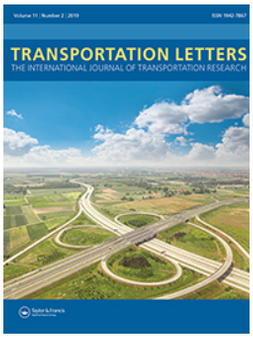

Taylor & Francis
Taylor & Francis Group

Transportation Letters

The International Journal of Transportation Research

ISSN: 1942-7867 (Print) 1942-7875 (Online) Journal homepage: https://www.tandfonline.com/loi/ytrl20

Quality of public transport service: an integrative review and research agenda

Thomas Kolawole Ojo

To cite this article: Thomas Kolawole Ojo (2019) Quality of public transport service: an integrative review and research agenda, Transportation Letters, 11:2, 104-116, DOI: 10.1080/19427867.2017.1283835

To link to this article: https://doi.org/10.1080/19427867.2017.1283835

TRANSPORTATION LETTERS
2019, VOL. 11, NO. 2, 104–116
https://doi.org/10.1080/19427867.2017.1283835

Taylor & Francis
Taylor & Francis Group

Quality of public transport service: an integrative review and research agenda

Thomas Kolawole Ojo

Department of Geography and Regional Planning, University of Cape Coast, Cape Coast, Ghana

ABSTRACT

This paper contains a literature review of quality of public transport service. The study classified 85 articles published 2005–2015, based on regional context, date of publication, sample size, the nature of the papers, type of public transport studied, the approach adopted to measure service quality with inputs and outputs, and empirical findings. There are different types of public transport assessed from stakeholders' perspectives. Two main approaches pervade the review: conceptual and analytical. The paper makes the recommendation for a research agenda in addressing quality of public transport service.

KEYWORDS

Public transport; Service quality; Conceptual approach; Analytical approach

Introduction

The use of public transport holds many advantages over the use of a private automobile for the individual, for the community and for the cities from the standpoint of such factors as energy conservation, environmental impact, social equity, and economy (Gronau and Kagermeier 2007; Hutchinson 2008; Redman et al. 2013). The increase in public transport passenger loads in the USA is reducing fuel consumption by about 11 million gallons annually – the equivalent benefit of removing 23,813 vehicles from the road (Schwieterman and Fischer 2010; Schwieterman et al. 2011). The energy demand within the transport subsector is immense as the Government of Ghana (GoG) subsidized petroleum products by Ghc45 million monthly. GoG is faced with the dilemma of whether or not this subsidy be removed as it is putting pressure on the national budget.

Of late, researchers and managers in the public transport sub-sector are striving to provide details about the main factors affecting service quality tied to customer satisfaction, increased profitability, sustainable energy, and environment (de Oña and de Oña 2015; Redman et al. 2013). This assessment of service is an essential tool for transport operators and transport planners to woo and retain passengers, establish strategic goals, and to determine funding decisions (de Oña and de Oña 2015).

High vehicular ownership in developed countries make public transport commuters passive users. These commuters will tend to use personal automobile leading to congestion and its attendant challenges such as an increase in travel time, air pollution, and incident of an accident. But their counterparts in developing countries are active users because of low vehicular ownership. The increasing trend in vehicular ownership in developing countries means a possible reduction in the use of public transport with time. It is expedient to ascertain what changes in quality attributes of public transport services would encourage modal shift from private motor vehicles to public transport.

Provision of quality public transport service encourages a modal choice from private automobiles to public transport services in both developed and developing countries (Redman et al. 2013). Consequently, it promotes a more sustainable mobility. Customers' assessment of the quality of public transport pervades the literature because they are the reason why a service is provided (Hutchinson 2008). To Mercangöz, Paksoy, and Karagülle (2012) quality of public transport is the difference between the expectations of the passengers about the service performance and the perception of them about the service performed. However, there are multiple perspectives in assessing public transport-drivers, passengers, transport operators, and regulators or communities (Kennedy 2011; Zak 2011). These perspectives represent several stakeholders interested in the efficiency, comfortability, and effective operations of the transport systems; consequently, a conflict of interest is observed.

The current study seeks to unearth articles, published from 2005 to 2015 in refereed journals. This study borrows a leave from De Borger et al.'s (2002) and studies with a different classification technique and study

CONTACT Thomas Kolawole Ojo ojothomas@ymail.com, thomas.ojo@ucc.edu.gh

period. However it differs from De Borger et al. and Jaboui et al., as it focuses on quality of public transport services from 2005 to 2015. This paper is also different from de Ona and Ona's study that looked at the quality of public transport service based on customer satisfaction surveys.

The paper is to provide and elucidate a comprehensive review of quality of public transport services and the associated methodologies adopted. The paper further seeks to expose the different types of public transport, type of paper, nature of data, attributes of service quality, and empirical findings. This review seeks to answer the following questions?

(a) How many articles were published from 2005 to 2015 on the quality of public transport?
(b) How many types of public transport were assessed in the surveyed articles?
(c) What are the different approaches and methods used in assessing the quality of public transport service?
(d) What are the attributes of quality public transport service?
(e) What is the overall perceived quality of public transport service?

This review proposes methodology or a similar one to assess the quality of public transport from the passenger's view, which undoubtedly will be a wise investment. This will further help transport organization to:

- Assess the performance of public transport services;
- Take measures towards services improvement;
- Monitor the progress of the quality of its services in the future;
- Better understand the needs and priorities of the passengers;
- Perform a customer-oriented scheduling process of the transportation service and internal operation of the organization; and
- Support the decision-making process of strategic character (Tyrinopoulos and Antoniou 2008).

Adopting this methodology will help public transport operators improve the quality of service invariably leading to customer satisfaction. Satisfied customers form the foundation of any successful business as customer satisfaction leads to repeat purchase, brand loyalty, and positive word of mouth marketing to customer retention (Angelova and ZeCape Coastkiri 2011). Satisfied customers relay good experience, recommend the service to others, and remain loyal (Islam, 2011). On the contrary, dissatisfied customers respond differently by relaying negative word of mouth. This underlies the fact that a well-pleased customer preaches to five potential customers whereas a displeased customer preaches his/her negative experience to between 9 and 20 persons (Salazar et al. 2004). Hence, no company wants to geometrically lose potential customer via a displeased customer.

This paper is structured into five sections. In Section 'Pervading concepts in quality of service,' pervading concepts in quality of service, which include the actors of service quality, service quality, and functional quality were explained. Section 'Methodology' presents the methodological and research approach of the literature. Section 'Results and discussions' contains the review results and interpretations of the classification of surveyed 85 papers. The last section offers the conclusion and the research agenda that will guide future research.

Pervading concepts in quality of service

Quality of service is an elusive concept (de Oña and de Oña 2015). In exploring quality of service there is a need to understand the actors of service quality, service quality, and functional quality. The actors define quality of service based on their roles as passengers, employees (drivers), transport operators, and regulators. The views of these actors help define quality of service with the passengers having perceived functional quality because they are the reasons why the service is provided.

Actors of quality of service

Different actors come into play to ensure quality service by transport organizations. These are the transport operators or the organizations, regulatory bodies, the employees of the transport operators, and passengers. Customers/passengers participate in both the delivery and the consumption of services. This affords them the opportunity to assess critically the services provided by transport operators/organization (Kandampully 2002). The regulators provide the platform and enforce the standards of service for the service providers. Hence, their role is limited to the provision of infrastructure, policy formulation, enforcement of laws and taxation. The transport operators or organizations, on the other hand, are responsible for the management and provision of the service.

The operators are to maintain the specifications and standard proffered by the regulators. Any shortfall in the delivery causes customers/passengers displeasure and the way the service provider handles this has a direct influence on how the customer perceives service quality. However, the operators must create a conducive environment for employees to ensure service quality. Thus, employees are the first point of contact for customers. Employees (drivers) are to maintain good communication with the customers. Employees with better customer relationship

management know that customers are supposed to be treated like kings no matter what. If not for the customers, there would be no service. By this, there would be no employee to offer the service. The efforts of the regulatory bodies, service provider, and employees at providing service quality are subjected to the analysis of the customer, which invariably is tied to customer satisfaction. In public transportation, passengers want to travel at the lowest cost, arrive at their destination in the least amount of time and appreciate a high-frequency transportation services (Aratani and Todoroki 2010).

