

Measuring commuters perceptions of service quality of minibus taxi services in the city of Johannesburg

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COMMUTERS' PERCEPTIONS OF MINIBUS TAXI SERVICE QUALITY IN THE CITY OF JOHANNESBURG

ABSTRACT

Minibus taxis are important in South Africa, accounting for approximately 70% of all trips made on public transport. Despite this, the taxi industry is generally perceived as providers of frequent and flexible but low quality services. If government is to achieve its aim of modal shifts from private to public transport, it is necessary to provide car-competitive public transport services. The purpose of this study is to determine commuters' perceptions of current service levels in the minibus taxi industry. An adapted SERVQUAL methodology was used to determine gaps between perceptions and expectations. The study found that the main reasons for dissatisfaction with current service levels were related to safety and comfort and, in general, users find that the quality of service in the industry is lower than expected. This research provides a clear indication of the most important areas on which future service level improvements should be focussed.

Keywords: SERVQUAL, public transport, minibus taxi, South Africa

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1. INTRODUCTION

Minibus taxis are a crucial mode of travel to South Africans. It is estimated that minibus taxis make over 6.1 million trips annually in South Africa, mainly comprising of business, work and education- related trips (Department of Transport, 2015). In Gauteng, taxis account for 71% of all work trips made by public transport, making it the single most important mode of transport for commuters in the province (Department of Transport, 2015). It is estimated that the industry contributes approximately R40 billion to the economy annually and employs almost 600 000 people (Saturday Star, 2014). Despite its scope and importance to the national and provincial economies, the industry is beset with problems. It is estimated that it accounts for approximately 8% of all road related deaths in the country and a study by the Automobile Association of South Africa recorded an annual total of 70 000 minibus taxi crashes. This indicates that taxis in SA account for double the number of crashes than all other passenger vehicles (Arrive Alive, n.d.). Taxis are therefore often seen as unsafe. Additionally, it is claimed that they frequently operate in a way that is abusive to passengers; some operate illegally, which contributes to violence in the industry; they often operate at high speeds to cut travel time; to cut operating costs, spare parts are often cheap options, thus impacting vehicle safety; roadworthiness is problematic and driver attitude has been highlighted as a cause for concern in the industry (Arrive Alive, n.d.). Because of the importance of the industry as well as the perceptions regarding safety, the taxi industry is under constant scrutiny from the media, the public and government. Government states that to be sustainable, public transport services need to provide users with capacity and convenience and therefore capacity, coverage, frequency and safety all need to be improved for existing users (National Planning Commission, 2011). Despite policies to regulate the taxi industry (Department of Transport, 2015; Republic of South Africa, 2009; Department of Transport, 1996), the industry is largely informal, making it difficult to enforce safety and other public transport regulations and thereby improve the service offering. It has also been suggested that the industry self-regulate (Mhlanga, 2017) to improve their services. At present however, the perception remains that, although critical to commuter transport in the country, the industry does not currently provide a service which is appealing to customers (Statistics South Africa, 2014) and unless service levels improve considerably, taxi users still aspire to car ownership (Luke, 2016) so as to have

a better daily commuting experience. It is therefore critical that taxi service providers improve their services if they are to remain a viable and sustainable commuting option within the South African and Gauteng transport environment.

2. PROBLEM INVESTIGATED

Minibus taxi services are widely regarded as uncomfortable, unsafe, unreliable and unsustainable. They are nevertheless a critical commuting option to South Africans, and in many cases the only form of public transport available. Their perceived service levels are considered to be sufficiently low that most taxi commuters aspire to car ownership as an alternative. As high levels of car ownership are extremely undesirable in urban areas, it is imperative that taxi services are improved, not only to provide commuters with a public transport service that is safe, reliable, affordable, effective and efficient, as envisaged in the White Paper on National Transport Policy (1996), but also to provide a service that is a car competitive option. To understand the reasons underlying the intentions to exchange public transport commuting with car ownership, it is critical to understand the experience of service levels within the commuting process. This research seeks to identify the service levels experienced by minibus taxi commuters as well as the service levels they expect.

3. RESEARCH OBJECTIVES

It is frequently asserted that service levels in the taxi industry are poor and that commuters therefore have a high desire to replace taxi commuting with car ownership. To mitigate against this, it is important that service levels improve to the extent that taxis are able to offer a service which can compete with car ownership. To improve service levels, it is important to understand current commuter dissatisfaction as well as commuters' expectations of taxi services. This research therefore aims at identifying perceived service levels within the taxi industry as well as expectations of service levels. These results can be used by service providers as well as policy makers to identify areas in which service levels can be improved. This will ensure that users remain within the taxi industry rather than converting to private cars and the industry is also capable of attracting more commuters in the long term.

