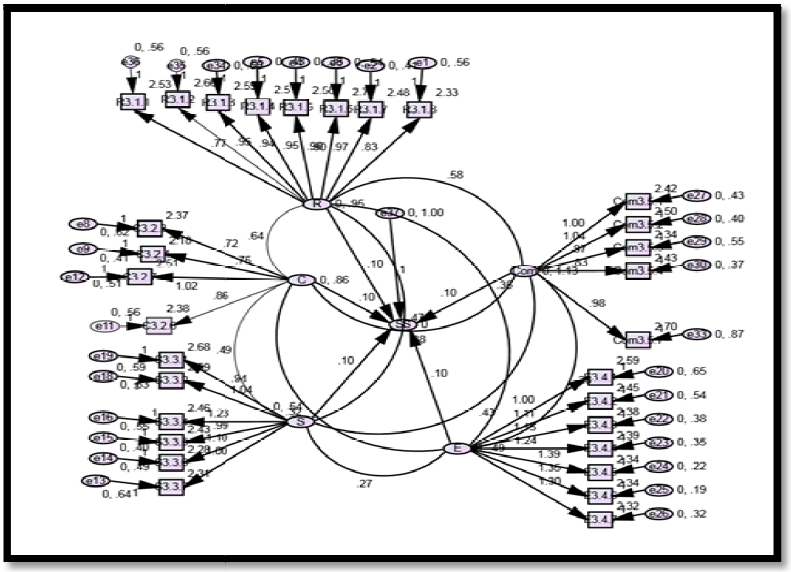

Figure 2: Re-Specified Structural Model (Source: Amos Output)

Hypothesis	Exogenous Variable	Endogenous Variable	Path- Coefficient	P-Value	Results
H1	R	SS	.100(b_1)	***	Supported
H2	C	SS	.100(b_2)	***	Supported
H3	S	SS	.096(b_3)	***	Supported
H4	E	SS	.099(b_4)	***	Supported
H5	Com	SS	.098(b_5)	***	Supported

Table 6: Hypothesis for Structural Model
Source: Amos Output

3.3. Discussion of Empirical Finding

This part is to answer the main objective of the research question "The Transportation Services Quality and its impact on Staff Satisfaction". Hence, the five dimensions of the transportation service proposed were tested for their impact on staff satisfaction on the transportation services delivered by the institutions.

- Hypothesis 1: The Transportation Service Reliability has positive effect on Staff Satisfaction

Using Amos version 23, the findings of the structural equation modeling analysis show that hypothesis (H1) is empirically supported. Hence, transportation service reliability has positive effect on staff satisfaction with path coefficient (β=0.10 and P<0.001) which is statistically significant and positive as hypothesized. This shows that the availability of sufficient number of buses and their efficient mobilization, appropriateness of bus schedule and operating accordingly, prompt services and working on transport service related problems have positive impact on staff satisfaction.

- Hypothesis 2: Convenience of the bus has positive effect on staff satisfaction

The empirical result shows the bus convenience has positive effect on the staff satisfaction with transportation services with the path coefficient (β=0.10 and P<0.001) which is statistically significant and positive as hypothesized. Hence, low distance walk to bus stop and low waiting time for bus, appropriate terminals for staffs, availability and accuracy of information related with transportation service influenced the staff satisfaction.

- Hypothesis 3:Security has positive effect on staff satisfaction

Security of the transportation services positively affects the staff satisfaction with standardized path coefficient of (β=0.096 and P<0.001) which is statistically significant. From the data collected it was revealed that the safety of the road, capability of drivers, periodical checkup of the cars and service targeting are highly related with security of the bus services. Hence, the hypothesis is accepted that the transportation service security has positive impact on staff satisfaction.

- Hypothesis 4: Empathy of transportation personnel has positive effect on staff satisfaction

The empathy transportation service personnel positively influence the staff satisfaction with the transportation services. It is empirically significant with the path coefficient(β=0.098 at P<0.001) which supports the impact of servant's politeness, helpfulness, respect for customers and good discipline on staff satisfaction with transportation services.

- Hypothesis5: The Comforts of the buses has positive effect on the staff satisfaction

The empirical result of the study shows that the comforts of the buses (the seats, cleanness, good ventilations, resting seats at bus terminals and shades) positively influenced the staff satisfaction. It is statistically significant at path coefficient (β=0.098 at P<0.001) which supports the stated hypothesis and hence it is accepted.

4. Conclusion

In this investigation the proposed five service quality dimensions (reliability, convenience, security, empathy and comfort ability) were confirmed to measure the transportation service quality. The result of this finding indicates that the staff satisfaction shows slight variation with the proposed service quality dimensions. More precisely, the impact of the transportation service quality dimensions is direct, positive and moderate impact on the staff satisfaction. The result of this study also shows that currently the level of staff satisfaction in both universities is unsatisfactory. Finally, it should be concluded that the universities should avail sufficient number of buses and work on its efficient mobilization, check the appropriateness of bus schedule and direct all bus operation according to their schedule, reduce the staff distance walk by setting nearer terminals and reduce the waiting time for bus arrival, keep the safety of road by repairing those damaged and constructing the new one when required, controlling the periodical checkup of bus before its mobilization, maintain the interior bus clean, well ventilated, shade at terminals, increasing capability of derivers through continuous training and facilitating customer handling training for assistants to increase the staff satisfaction.

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