Service quality

In service literature and marketing, researchers prefer to define service quality from an individual consumer's perspective, also known as user-based (Fitzsimmons and Fitzsimmon 2001). Service quality is a way to manage business processes in order to ensure total satisfaction to the customer on all levels (Grzinic 2007). Service quality is defined as the difference between the expectations of the passengers about the service performance and the perceptions of them about the service performed (Mercangöz, Paksoy, and Karagülle 2012). But Cronin and Taylor (1992) did not take expectations into considerations.

de Oña and de Oña (2015) revealed that there is no consensus on customer expectations. Expectations are the needs or desires of the consumer, identified by what the consumer feels should be delivered by the provider of the service (Millana and Aqueda 2004). According to Van Pham and Simpson (2006), various factors are thought to influence consumer expectations. Some of the factors may be based, in part or in total, on past relevant experiences, including those gathered indirectly, someone's verbal information, commercial advertisement, and personal needs.

Perception consists of a multi-dimensional, interactive system where several different part-processes collaborate and form our experience of the environment. Zeithaml, Bitner, and Gremler (2000) described customer perceptions as: 'the subjective assessments of actual service experiences'. It refers to how customers perceive service; how they assess the quality of service received; whether they are satisfied; and whether what they have received is value for money.

There are several heated debates about how to conceptualize and measure service quality (Brady et al. 2002). This arises from a lack of clear and measurable parameters for determining service quality (Grzinic 2007). Bhat and Guo (2005) said the ability to improve public transport performance is closely tied to measuring it as a subject of the greatest interest to both planners and transport operators (Eboli and Mazzulla 2008). Three parts of public transport are measurable: ticketing, on board services and platform/bus stop or terminal facilities (Geetika 2010). For a transit trip, attributes of service are walking into the station or bus stop, waiting time for bus services, traveling time in the transit vehicle and walking time to the destination (Rabi and McCord 2006).

Ekinci (2002) observed that the complexity of the factors defining service quality has led to the development of multidimensional models which have been divided into two schools of thoughts: the North American (Parasuraman, Zeithaml, and Berry 1985) and Nordic European (Kang and James 2004). The North American school of thought is dominated by Parasuraman, Zeithaml, and Berry's (1985) service quality model known as SERVQUAL (SERVice QUALity).

In contrast to the North American school of thought, Grönroos' (1982) summary of service quality is based on the 'what' and 'how' questions. The former concerns what the customer receives as a result of interaction with a service organization. Ekinci (2002) and Kang and James (2004) call it technical quality while the latter is how the service is delivered to customers. Together, the functional and technical quality forms the primary constituents of corporate image (i.e. how consumers see the service organization), which is claimed to be the third dimension of the model.

Functional quality

Grönroos (1982, 1990) noted that the quality of a service as perceived by customers has two dimensions: a functional (or process) dimension and a technical (or outcome) dimension. Functional quality focuses on 'how', and considers issues such as the behavior of customer-contact staff and the speed of service. It is how service organization provides that service to the consumers. There are a number of functional quality models in service quality studies (Ali et al. 2015). These models have been divided into two-conceptual and analytical based on conceptual basis, psychometric problems or troubles with the use of Likert scales as the well-documented tendency for respondents to choose central response options rather than extreme ones, the impact of the number of scale points used, the influence of the format and the verbal labeling of the points and the transformation of ordinal data to cardinal data (Marcucci et al. 2007).

The best-known and most widely applied conceptual technique is the SERVQUAL scale (Eboli and Mazzulla 2007). It's a generic instrument for measuring service quality across service sectors. In transport studies, a number of modifications have been made on SERVQUAL scale to be industry specific. QUALBUS (QUALlity of bus), RAILQUAL (RAILway QUALilty) and P-TRANSQUAL

(Public TRANSport QUALity) were coined to assess the quality of bus, rail, and public transport services, respectively (Perez et al. 2007; Prasad and Shekhar 2010; Sumaedi 2015).

The analytical based on Stated or Revealed Preference analysis that overcomes some critical factors linked to the use of scales (Marcucci et al. 2007). These include psychometric problems, conceptual basis, and difficulty in translating evaluations into quantitative measures (Marcucci et al. 2007). In particular, quality is linked to the utility achieved by the consumers. The utility of each choice alternative is composed of a systematic and a random component. There are two main categories of techniques for determining the relative importance of the attributes considered (Eboli and Mazzulla 2008):

(i) Multivariate statistical analysis: quadrant and gap analysis, scatter graphs, factor analysis, cluster analysis, bivariate correlation, etc. (Nutsugbodo 2013; Nwachukwu 2008).
(ii) Model-based techniques: discrete choice models (Eboli and Mazzulla 2007, 2008), regression, and structural equation models (Randheer, Al-Motawa, and Vijay 2011).

Methodology

There are three basic approaches in investigating the state of knowledge in a field or subject – Delphi technique, meta-analysis, and content analysis (Li and Cavusgil 1995). Delphi technique is used by experts who are familiar with the area are surveyed. Meta-analysis is where empirical studies on the specific subject are gathered and statistically analyzed. This paper adopts content analysis as a research method for the systematic qualitative description of the manifest content of the literature in public transport (Marasco 2008). As in Jarboui, Forget, and Boujelbene (2012), two major steps to conduct an investigation by content analysis are followed in this paper. First, it is expedient to define the sources and procedures for searching the articles to be analyzed and categories must be defined for the classification of the collected articles.

The study adopts a qualitative integrative review as proposed by Cooper (1989). The design of an integrative research review contains five stages:

(a) Formulation of problem and research questions, which guide the integrative research review.
(b) Determination of data collection strategy and selection of multiple channels in order to avoid a bias in coverage.
(c) Evaluation and selection of retrieved data, including determining selection criteria for which data to include in the review.
(d) Analysis and interpretation of the literature reviewed, including statistics about sources, a number of retrievals and literature finally reviewed.
(e) Presentation/reporting of the results.

These stages have been followed in this article. The study involved a scientific literature review because it reveals the answers to the set research questions, definitions, concepts, problem definition, methodologies, and results of various researchers, as well as any ambiguities and shortcomings.

This paper was based on a study of journals like Bontekoning, Macharis, and Trip (2001), Jarboui, Forget, and Boujelbene (2012) and de Oña and de Oña (2015). But this paper focuses mainly on literature that has been published in refereed journals. Jarboui, Forget, and Boujelbene (2012) reviewed 24 articles in refereed journals from 2000 to 2011. This is in consonant with Awusabo-Asare (2013) and Enu-Kwesi (2013) admonition that, references are to be made on researches conducted in the last 5 or 10 years for currency sake. Unlike Jarboui, Forget, and Boujelbene's (2012) study that was based on work published in the 2000s and 2010s, this paper focuses on work published in the 2005s and 2015s.

The use of journals for information gathering and disseminating new findings is common in the academic (Nord et al. 1995). Therefore, this paper excluded conference proceedings papers, master's and doctoral theses, textbooks, and unpublished working papers. These articles were accessed through a computerized search because it is fast and efficient (Jarboui, Forget, and Boujelbene 2012). The research review basically covers publications in electronic journals within the period under review. In order to have a comprehensive review, the author retrieved studies by tracking the research cited in the literature that he had already obtained. In addition to that, the author relied on google scholar for all other relevant articles. The author also included publications he knew about from informal contacts with other researchers as well as his own research.

Classification method

The classification framework is based on the literature review and research in the field of transport sector quality. Based on the classification scheme technique, the paper will be divided into seven major categories: (i) nature of paper, (ii) context of the study, (iii) type of public transport studied (iv) approach adapted to measure service quality, (v) nature of the data, (vi) inputs and outputs adopted, and (vii) empirical findings.

The nature of paper

Papers will be classified into two categories: normative and empirical. Normative papers treat the problem of quality of public transport without an empirical analysis whereas empirical papers measure the quality of public transport service in a specific context with measurable attributes.

Countries of the study

The papers will be classified according to countries of the study. Two issues will be addressed: what are the countries for the study of quality of public transport of each paper and are there any papers that have treated this problem multi-international contexts (between countries).

Type of public transport studied

The papers will be based on the type of transport studied-bus, airline, taxi, boat, train etc. this will be cross-tabulated with the countries in which these researches were carried out.

Nature of the data

The papers will be classified according to the nature of data used to assess quality of public transport service. Thus, this paper seeks to use any nature of data such as cross section, time series, or panel data. that are the most used and equitable for the measurement of quality of public transport services.

The adopted approach to measure quality

Studies will be classified into two approaches: conceptual and analytical. Conceptual studies use SERVQUAL scale or its modifications. The analytical based on Stated or Revealed Preference analysis that overcomes some critical factors linked to the use of scales. There are other approaches meant to assess technical and corporate image quality. The focus of this paper is on the foremost approaches most used in this area as previously defined.

Attributes or dimensions

Public transport service is not like manufacturing industry where output is a clearly defined entity (Jarboui, Forget, and Boujelbene 2012). The main reason is the intangibility, perishability, and inseparability of a transport service. Cullinane et al. (2004) provided a comprehensive discussion of the used variables. Thus, the variables or attributes should reflect the objectives and the actual service production process of the transport system as accurately as possible. Therefore, articles will be classified according to the attributes or dimensions used.