4. LITERATURE REVIEW

Minibus taxi users typically experience a myriad of problems when commuting, including affordability, safety concerns related to speeding, long waiting times at the taxi ranks, limited availability of taxis on certain routes and traffic congestion (Govender & Allopi, 2006; Venter,

2011; Chinomona, et al., 2013; Vilakazi & Govender, 2014). Govender (2014) asserted that punctuality, timely arrival at destinations, affordability and reliability were the major service quality concerns of minibus passengers in Johannesburg. The National Household Travel Survey (Statistics South Africa, 2014) states that grievances of minibus taxis commuters include taxis being too expensive, reckless driving, availability of minibus taxis during specific times, long queues and waiting times at taxi ranks, security at taxi ranks and on taxis, inadequate facilities at taxi ranks, overloading of minibus taxis and improper behaviour of taxi drivers towards passengers. It is evident from the above that commuters have numerous complaints about the service level within the industry, however it is not clear what they require in order for them to perceive the service quality of taxis as being acceptable.

Customers generally measure service quality in terms the differences in their perception of the level of service that they receive and their expectations of the service. Rust and Oliver (1994) claimed that perceptions of service quality are based on customer's comparisons of the current service with previous experiences of excellence in service encounters. Service quality is therefore considered to be a comparison between perceived quality of the current service and previous encounters where excellent quality was experienced. Bitner and Hubert (1994) considered service quality perceptions as a consumer's judgment of, or impression about, an entity's overall excellence or superiority. In essence, they defined service quality as the consumer's overall impression of the relative inferiority or superiority of the organisation and its services. The concept of relativity is therefore critical to the definition of service quality and the customer's perception of the quality of service is based on previous experience of a similar type of service.

In a review of the literature, a variety of approaches were identified that could be used for the measurement of service quality. Several national and international indexes have been developed that are based on customer perception and expectations (Andreassen & Lervik, 1999; Johnson, *et al.*, 2001). Service Quality Indexes (SQI) could also be used which are based on random utility theory and discrete choice models. SQI's are centred on choice data as opposed to the use of customer judgments ratings (Hensher & Prioni, 2002; Hensher, *et al.*, 2003; Eboli & Mazzulla, 2007). Another approach is Customer Satisfaction Indexes (CSI), which measure service quality based on user judgements conveyed through numeric scales (Hill, *et al.*, 2003; Eboli & Mazzulla, 2009).

The SERVQUAL methodology, which was developed and refined by Parasuraman, et al. (1985, 1988, 1991), has been used extensively by researchers to study and measure service quality. The SERVQUAL methodology is one of the most commonly used approaches, across a broad range industries, to measure and compare customers' perceived service quality expectations with their perceptions of actual service experience. The SERVQUAL model has been applied to banking, retailing, hospitality and tourism, hospitals, restaurants, education, local government and transport, amongst others (Daniel & Berinyuy, 2010; Awasthi, Chauhan, Omrani & Panahi, 2011; Barabino & Deiana, 2013; Morton, *et al.*, 2016). Because of the extent to which the SERVQUAL methodology has been applied and the range of industries in which it has been used, this type of instrument is considered appropriate for measuring the quality of service in the taxi industry, as the survey instruments are robust, reduce bias and are adaptable to local circumstances and particular industries.

The SERVQUAL instrument, as refined by Parasuraman, *et al.* (1985, 1988, 1991) is based on two sets (measuring perceptions and expectations) of 22 items, grouped into the five dimensions of service quality. These are shown in Table 1 below.

Table 1: SERVQUAL Dimensions (RATER)

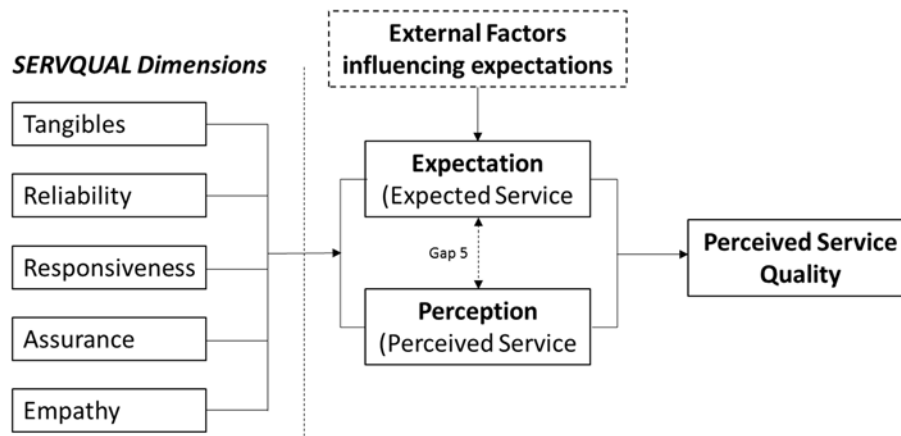
Service quality dimension	Definition
Reliability (R)	Ability to perform the promised service dependably and accurately
Assurance (A)	Knowledge and courtesy on the part of employees and their ability to convey trust and confidence
Tangibility (T)	Physical facilities, equipment, and the appearance of personnel
Empathy (E)	Caring, individualised attention which the organisation provides to its customers
Responsiveness (R)	Willingness to help customers and provide prompt service

Source: Parasuraman, Valarie, Zeithaml, and Berry (1988)

The model to determine service quality is based on identifying and measuring the gaps between the expectations and perceptions in the five dimensions that may cause customers to perceive the quality of service as being poor (Parasuraman *et al.* 1985). In general, most SERVQUAL

research that measures service quality of transport services uses the RATER dimensions of service quality or an adaptation thereof (Barabino, *et al.*, 2012; Muthupandian & Vijayakumar, 2012; Verma, *et al.*, 2013; Ojo *et al.*, 2014). The process of measuring service quality by determining the gaps between perceived service levels and expectations of service quality is shown in Figure 1 below.

Figure 1: Measuring service quality



Source: Kumar, Kee, and Manshor (2009)

Parasuraman *et al.* (1991) believed however that the SERVQUAL instrument formed a guideline and that it should be refined and revised to fit specific contexts. This is supported by Too and Earl (2010) who state that, while SERVQUAL is extensively used to measure service quality across various industries, the specific contexts within which they are applied vary considerably, implying that the model frequently needs to be adjusted so that it is appropriate to particular circumstances. They further assert that the original SERVQUAL model should simply provide a framework that should be adapted to specific services and circumstances.

It is generally considered to be difficult to measure service quality in the public sector, due to the complexity of the service offering. Customers expect reasonable service levels, however their demand for quality in public services is likely to be different from their demand for quality in other products and services. Wisniewski and Donnelly (1999) also state that, to some extent public sector organisations have a more difficult time than their private sector counterparts, given the diversity of customers. They further assert that this simply reinforces the need for public sector organisations to ensure that they are providing quality services that match customer expectations as closely as possible (Wisniewski & Donnelly, 1999). When considering public transport, it is particularly important to determine service expectations and

meet these, as customers are likely to switch to other modes of transport, in particular, their own cars if service expectations are not met. As transport policy in the country is aimed at improving the modal balance to 80:20 (public:private modes), it is crucial that a transport system is created that favours public transport over the private motor vehicle ownership (Department of Transport, 1996). It therefore becomes imperative that consumer needs and expectations are understood, so that it becomes possible to provide public transport services that consumers believe to be viable alternatives to their own cars.

Although the SERVQUAL model is considered to be an appropriate instrument for the measurement of service quality in public transport, as previously stated, the instrument should be adapted to specific circumstances. Randheer, *et al.* (2011) found that the traditional SERVQUAL dimensions were not completely applicable to their context and therefore added culture to their study of customer expectations in public transport. In an exploratory analysis of various forms of road based public transport modes in South Africa, Vilakazi and Govender (2014) found it appropriate to use the RECSA dimensions (reliability, extent of service, comfort, safety and affordability) to determine service quality perceptions of public transport users. Khuong and Dai (2016) also found RECSA to be appropriate for measuring taxi services in Vietnam as did Horsu and Yeboah (2015) in Ghana. McKnight *et al.* (1986) assert that the quality of transport services is influenced by the five main elements of RECSA. The results of the State of Transport Opinion Poll indicates that commuter transport is not yet safe, reliable, effective or affordable (Heyns & Luke, 2016). Based on the findings that affordability is a key component of the service level offered to customers, particularly in developing countries, RECSA is considered fitting for measuring service quality in public transport in South Africa. The SERVQUAL instrument was thus adapted to include dimensions and items that address the specific service quality concerns of the users.

5. RESEARCH METHODOLOGY

The aim of this research is to identify and measure the gap that exist between commuters' expectations of service quality and the actual service quality offered by selected minibus taxi services in the Greater Johannesburg area. A modified SERVQUAL approach, using the RECSA dimensions was used to ascertain service quality and customer satisfaction of minibus taxi services in the study area.