Empirical findings

This paper will be classified according to the quality scores of each study and common significant attributes in similar studies. This criterion helps assess the empirical approach and study context and answering two questions: what is the approach that accurately measures the quality of public transport services.

Results and discussion

Classification of papers by types and study contexts

Table 1 indicates the surveyed 85 articles with authors and date of publication, nature of paper, regional context, nature of data, sample size, inputs and outputs and empirical findings. As can be deduced from Table 1, 85 articles were surveyed from 29 countries with 9, 8, 6, 1 and 1 from India, Ghana, Nigeria, US, and the UK, respectively. Therefore, Indian and Ghanaian contexts are the most studied. It may be deduced that more studies were conducted in these countries owing to challenges associated with provision and consumption of public transport services (Abane 2011). Meanwhile, four normative studies did not have any regional context (Hutchinson 2008). Fellesson and Friman (2008) conducted comparative studies involving different cities in Europe (2009). Less number of studies was surveyed from developed countries such as Australia, Germany, UK, and US.

According to Figure 1, the majority of the surveyed articles were conducted between 2010 and 2015 as espoused in Jarboui et al. (2012). The majority of the papers surveyed referred to Parasuraman, Zeithaml, and Berry (1985), Parasuraman et al. (1988) as a precursor to measuring service quality. SERFPERF, AIRQUAL, P-TRANQUAL, RAILQUAL, and QUALBUS are modified SERVQUAL. Despite all this, Kian et al. (2012) and Perez et al. (2007) observed the importance of SERVQUAL in measuring service quality.

Classification by quality evaluation method

As shown in Table 1, the majority of the surveyed articles empirically assessed the quality of public transport services with the exception of normative studies by Currie (2010), Paulley et al. (2006), Hutchinson (2008), Gronau and Kagermeier (2007), Smith (2008) and de Oña and de Oña (2015).

Table 1. Summary of previous research: references, nature of paper, regional context, type of public transport, sample size, and approach used.

References	Nature of paper	Regional context	Type of public transport	Sample size	Approach
Abane (2011)	Empirical	Ghana	Buses, taxis	926	Analytical
Agarwal (2008)	Empirical	India	Railways	500	Analytical
Agyeman (2013)	Empirical	Ghana	Urban bus	84	Conceptual/analytical
Ahern and Tapley (2008)	Empirical	Ireland	Intercity bus	189	Analytical
Aidoo et al. (2013)	Empirical	Ghana	Intercity bus	500	Analytical
Ali (2010)	Empirical	Nigeria	Intra-urban bus	310	Analytical
Ali, Dey, and Filieri (2015)	Empirical	Pakistan	Airlines	498	Conceptual/analytical
Alpopi and Manole (2012)	Empirical	Romania	Urban transport	214	Analytical
Arintono (2010)	Empirical	Indonesia	Intercity van	399	Analytical
Ayanda and Govender (2014)	Empirical	South Africa	Buses, minibuses, taxis	902	Conceptual/analytical
Ayichew (2013)	Empirical	Ethiopia	Intercity bus	–	Analytical
Barabino, Deiana, and Tilocca (2011)	Empirical	Italy	Urban transport	1857	Analytical
Barabino, Deiana, and Tilocca (2012)	Empirical	Italy	Urban bus	2611	Conceptual/ analytical
Bauer (2013)	Empirical	Poland	Public transport	–	Analytical
Borhan et al. (2014)	Empirical	Malaysia	Public transport	290	Analytical
Cantwell, Caulfield, and O'Mahony (2009)	Empirical	Ireland	Public transport	324	Analytical
Castillo and Benitez (2012)	Empirical	Spain	Public transport	1508	Analytical
Chikwendu and Ezenwa (2012)	Empirical	Nigeria	Airline	180	Conceptual/analytical
Currie (2010)	Normative		Public transport	–	Analytical
dell'Olio, Ibeas, and Cecín (2010)	Empirical	Spain	Public transport	305	
Dhinakaran and Rajarajan (2014)	Empirical	India	Intercity bus	436	Analytical
Eboli and Mazzulla (2007)	Empirical	Italy	Bus	763	Analytical
Eboli and Mazzulla (2012)	Empirical	Spain	Railway	16718	Analytical
Eboli and Mazzulla (2011)	Empirical	Italy	Public transport	123	Analytical
Eboli and Mazzulla (2012)	Empirical	Italy	Public transport	470	Analytical
Eraslan et al. (2006)	Empirical	Turkey	Intercity bus	–	–
Erdogan et al. (2013)	Empirical	Turkey	Public transport	2006	Conceptual/analytical
Ettema et al. (2012)	Empirical	Sweden	Public transport	520	Analytical
Fellesson and Friman (2008)	Empirical	Europe	Public transport	9542	Analytical
Freitas (2013)	Empirical	Brazil	Intercity bus	209	Analytical
Friman and Fellesson (2009)	Empirical	Europe	Public transport	6021	–
Geetika (2010)	Empirical	India	Railway	700	Analytical
Githui, Okamura, and Nakamura (2010)	Empirical	Kenya	Urban transport	140	Analytical
Govender (2014)	Empirical	South Africa	Buses, mini-bus taxis	690	Conceptual/analytical
Govender and Pan (2011)	Empirical	South Africa	Intercity bus	400	Conceptual
Gronau and Kagermeier (2007)	Normative	Germany	Public transport		Analytical
Hu and Jen (2006)	Empirical	Taiwan	Intercity bus	200	Conceptual/analytical
Hutchinson (2008)	Normative	–	Public transport		Conceptual
Ibrahim-Adedeji (2011)	Empirical	Nigeria	Public bus	124	Analytical
Imam (2014)	Empirical	Jordan	Bus, minibus, jitney	191	Analytical
Irfan, Kee, and Shahbaz (2012)	Empirical	Pakistan	Rail	493	Conceptual/ analytical
Jain et al. (2014)	Empirical	India	Public transport	500	Analytical
Kamaruddin, Osman, and Pei (2012)	Empirical	Indonesia	Monorail, bus, train	467	Analytical
Khurshid et al. (2012)	Empirical	Pakistan	Public transport	120	Conceptual/analytical
Kinsella and Caulfield (2011)	Empirical	Ireland	Public transport	80	Analytical
Kennedy (2011)	Normative	–	Transport		Conceptual/analytical
Kostakis and Pandelis (2009)	Empirical	Greece	Public transport	660	Analytical
Kwabena, Brew, and Addae-Boateng (2013)	Empirical	Ghana	Intercity bus	200	Analytical
Le-Klähn, Hall Michael, and Gerike (2014)	Empirical	Germany	Public transport	466	Analytical
Lin et al. (2008)	Empirical	Taiwan	Intercity bus	385	Conceptual/analytical
Lupo (2013)	Empirical	Italy	Transit services		Analytical/conceptual
Mahmoud, Hine, and Kashyap (2010)	Empirical	Iran	BRT	200	Conceptual/ Analytical
Maruvada and Bellamkonda (2012)	Empirical	India	Railway	234	Conceptual/analytical
Mercangöz, Paksoy, and Karagülle (2012)	Empirical	Turkey	Fast ferry	637	Analytical
Minhans, Shahid, and Ahmed (2014)	Empirical	Malaysia	Intercity bus	–	–
Morfoulaki, Tyrinopoulos, and Aifadopoulou (2007)	Empirical	Greece	Public transport	400	Analytical
Muthupandian and Vijayakumar (2012)	Empirical	India	Urban bus	500	Conceptual/analytical
Nadiri et al. (2008)	Empirical	Cyprus	Airlines	583	Conceptual/analytical
Noor and Dola (2013)	Empirical	Malaysia	Public transport	20	Conceptual/analytical
Nutsugbodo (2013)	Empirical	Ghana	Public transport	165	Conceptual/analytical
Nwachukwu (2014)	Empirical	Nigeria	Intra-city bus	300	Analytical
Nwachukwu (2008)	Empirical	Nigeria	Intercity bus	50	Analytical
Odufuwa, Oriola, and Otubaga (2012)	Empirical	Nigeria	Public transport	1599	Analytical
Ojo et al. (2014c)	Empirical	Ghana	Intercity bus	160	Conceptual /analytical
Ojo, Amoako-Sakyi, and Agyeman (2014b)	Empirical	Ghana	Shuttle bus	300	Conceptual/analytical

(*Continued*)

Table 1. (*Continued*)