The research instrument was developed by generating 25 items, evenly distributed between the five service quality dimensions, after a thorough consideration of the service quality elements of public transport services. The structured interviewer-administered questionnaires consisted of three sections. The first section requested information on demographic characteristics such as age, gender, employment status and frequency of usage; the second section measured the respondents' expectations regarding service quality of the transport service; and the third section examined the respondents' perception of service quality actually provided by the minibus taxi service. Similarly to the majority of SERVQUAL applications, a five point Likert-type scale, ranging from strongly disagree (1) to strongly agree (5), was used to score the respondents' level of agreement with the different item statements. The survey was conducted amongst the waiting minibus taxi commuters at taxi ranks and stops near the researchers' premises in the Johannesburg area. Convenience sampling, conducted by trained research assistants, was used to obtain 200 responses from the randomly selected minibus taxi commuters. A limitation of the convenience sampling approach used is that generalisability from the results of this research is weakened (Zikmund, *et al.*, 2013).

6. RESULTS/ FINDINGS

The questionnaire data was analysed using SPSS for Windows version 24. To ascertain the internal consistency of the research instrument the reliability of the measurement scale was evaluated. The individual internal consistency for both the perception and the expectation attributes was determined. The calculated overall Cronbach's α values for the perception and expectation sections was 0.91 and 0.93 respectively. According to Field (2013) this indicates that the two questionnaire segments are very reliable. Furthermore, the Cronbach's α values for the five different model dimensions, specified in Table 32, are similarly acceptable (Pallant, 2016). The profile of the respondents is shown in Table 2 below.

The respondents were asked to rate the 25 perceived and expected service quality levels items on a five-point Likert-type scale. To determine the SERVQUAL gap score, the expectations (E) individual attribute item score is subtracting from the related perceptions (P) item score.

There are three possible outcomes that can be obtained:

- If $P-E > 0$, a more than satisfactory level of service quality is perceived
- If $P-E = 0$, a satisfactory level of service quality is perceived

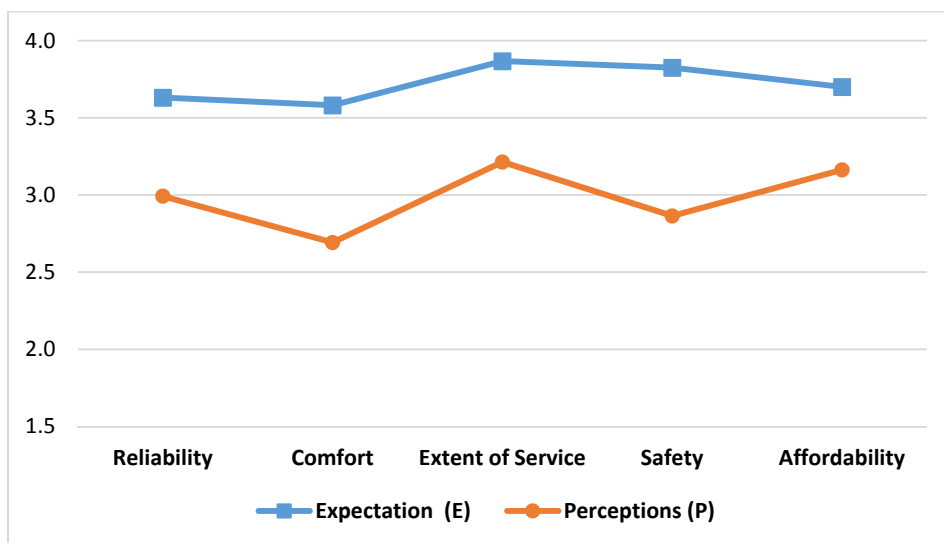
- If $P-E < 0$, a less than satisfactory level of service quality is perceived

Table 2: Profile of respondents

Characteristics		Percentage of respondents
Gender	Male	51%
	Female	49%
Age	Below 20 years	25%
	21 - 30 years	43%
	31 - 40 years	18%
	41 - 50 years	8%
	51-60 years	3%
	Above 60 years	4%
Occupation	Scholar/student	39%
	Full time employed	39%
	Part time employed	11%
	Unemployed	5%
	Retired	6%
Frequency of travel	1-2 times per day	22%
	3-4 times per week	30%
	1-2 times per week	14%
	1-2 times per month	10%
	Seldom	24%

The SERVQUAL gap scores at dimension level is illustrated in Figure 2 and highlights the negative gaps between the perceived perceptions and expectations of the minibus commuters. For the minibus taxi service the largest gap speaks to the ability to provide a safe minibus service, with the safety dimension returning a gap score of -0.96. This is followed closely by the comfort dimension with a gap score of -0.89.