References	Nature of paper	Regional context	Type of public transport	Sample size	Approach
Paulley et al. (2006)	Theoretical	UK	Public transport	–	Conceptual
Perez et al. (2007)	Empirical	Spain	Public transport	1000	Analytical
Prasad and Shekhar (2010)	Empirical	India	Rail	234	Conceptual/analytical
Randheer, Al-Motawa, and Vijay (2011)	Empirical	India	Rail	512	Conceptual/analytical
Roza, Koting, and Karim (2013)	Empirical	Malaysia	Intercity bus/train	120	Analytical
Sam, Adu-Boahen, and Kissah-Korsah (2014)	Empirical	Ghana	Intercity bus	100	Analytical
Shaaban and Hassan (2014)	Empirical	Qatar	Railway	316	Analytical
Shaaban and Khalil (2013)	Empirical	Qatar	Bus	278	Analytical
Shiaw (2005)	Empirical	Taiwan	Intercity bus		
Smith (2008)	Normative	US	Public transport		Conceptual
Sumaedi (2015)	Empirical	Indonesia	Public transport	880	Conceptual/ analytical
Too and Earl (2010)	Empirical	Australia	Bus, Train	600	Conceptual/analytical
Tyrinopoulos and Antoniou (2008)	Empirical	Greece	Public transport	400	Analytical
van Exel and Rietveld (2010)	Empirical	Netherland	Public transport	17,642	Analytical
Wang, Feng, and Hsieh (2010)	Empirical	Taiwan	Urban transport	613	Analytical/ conceptual
Wen, Lan, and Chen (2005)	Empirical	Taiwan	Intercity bus	600	Analytical
Yaakub and Napiah (2011)	Normative	Malaysia	Public bus	–	Analytical
Yaliniz et al. (2011)	Empirical	Turkey	Public transport		Analytical
Zakaria et al. (2010)	Empirical	Malaysia	Public bus	169	Conceptual/analytical
Zhao et al. (2013)	Empirical	China	Public transport	467	Analytical
Redman et al. (2013)	Normative	–	Public transport	–	Analytical
de Oña and de Oña (2015)	Normative	–	Public Transport	–	Analytical

Source: Author's compilation, 2015.

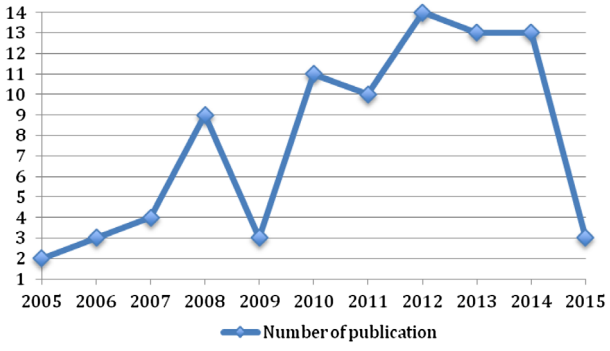

Figure 1. Distribution of papers on quality of public transport by date of publication

Classification by nature of data

The data used in the study comes in two forms – cross sectional and longitudinal. The use of cross-sectional data dominates (Ahern and Tapley 2008; Wen et al. 2005; Govender and Pan 2011; Roza, Koting, and Karim 2013). However, some studies used longitudinal data (see Arintono 2010). This gives the preponderant nature of cross-sectional data in quality of public transport research. A longitudinal study is to buttress the earlier results of a cross-sectional survey, which could come in a form of trend, cohort, or panel studies (Babbie 2005).

A longitudinal study can be a means to improve/confirm/ reject earlier submission. It is therefore noted that time-series or cross-sectional study can be adopted in assessing the quality of public transport whereas longitudinal survey can be used to measure the efficiency or performance (see Jaboui et al. 2011).

Classifications by type of public transport

Public transport encompasses the use of commercial vehicles to convey passengers in a public domain. This includes buses (Zakaria et al. 2010), taxis (Ayanda and Govender 2014), vans (Arintono 2010), trains or tram (Randheer, Al-Motawa, and Vijay 2011), boats or ferry (Mercangoz et al. 2012), jitney (Imam 2014), and airlines (Chikwendu and Ezenwa 2012). The bus is the most popular means of public transport in the paper. It comes in varying forms-mini buses, midi and large buses (Ayichew 2013), urban bus (Agyeman 2013), intercity bus (Govender and Pan 2011), Shuttle bus (Ojo, Nutsugbodo, and Appiah-Mintah 2014), and BRT (Mahmoud, Hine, and Kashyap 2010).

Public bus plays an important role in the provision of transport for commuting and long distance movement (Yaakub and Napiah 2011. It is a popular option because of its operating availability, accessibility, flexibility, and cost. Its services vary in usage, design, and operations. The use of a taxi is purely for making intra-urban or local/ short distance trips. Anecdotal evidence exists in Ghana, Nigeria, and Palestine where taxis operate on the intercity route. Abane (2011), Yaliniz et al. (2011), Nutsugbodo (2013) and Zhao et al. (2013) did not specify the type of public transport being assessed.

Classification by attributes/dimensions adopted

The universality of SERVQUAL scale application cannot be overemphasized. But Lai and Chen (2011), Hu and Jen (2006), Prasad and Shekhar (2010) and Sumaedi (2015) modified the SERVQUAL scale by adding comfort and

convenience dimensions. These dimensions were found significant to influence the quality of service. However, tangibility dimension was found to influence the quality of public transport service the more in Perez et al. (2007), Hu and Jen (2006) and Zakaria et al. (2010).

Other researchers also showed the importance of personnel in the context of public land transport services. For example, Wen, Lan, and Chen (2005) and Nutsugbodo (2013) found that crew's attitude is one of public transport/intercity bus service quality dimensions. Caro and García (2008) showed that one of the service quality dimensions is personal interaction. In the context of public transport services, the core benefit that must be fulfilled is that the passengers can arrive at their destination safely (Ojo 2015).

Reliability dimension is a dimension that represents how reliable public transport services in delivering passengers to their destination. Therefore, some important aspects to be considered on the reliability dimension, such as the amount of public transport vehicle, the waiting time, the travel time, and the consistency of public transport services in delivering passengers to the destination. Other researchers also find the importance of reliability in the context of public transport services. Prasad and Shekhar (2010) included reliability as service quality dimension of railways services. Perez et al. (2007) showed that reliability is one of bus service quality dimensions. Other researchers, Randheer, Al-Motawa, and Vijay (2011), found that commuter service quality dimension includes reliability. The foregoing asserts Asubonteng, McCleary, and Swan (1996) comment that SERVQUAL will still remain a formidable tool to measure service quality.

However, Eboli and Mazzulla (2007, 2008, 2011), Geetika (2010), and Aidoo et al. (2013) measured quality with a number of attributes such as travel time, waiting time for bus before departure; announcement and information on services; schedule adherence; cleanliness of the bus station; cleanliness of bus interior/exterior; availability of shelters; comfortability of bus seats; convenience; bus driver's/conductor's behavior; crime rate at the bus station; frequency of bus breakdown, and bus traffic safety record. Out of which, reliability and frequency of service play a major role in measuring quality of public transport from normative studies like Hutchinson (2008), Yaakub and Napiah (2011) and Redman et al. (2013).

Classification by empirical findings

Attributes such as affordability, availability, punctuality, safety, accessibility, reliability, fares, communication and experience, information, ticket price, service frequency, space on the vehicle influence modal choice of any of these public transport (Abane 2011; Borhan et al. 2014). Of which affordability was significant. These factors are invariably tied to the quality of public transport. Passengers have different perceptions of these indicators (Eboli and Mazzulla 2012) of which reliability of service or the ability to deliver service is one of the key elements (see Barabino, Deiana, and Tilocca 2011, 2012; Lupo 2013; Yaakub and Napiah 2011).

However, Yaakub and Napiah (2011) saw punctuality as a performance parameter in determining the service reliability. Reliability, punctuality, travel time, cleanliness, ticket price/affordability, space on the vehicle/comfort, waiting time, comfort, employee behavior, information system efficiency, basic facilities/convenience, proximity of bus stops have effect on perceived service quality and are invariably tied to customer satisfaction (Eboli and Mazzulla 2007, 2012; Fellesson and Friman 2008; Geetika 2010; Gronau and Kagermeier 2007; Kamaruddin, Osman, and Pei 2012; Kinsella and Caulfield 2011; Le-Klähn, Hall Michael, and Gerike 2014; Morfoulaki, Tyrinopoulos, and Aifadopoulou 2007; Shaaban and Khalil 2013).

In Table 2, quality is determined by the approaches adopted. Empirical studies involving conceptual approach such as SERVQUAL could easily yield a gap score. This gap score is perception minus expectation. Based on this, Currie (2010), Hu and Jen (2006), Barabino, Deiana, and Tilocca (2012), Irfan, Kee, and Shahbaz (2012), Freitas (2013), Govender and Pan (2011), Mercangöz, Paksoy, and Karagülle (2012), Muthupandian and Vijayakumar (2012), Nutsugbodo (2013) and Nwachukwu (2014) revealed poor perceived quality. Arintono (2010), Ibrahim-Adedeji (2011) and Irfan, Kee, and Shahbaz (2012) revealed poor quality of public transport service without using the modified SERVQUAL scale.

Gronau and Kagermeier (2007), Eboli and Mazzulla (2012) and Kian et al. (2012) further noted that passengers were not satisfied because of the poor quality of service. This is because service quality was used as an antecedent to customer satisfaction. But Geetika (2010) and Githui, Okamura, and Nakamura (2010) see customer satisfaction influencing the quality of service. Above all, there is a linear relationship between service quality and customer satisfaction. A satisfied customer must have good perceived quality and vice versa. Studies by Jain et al. (2014) and Kwabena, Brew, and Addae-Boateng (2013) showed that passengers were satisfied with the quality of service rendered.

Erdogan et al. (2013) revealed the better-perceived quality of service because of the newness of the public transport company. The quality of service was also good in Aidoo et al. (2013) and Ayanda and Govender (2014). But in Wang, Feng, and Hsieh (2010) and Noor and Dola (2013), there were gaps between stakeholders' and users' perceived quality.

Table 2. Summary of previous researches and empirical findings.

Empirical findings	References
1. Affordability, availability cost and times, safety, accessibility, reliability, fares, communication and experience, information, ticket price, service frequency, space on the vehicle, cleanliness of the vehicle and ease of use, employee service, available of facilities, reservation and ticketing, safety and security and record of accidents are influence modal choice	Abane (2011), Kamaruddin, Osman, and Pei (2012), Borhan et al. (2014), Kinsella and Caulfield (2011), Le-Klähn, Hall Michael, and Gerike (2014), Maruvada and Bellamkonda (2012), Morfoulaki, Tyrinopoulos, and Aifadopoulou (2007), Roza, Koting, and Karim (2013), Sam, Adu-Boahen, and Kissah-Korsah (2014), Shaaban and Hassan (2014), and Tyrinopoulos and Antoniou (2008)
2. Satisfaction influence service quality of public transport generally	Agyeman (2013), Ali, Dey, and Filieri (2015), Alpopi and Manole (2012), Geetika (2010), and Githui, Okamura, and Nakamura (2010)
3. Quality of service was good	Ayanda and Govender (2014), Erdogan et al. (2013), Govender (2014), Lin et al. (2008), and Ojo et al. (2014c)
4. Limited or poor service	Arintono (2010), Barabino, Deiana, and Tilocca (2012), Cantwell, Caulfield, and O'Mahony (2009), Currie (2010), dell'Olio, Ibeas, and Cecín (2010), Govender and Pan (2011), Ibrahim-Adedeji (2011), Irfan, Kee, and Shahbaz (2012), Muthupandian and Vijayakumar (2012), Nutsugbodo (2013), Ojo, Amoako-Sakyi, and Agyeman (2014b), and Too and Earl (2010)
5. Each attribute influenced perceived quality	Barabino, Deiana, and Tilocca (2011), Castillo and Benitez (2012), Dhinakaran and Rajarajan (2014), and Eboli and Mazzulla (2012)
6. Service quality influences satisfaction	Eboli and Mazzulla (2007, 2011, 2012), Gronau and Kagermeier (2007), Kian et al. (2012), Kordnaiej and Mughari (2010), Mahmoud, Hine, and Kashyap (2010), and Zhao et al. (2013)
7. Passengers not satisfied with the service	Freitas (2013), Friman and Fellesson (2009), Nutsugbodo (2013), Kostakis and Pandelis (2009), Nwachukwu (2014), and Shaaban and Khalil (2013)
8. Satisfied passengers	Jain et al. (2014), Kwabena, Brew, and Addae-Boateng (2013), Lupo (2013), and Yaakub and Napiah (2011)
9. Gap between perceived quality by providers or stakeholders and users	Wang, Feng, and Hsieh (2010), Noor and Dola (2013), and Redman et al. (2013)

Source: Author's construct, 2015.

Noor and Dola (2013) assessed the quality of public transport from service providers and users perspectives with the results indicating no gap. But, Aidoo et al. (2013) submitted that majority of the passenger's rated service to be good or excellent. Nwachukwu (2008) found out that there was no significant difference in the performance of both private and public operators of public transport.

Conclusion and recommendation

The paper is a literature review of 85 articles in refereed journals on quality of public transport service. The paper adopts a classification scheme method where surveyed articles on the subject area are collected, classified, and results are discussed. A classification scheme method enabled a comprehensive review. The study was expository and is meant to make recommendations for future research.

Assessing quality of public transport poses formidable challenges (de Oña and de Oña 2015) as a result of a complex, fuzzy, and abstract concept like service quality; use of conceptual and analytical methods; the relationship between service quality and customer satisfaction; method of data collection; how to identify relevant attributes or dimensions for the different types of public transport and regional context; and subjective and objective assessments from passengers, employees, transport operators, and regulators.

To overcome these challenges, two schools of thoughts emerged in the study of the preponderance nature of passengers' subjective views-conceptual and analytical irrespective of the type of public transport – taxi, public bus, intercity bus, trains, airlines. The use of conceptual or analytical approach depends on how useful and simplest it is to achieve practitioners' and transport managers' main objective to increase perceived quality of public transport for increasing profitability. It is expected that a cross-sectional study will suffice to indicate the quality of public transport in form of gap scores using modified SERVQUAL scale. This gap score indicates how good or poor the quality of service. However, the use of the classification of gap scores in terms of how good or bad the quality of service should be entertained, in order to enrich the use of SERVQUAL scale. Analytical method can be used complement the conceptual models. With time, practitioners and transport operators can use a longitudinal study to measure performance over the period.

Analytical method involving the use of attributes/indicators such affordability, availability cost and times, safety, accessibility, reliability, fares, communication and experience, information, ticket price, service frequency, space on the vehicle, cleanliness of the vehicle and ease of use, employee service, available of facilities, reservation and ticketing, security and record of accidents can suffice the quest to assess quality of any public transport service. Notwithstanding specific attributes of trains, airlines, shared taxis and ferry.

The heterogeneity of public transport services caused the coinage of QUALBUS, RAILQUAL, AIRQUAL and P-TRANSQUAL. This is to take note of dominant attributes

and dimensions with reference to the type of public transport and regional context. It is expedient to coopt culture dimension when measuring the quality of public transport in India. Therefore, the use of modified SERVQUAL or other means of assessment must take into consideration certain prevailing attributes in the subsector or country under examination. It is expected that a number of different attributes may be needed to assess the quality of any form of intra-city or intercity public transport service. The two services are not mutually exclusive. The same applies to attributes used to measure the quality of public transport services in developed and developing countries.

Public transport service generally is judged poorly in developing countries. There is evidence of poor service of public transport service in developed countries such as Italy (Barabino, Deiana, and Tilocca 2012). However, not all dimensions and attributes revealed poor quality of service. Therefore, public transport operators and practitioners should address these dimensions and attributes, as they seem to influence the overall perceived quality. The public transport operators should work hard to maintain and improve on the good perceived quality posed by other dimensions and attributes.

Perceived poor quality of service invariably means customers are not satisfied with the service rendered and consumed irrespective of service quality been a precursor of customer satisfaction or vice versa. Satisfied passengers will invariably have good perceived quality. However, there is a need to differentiate service quality from customer satisfaction. The use of the SERVQUAL model to measure customer satisfaction indicates that service quality is an antecedent to customer satisfaction. The use of different instruments may give a different picture. The two are different concepts with service quality as the emotion and customer satisfaction as the evaluation of the emotion.

Disclosure statement

No potential conflict of interest was reported by the author.

References

Abane, A. M. 2011. "Travel Behaviour in Ghana: Empirical Observations from Four Metropolitan Areas." *Journal of Transport Geography* 19 (2): 313–322.

Agarwal, R. 2008. "Public Transportation and Customer Satisfaction: The Case of Indian Railways." *Global Business Review* 9: 257–272.

Agyeman, W. 2013. "Measurement of Service Quality of 'Trotro' as Public Transportation in Ghana: A Case Study of the City of Kumasi." SATC 2013, Pretoria, South Africa.

Ahern, A. A., and N. Tapley. 2008. "The Use of Stated Preference Techniques to Model Modal Choices on Interurban Trips in Ireland." *Transportation Research Part a: Policy and Practice* 42 (1): 15–27.

Aidoo, E. N., W. Agyemang, J. E. Monkah, and F. K. Afukaar. 2013. "Passenger's Satisfaction with Public Bus Transport Services in Ghana: A Case Study of Kumasi Accra Route." *Theoretical and Empirical Researches in Urban Management* 8 (2): 33–38.

Ali, A. N. 2010. "An Assessment of the Quality of Intra-Urban Bus Services in the City of Enugu, Enugu State, Nigeria." *Journal of Theoretical and Empirical Research in Urban Management* 6 (15): 74–91.

Ali, F., B. Dey, and R. Filieri. 2015. "An Assessment of Service Quality and Resulting Customer Satisfaction in Pakistan International Airlines." *International Journal of Quality & Reliability Management* 32 (5): 486–502.

Alpopi, C., and C. Manole. 2012. "Qualitative Analysis of Urban Public Transportation in Bucharest." *Journal of Management Research and Practice* 4 (2): 68–86.

Angelova, B., and J. Zekiri. 2011. "Measuring customer satisfaction with service quality using American customer satisfaction model (ACSI Model)." *International Journal of Academic Research in Business and Social Sciences* 1 (3): 232–258.

Aratani, T. and T. Todoroki 2010. "International comparison of domestic intercity mobility by public transportation". 12th WCRT, July 11–15, Lisbon, Portugal.

Arintono, S. 2010. "The Operating Characteristics of Intercity Public Van Service in Lampung, Indonesia." *Journal of Public Transportation* 13 (1): 25–37.

Asubonteng, P., K. J. McCleary, and J. E. Swan. 1996. "SERVQUAL Revisited: A Critical Review of Service Quality." *Journal of Services Marketing* 10 (6): 62–81.

Awusabo-Asare, K. 2013. Lecture Notes on Qualitative Research at the Faculty of Social Sciences Workshop for PhD Students, University of Cape Coast, January 23–25.

Ayanda, V., and K. K. Govender. 2014. "Commuter's Perception of Public Transport Service in South Africa." *Journal of Social Sciences* 3 (1): 258–270.

Ayichew, F. K. 2013. "Extra Load Carriage, Rate of Passengers' Turnover on Intercity Mini and mid Bus Transport and Its Effect in Africa: Emphasis on the Service Radiates from Hawassa to Other Towns in Ethiopia." *International Journal of Humanities and Social Studies* 1 (6): 23–28.

Babbie, E. 2005. *The Practice of Social Research*. Belmont, CA: Wadsworth.

Bhat, C. R., and J. Y. Guo. 2008. "An Innovative Methodological Framework to Analyze the Impact of Built Environment Characteristics on Activity-Travel Choices." *Innovations in Travel Demand Modeling: Papers* 2: 137–148.

Barabino, B., B. Deiana, and P. Tilocca. 2011. "Urban Transport Management and Customer Perceived Quality: A Case Study in the Metropolitan Area of Cagliari, Italy." *Theoretical and Empirical Researches in Urban Management* 6 (I): 19–32.

Barabino, B., E. Deiana, and P. Tilocca. 2012. "Measuring Service Quality in Urban Bus Transport: A Modified SERVQUAL Approach." *International Journal of Quality and Service Sciences* 4 (3): 238–252.

Bauer, M. 2013. "Application of GPS Technology to Evaluate the Quality of Public Transport." *Acta Technica Jaurinensis* 6 (3): 11–23.

Bontekoning, Y. M., C. Macharis, and J. J. Trip. 2001. "Is a New Applied Transportation Research Field Emerging? – A Review of Intermodal Rail–Truck Freight Transport Literature." *Transportation Research Part a: Policy and Practice* 38 (1): 1–34.

Borhan, M. N., D. Syamsunur, N. Mohd Akhir, M. R. Mat Yazid, A. Ismail, and R. A. Rahmat. 2014. "Predicting the Use of Public Transportation: A Case Study from Putrajaya, Malaysia." *The Scientific World Journal*: 1–9.

Brady Jr, M. K., J. Cronin Jr, and R. R. Brand. 2002. "Performance-only measurement of service quality: A replication and extension." *Journal of Business Research* 55: 27–31.

Cantwell, M., B. Caulfield, and M. O'Mahony. 2009. "Examining the Factors That Impact Public Transport Commuting Satisfaction." *Journal of Public Transportation* 12 (2): 1–21.

Caro, L. M., and J. A. M. García. 2008. "Developing a Multidimensional and Hierarchical Service Quality Model for the Travel Agency Industry." *Tourism Management* 29 (4): 706–720.

Del Castillo, J. M., and F. G. Benitez. 2012. "A methodology for modeling and identifying users satisfaction issues in public transport systems based on users surveys." *Procedia-Social and Behavioral Sciences* 54: 1104–1114.

Chikwendu, D. U., and A. Ezenwa. 2012. "Evaluation of Service Quality of Nigerian Airline Using SERVQUAL Model." *Journal of Hospitality and Tourism* 3 (6): 117–125.

Cooper, H. M. 1989. *Integrating Research: A Guide for Literature Reviews*. Sage, New York.

Cronin, J., and S. A. Taylor. 1992. "Measuring Service Quality: A Reexamination and Extension." *Journal of Marketing* 56 (3): 55–68.

Cullinane, K., D. W. Song, P. Ji, and T. F. Wang. 2004. "An Application of DEA Windows Analysis to Container Port Production Efficiency." *Review of Network Economics* 3 (2): 184–206.

Currie, G. 2010. "Quantifying Spatial Gaps in Public Transport Supply Based on Social Needs." *Journal of Transport Geography* 18 (1): 31–41.

De Borger, B., K. Kerstens, and A. Costa. 2002. "Public transit performance: what does one learn from frontier studies?" *Transport reviews* 22 (1): 1–38.

Dhinakaran, D. P., and M. Rajarajan. 2014. "Passengers' Perception Towards Service Quality in Tamilnadu State Transport Corporation (Kumbakonam) Limited, Kumbakonam." *Asia Pacific Journal of Research* 1 (Xiii): 170–181.

Eboli, L., and G. Mazzulla. 2007. "Service Quality Attributes Affecting Customer Satisfaction for Bus Transit." *Journal of Public Transportation* 10 (3): 21–34.

Eboli, L., and G. Mazzulla. 2008. "A Stated Preference Experiment for Measuring Service Quality in Public Transport." *Transportation Planning and Technology* 31 (5): 509–523.

Eboli, L., and G. Mazzulla. 2011. "Discrete Choice Models as a Tool for Transit Service Quality Evaluation." *Electronic Journal of Applied Statistical Analysis Decision Support Systems and Services Evaluation* 2 (1): 65–73.

Eboli, L., and G. Mazzulla. 2012. "Performance Indicators for an Objective Measure of Public Transport Service Quality." *European Transport* 51 (3): 1–21.

Ekinci, Y. 2002. "A Review of Theoretical Debates on the Measurement of Service Quality: Implications for Hospitality Research." *Journal of Hospitality and Tourism Research* 26: 199–216.

Enu-Kwesi, F. 2013. Lecture Notes on Report Writing at the Faculty of Social Sciences Workshop for PhD Students, University of Cape Coast, January 23–25.

Eraslan, E., D. Akay, and M. Kurt. 2006. "Usability ranking of intercity bus passenger seats using fuzzy axiomatic design theory." *Lecture Notes in Computer Science* 4101: 141–148.

Erdogan, M., O. N. Bilisik, I. Kaya, and H. Barach. 2013. "A Customer Satisfaction Model Based on Fuzzy TOPSIS and SERVQUAL Methods." *Lecture Notes in Management Science* 5: 74–83.

Ettema, D., M. Friman, T. Gärling, L. E. Olsson, and S. Fujii. 2012. "How in-Vehicle Activities Affect Work Commuters' Satisfaction with Public Transport." *Journal of Transport Geography* 24: 215–222.

van Exel, J., and P. Rietveld. 2010. "Perceptions of Public Transport Travel Time and Their Effect on Choice-Sets among Car Drivers." *Journal of Transport and Land Use* 2 (3–4): 75–86.

Fellesson, M., and M. Friman. 2008. "Perceived Satisfaction with Public Transport Service in Nine European Cities." *Journal of the Transportation Research Forum* 47 (3): 93–103.

Fellesson, M., and M. Friman. 2009. "Service Supply and Customer Satisfaction in Public Transportation: The Quality Paradox." *Journal of Public Transportation* 12 (4): 57–69.

Fitzsimmons, J. A., and M. J. Fitzsimmon. 2001. *Service Management Operations, Strategy and Information Technology*. 3rd ed. New York: McGraw-Hill Companies.

Freitas, A. L. P. 2013. "Assessing the Quality of Intercity Road Transportation of Passengers: An Exploratory Study in Brazil." *Transportation Research Part a: Policy and Practice* 49: 379–392.

Geetika, N. S. 2010. "Determinants of Customer Satisfaction on Service Quality: A Study of Railway Platforms in India." *Journal of Public Transportation* 13 (1): 97–113.

Githui, J. N., T. Okamura, and F. Nakamura. 2010. "The Structure of Users' Satisfaction on Urban Public Transport Service in Developing Countries: The Case of Nairobi." *Journal of the Eastern Asia Society for Transportation Studies* 8: 1288–1300.

Govender, K. K. 2014. "Public Transport Service Quality in South Africa: A Case of Study of Bus and Mini Bus Services in Johannesburg." *African Journal of Management* 8 (10): 317–326.

Govender, J. P., and Q. Pan. 2011. "Enhancement of Service Quality in the Intercity Bus Transport Industry." *Alternate Special Edition* 4: 181–202.

Gronau, W., and A. Kagermeier. 2007. "Key Factors for Successful Leisure and Tourism Public Transport Provision." *Journal of Transport Geography* 15 (2): 127–135.

Grönroos, C. 1982. "An Applied Service Marketing Theory." *European Journal of Marketing* 16 (7): 30–41.

Grönroos, C. 1990. *Service Management and Marketing: Managing the Moments of Truth in Service Competition*. Jossey-Bass, Lexington, KY.

Grzinic, J. 2007. "Concepts of Service Quality Measurement in Hotel Industry." *Ekon Misao Praksa DBK God* XVI (1): 81–98.

Hu, K. C., and W. Jen. 2006. "Passengers' Perceived Service Quality of City Buses in Taipei: Scale Development and Measurement." *Transport Reviews* 26 (5): 645–662.

Hutchinson, T. P. 2008. "The Customer Experience When Using Public Transport: A Review." *Proceedings of the ICE-Municipal Engineer* 162 (3): 149–157.

Ibrahim-Adedeji, K. 2011. "Determining the Socio Economic Characteristics and User's Perception of Intra-Urban Transport System in Ayangbaju Park, Ikorodu, Lagos State." *International Journal of Economic Development Research and Investment* 2 (2): 38–48.

Imam, R. 2014. "Measuring Public Transport Satisfaction from User Surveys." *International Journal of Business and Management* 9 (6): 106–112.

Irfan, D. S. M., S. M. Kee, and S. Shahbaz. 2012. "Service Quality and Rail Transport in Pakistan: A Passenger's Perspective." *World Applied Sciences Journal* 18 (3): 361–369.

Jain, S., P. Aggarwal, P. Kumar, S. Singhal, and P. Sharma. 2014. "Identifying Public Preferences Using Multi-Criteria Decision Making for Assessing the Shift of Urban Commuters from Private to Public Transport: A Case Study of Delhi." *Transportation Research Part F: Traffic Psychology and Behaviour* 24: 60–70.

Jarboui, S., P. Forget, and Y. Boujelbene. 2012. "Public Road Transport Efficiency: A Literature Review via the Classification Scheme." *Public Transport* 4 (2): 101–128.

Kamaruddin, R., I. Osman, and C. A. C. Pei. 2012. "Public Transport Services in Klang Valley: Customer Expectations and Its Relationship Using SEM." *Procedia-Social and Behavioral Sciences* 36: 431–438.

Kandampully, J. 2002. "Innovation as the core competency of a service organization." *European Journal of Innovation Management* 5 (1): 18–26.

Kang, G. D., and J. James. 2004. "Service Quality Dimensions: An Examination of Grönroos's Service Quality Model." *Managing Service Quality: An International Journal* 14 (4): 266–277.

Kennedy, J. 2011. "Current Trends in Service Quality: A Transportation Sector Review." *Journal of Marketing Development and Competitiveness* 5 (6): 104–116.

Kian, T. P., K. B. Latiff, and S. W. L. Fong. 2012. "The impact of 'SERVQUAL' towards customer satisfaction in public transportation", 2nd International Conference on management proceeding 11th - 12th June 2012, Holiday Villa Beach Resort & Spa, Langkawi Kedah, Malaysia.

Khurshid, R., H. Naeem, S. Ejaz, F. Mukhtar, and T. Batool. 2012. "Service Quality and Customer Satisfaction in Public Transport Sector of Pakistan: An Empirical Study." *International Journal of Economics and Management Sciences* 1 (9): 24–30.

Kinsella, J., and B. Caulfield. 2011. "An Examination of the Quality and Ease of Use of Public Transport in Dublin from a Newcomer's Perspective." *Journal of Public Transportation* 14 (1): 69–82.

Kordnaiej, A., and M. M. Ali. 2010. "Evaluation and measurement of Bus Rapid Transit (brt) on customer satisfaction in Tehran with SERVQUAL model." The Asia Pacific Industrial Engineering and Management System Conference, UM, Malaysia.

Kostakis, A. P., and I. Pandelis. 2009. "Measuring Customer Satisfaction in Public Transportation: An Empirical Study Based in Urban Buses in the City of Larissa (Greece) – The MUSA Methodology." *MIBES– Oral*, pp. 260–275.

Kwabena, S. A., Y. Brew, and S. Addae-Boateng. 2013. "Level of Passengers' Satisfaction of Metro Mass Transit Ltd.'s Service Delivery in Koforidua, Eastern Region, Ghana." *Research on Humanities and Social Sciences* 3 (13): 52–65.

Lai, W. T., and C. F. Chen. 2011. "Behavioral intentions of public transit passengers—The roles of service quality, perceived value, satisfaction and involvement." *Transport Policy* 18 (2): 318–325.

Le-Klähn, D. T., C. Hall Michael, and R. Gerike. 2014. "Analysis of Visitor Satisfaction with Public Transport in Munich." *Journal of Public Transportation* 17 (3): 68–85.

Li, T., and S. T. Cavusgil. 1995. "A Classification and Assessment of Research Streams in International Marketing." *International Business Review* 4 (3): 251–277.

Lin, J. H., T. R. Lee, and W. Jen. 2008. "Assessing asymmetric response effect of behavioral intention to service quality in an integrated psychological decision-making process model of intercity bus passengers: a case of Taiwan." *Transportation* 35 (1): 129–144.

Lupo, T. 2013. "Handling Stakeholder Uncertain Judgments in Strategic Transport Service Analyses." *Transport Policy* 29: 54–63.

Mahmoud, M., J. Hine, and A. Kashyap. 2010. "Bus Transit Service Quality Monitoring in UK: A Methodological Framework." *Proceedings of the ITRN2011*, 31: 31–40.

Marasco, A. 2008. "Third-Party Logistics: A Literature Review." *International Journal of Production Economics* 113 (1): 127–147.

Marcucci, E., E. Valeri, A. Stathopoulos, and V. Gatta. 2007. "Local Public Transport, Service Quality and Tendering Contracts." In *Urban Sustainable Mobilità*, E. Venezia (a curadi), pp. 1–14. Milano: Franco Angeli.

Maruvada, D. P., and R. S. Bellamkonda. 2012. "The Effects of Individual Dimensions of Railway Service Quality: Findings from Indian Railway Passenger Services through Developing RAILQUAL." *International Journal of Innovation, Management and Technology* 3 (1): 42–45.

Mercangöz, B. A., M. Paksoy, and A. Ö. Karagülle. 2012. "Analyzing the Service Quality of a Fast Ferry Company by Using SERVQUAL Scores: A Case Study in Turkey." *International Journal of Business and Social Science* 3 (24): 84–89.

Millana, A., and E. Aqueda. 2004. "Development of a multiple item scale for measuring customer satisfaction in travel agencies services." *Tourism Management* 25: 533–546.

Minhans, A., S. Shahid, and I. Ahmed. 2014. "An Investigation into Qualitative Differences between Bus Users and Operators for Intercity Travel in Malaysia." *Sciences & Engineering* 70 (4): 71–81.

Morfoulaki, M., Y. Tyrinopoulos, and G. Aifadopoulou. 2007. "Estimation of Satisfied Customers in Public Transport Systems: A New Methodological Approach." *Journal of the Transportation Research Forum* 46 (1): 63–72.

Muthupandian, K. S., and C. Vijayakumar. 2012. "Measurement of Passengers' Service Quality in Public Transportation: SERVQUAL Analysis." Accessed March 24, 2014. hhtp://mpra.ub.uni_muenchen.de/38585/MPRA

Nadiri, H., K. Hussain, E. Haktan Ekiz, and Şamil Erdoğan. 2008. "An Investigation on the Factors Influencing Passengers' Loyalty in the North Cyprus National Airline." *The TQM Journal* 20 (3): 265–280.

Noor, K. B. M., and K. Dola. 2013. "Towards Low Carbon Society: Exploring User's Perceptions on the Service Quality Level Performance of Public Transport Staff in the Klang Valley." *International Journal of Management and Sustainability* 2 (8): 138–149.

Nord, K., J. Nilsson, B. Nilsson, M. Uhlén, and P. A. Nygren. 1995. "A Combinatorial Library of an Alpha Helical Bacterial Receptor Domain." *Protein Engineering, Design and Selection* 8: 601–608.

Nutsugbodo, N. Y. 2013. "Tourists' Perceptions of the Quality of Public Transportation Services in the Accra Metropolis: A SERVQUAL Approach." *African Journal of Hospitality, Tourism and Leisure* 2 (4): 1–7.

Nwachukwu, M. U. 2008. "Comparative Analysis of Public and Private Sectors Inter Urban Mass Transit Services in Enugu." *Nigerian Journal of Development Studies* 6 (2): 24–32.
Nwachukwu, A. A. 2014. "Assessment of Passenger Satisfaction with Intra-City Public Bus Transport Services in Abuja, Nigeria." *Journal of Public Transportation* 17 (1): 99–119.
Odufuwa, B., S. Oriola, and O. Otubaga. 2012. "Women and the Use of Public Transport in Nigerian Traditional City-Ibadan." *Global Journal of Human, Social Science, Arts and Humanities* 12 (10): 16–28.
Ojo, T. K. 2015. "Passenger Movements Development and Structure at Murtala Muhammed International Airport, Lagos." *Public Transport* 7 (2): 223–234.
Ojo, T. K., R. Amoako-Sakyi, and W. Agyeman. 2014. "Application of SERVQUAL in Campus Shuttle Service." *GE-International Journal of Engineering Research* 2 (5 July): 66–81.
Ojo, T. K., R. Y. Nutsugbodo, and R. Appiah-Mintah. 2014. "Passenger's Perspective of Quality of Intercity Bus Service on Cape Coast- Accra Route, Ghana." *GE-International Journal of Management Research* 2 (7): 267–287.
dell'Olio, L., A. Ibeas, and P. Cecín. 2010. "Modelling User Perception of Bus Transit Quality." *Transport Policy*: 17 (6): 388–397.
de Oña, J., and R. de Oña. 2015. "Quality of Service in Public Transport Based on Customer Satisfaction Surveys: A Review and Assessment of Methodological Approaches." *Transportation Science* 49 (3): 605–622.
Parasuraman, A., A. Valarie, V. Zeithmal, and L. L. Berry. 1988. "SERVQUAL: A Multiple Item Scale for Measuring Consumer Perceptions of Service Quality." *Journal of Retailing* 64 (1): 12–40.
Parasuraman, A., V. Zeithaml, and L. L. Berry. 1985. "A Conceptual Model of Service Quality and Its Implications for Future Research." *Journal of Marketing* 49 (4): 41–50.
Paulley, N., R. Balcombe, R. Mackett, H. Titheridge, J. M. Preston, M. R. Wardman, J. D. Shires, and P. White. 2006. "The Demand for Public Transport: The Effects of Fares, Quality of Service, Income and Car Ownership." *Transport Policy* 13 (4): 295–306.
Perez, M. S., J. C. G. Abad, G. M. M. Carrillo, and R. S. Fernandez. 2007. "Effects of Service Quality Dimensions on Behavioural Purchase Intentions: A Study in Public Sector Transport." *Managing Service Quality* 17 (2): 134–151.
Prasad, M. D., and B. R. Shekhar. 2010. "Impact of Service Quality Management (SQM) Practices on Indian Railways-a Study of South Central Railways." *International Journal of Business and Management* 5 (9): 139–146.
Rabi, G. M., and M. McCord. 2006. "Passenger wait time perceptions at bus stops: Empirical results and impact on evaluating real-time bus arrival information." *Journal of Public Transportation* 9 (2): 89–106.
Randheer, K., A. A. Al-Motawa, and P. J. Vijay. 2011. "Measuring Commuters' Perception on Service Quality Using SERVQUAL in Public Transportation." *International Journal of Marketing Studies* 3 (1): 21–34.
Redman, L., M. Friman, T. Gärling, and T. Hartig. 2013. "Quality Attributes of Public Transport That Attract Car Users: A Research Review." *Transport Policy* 25: 119–127.
Roza, A., S. Koting, and M. R. Karim. 2013. "Intercity Land Public Transport Challenges in Developing Country: A Case Study in Peninsular Malaysia." *Proceedings of the Eastern Asia Society for Transportation Studies* 9: 12–17.
Salazar, A. Costa, J. E., and Rita, P. 2004. "Relationship between service quality, customer satisfaction and behavioural intentions: a study on the hospitality sector", Proceedings of the 33rd EMAC (European Marketing Academy Conference), May, Murcia, Spain.
Sam, E. F., K. Adu-Boahen, and K. Kissah-Korsah. 2014. "Assessing the Factors That Influence Public Transport Mode Preference and Patronage: Perspectives of Students of University of Cape Coast (UCC), Ghana." *International Journal of Development and Sustainability* 3 (2): 323–335.
Schweiterman, J. P., and Fischer, L. 2010. "The intercity bus: America's fastest growing transportation mode:2010 update on scheduled bus service"e, Chaddick Institute for Metropolitan Development at Depaul University. Accessed on 14 June, 2014 from hhtp:las.depaul.educhaddickdocs20112012_reportsThe_Intercity_Bus_Roll_to_Record_Expans.pdf.
Schweiterman, J. P., L. Fischer, and C. Ghoshal. 2011. *The intercity bus rolls to record expansion: 2011 update on scheduled motor coach service in the United State*. Chaddick Institute for Metropolitan Development: DePaul University.
Shaaban, K., and H. M. Hassan. 2014. "Modeling Significant Factors Affecting Commuters' Perspectives and Propensity to Use the New Proposed Metro Service in Doha." *Canadian Journal of Civil Engineering* 41 (12): 1054–1064.
Shaaban, K., and R. Khalil. 2013. "Investigating the Customer Satisfaction of the Bus Service in Qatar." *Procedia – Social and Behavioral Sciences* 104: 865–874.
Shiaw, M. S. 2005. "Inter-City Pre-Trip Information in Taiwan and Its Impacts on Travelers' Mode Choice Behavior." *Proceedings of the Eastern Asian Society for Transportation Studies* 5: 1179–1187.
Smith, M. J. 2008. "Addressing the Security Needs of Women Passengers on Public Transport." *Security Journal* 21 (1–2): 117–133.
Sumaedi, S. 2015. "P-TRANSQUAL: A Service Quality Model of Public Land Transport Services." *International Journal of Quality & Reliability Management* 32 (6): 534–558.
Too, L., and G. Earl. 2010. "Public Transport Service Quality and Sustainable Development: A Community Stakeholder Perspective." *Sustainable Development* 18 (1): 51–61.
Tyrinopoulos, Yannis, and Constantinos Antoniou. 2008. "Public Transit User Satisfaction: Variability and Policy Implications." *Transport Policy* 15 (4): 260–272.
Wang, S., C. Feng, and C. Hsieh. 2010. "Stakeholder Perspective on Urban Transport System Service Quality." *Total Quality Management & Business Excellence* 21 (11): 1103–1119.
Wen, C., L. W. Lan, and C. Chen. 2005. "Passenger's Perception on Service Quality and Their Choice for Intercity Bus Services." Transport Research Board 84th Annual meeting, Washington, DC, January 9–13.
Yaakub, N., and M. Napiah. 2011. "Quality of Service and Passenger's Perception – A Review on Bus Service in Kota Bharu." *International Journal of Civil & Environmental Engineering* 11 (05): 1–9.
Yaliniz, P., S. Bilgic, Y. Vitosoglu, and C. Turan. 2011. "Evaluation of Urban Public Transportation Efficiency in Kutahya, Turkey." *Procedia-Social and Behavioral Sciences* 20: 885–895.
Zak, J. 2011. "The methodology of multiple criteria decision making/aiding in public transportation." *Journal of Advanced Transportation* 45: 1–20.

Zakaria, Z., Z. H. Hussin, M. F. A. Batau, and Z. Zakaria. 2010. "Service Quality of Malaysian Public Transports: A Case Study in Malaysia." *Cross Cultural Communication* 6 (2): 84–92.

Zeithaml, V. A., M. J. Bitner, and D. D. Gremler. 2000. *Services Marketing: Integrating Customer Focus across the Firm*, McGraw Hill, New York.

Zhao, L. N., W. Wang, X. J. Hu, and Y. J. Ji. 2013. "The Importance of Resident's Attitude Towards Service Quality in Travel Choice of Public Transit." *Procedia-Social and Behavioral Sciences* 96: 218–230.