Figure 2: Gap between perceptions and expectations



The overall average score for minibus taxi commuters' perceived level of service quality is 2.99 out of a possible score of 5, as shown in Table 3. Their expectations of minibus service

quality is an average score of 3.72 which indicates an overall minibus service that is perceived to be less than satisfactory.

Table 3: SERVQUAL gap scores at dimensional level

SERVQUAL dimensions	Expectation (E)		Perceptions (P)		Gap (P-E)
	Cronbach's α	Mean	Cronbach's α	Mean	
Reliability	0.87	3.63	0.74	2.99	-0.64
Comfort	0.94	3.58	0.85	2.69	-0.89
Extent of Service	0.90	3.87	0.78	3.21	-0.65
Safety	0.61	3.82	0.85	2.86	-0.96
Affordability	0.93	3.70	0.79	3.16	-0.54
Total SERVQUAL	0.93	3.720	0.91	2.985	-0.735

Table 4 provides the detailed attribute scores within the different dimensions of minibus service quality and highlights those areas of inadequacy and agreement. The paired t-tests was utilised and indicated statistically significant differences between the expectations and perceptions ($p < 0.05$) for all service attributes.

Table 4: Minibus taxi service quality scores

SERVQUAL attributes	Minibus taxis			Paired T-test	
	Expectation (E)	Perceptions (P)	Service	t-value	p-value
	Mean	Mean	Gap (P-E)		
Reliability					
The promised service is always provided	3.63	2.73	-0.90	-8.26	<0.001
Taxis never break down on the road	3.39	2.84	-0.56	-5.14	<0.001
When a taxi breaks down, a replacement taxi is arranged	3.71	3.20	-0.51	-4.30	<0.001
Operating hours and taxi rank facilities are convenient to passengers	3.77	3.15	-0.62	-5.29	<0.001
Taxi drivers and marshals are always willing to help passengers	3.65	3.04	-0.61	-5.33	<0.001
Comfort					
Taxis are clean and well-maintained	3.49	2.59	-0.90	-7.25	<0.001
Taxis have modern interior and seats	3.52	2.58	-0.94	-7.99	<0.001
Taxis have ample legroom and foot space	3.64	2.85	-0.79	-6.55	<0.001
The taxi rank is clean and well-maintained	3.60	2.66	-0.94	-8.05	<0.001
A smooth ride is enjoyed for the journey	3.64	2.78	-0.87	-7.51	<0.001
Extent of Service					
Taxi services on weekdays is adequate	3.85	3.25	-0.60	-5.42	<0.001
Taxi service availability on weekends/public holidays is adequate	3.83	3.13	-0.70	-6.69	<0.001
Taxi service in the evenings is adequate	3.81	2.97	-0.84	-7.82	<0.001
Taxis are available to most areas in the city	4.06	3.39	-0.66	-7.10	<0.001
The taxi rank is conveniently located	3.79	3.33	-0.45	-4.17	<0.001
Safety					
There is a low probability of accidents	3.63	2.88	-0.75	-6.71	<0.001
Drivers are well-trained and safety measures are used	3.67	2.62	-1.06	-8.51	<0.001
There is a low possibility of personal injury due to reckless driving	3.69	2.71	-0.98	-8.51	<0.001
There are adequate safety measures against crime in taxis	4.22	3.02	-1.20	-3.14	0.002
There are adequate safety measures against crime at the taxi rank	3.90	3.10	-0.81	-7.38	<0.001
Affordability					
Fares are affordable	3.87	3.45	-0.41	-3.39	0.001
Fares are a good value for money	3.91	3.18	-0.73	-6.77	<0.001
Fares are cheaper than the other modes of transport	3.84	3.12	-0.72	-6.15	<0.001
Fare increases are reasonable	3.76	2.94	-0.82	-7.13	<0.001
Fares represent the true cost of providing the trip	3.12	3.12	-0.86	-7.84	<0.001

The key service shortcomings for the minibus commuters are the lack of adequate safety measures against crime; inadequate driving measures used; experiencing reckless driving; inadequate vehicle comfort; and poor in-vehicle cleanliness.

Minibus taxi commuters indicated that the best areas of service quality provided are their affordability, convenient access, reliability in terms of breakdowns and replacements and adequate availability on weekdays.

7. MANAGERIAL IMPLICATIONS

The purpose of the study was to investigate the main quality concerns of minibus taxi commuters, focussing specifically on their perceptions of current service levels, their expectations and the gaps between them.

Previous studies, including Govender and Allopi (2006); Venter (2011); Chinomona, *et al.* (2013); STATSSA (2014); Vilakazi and Govender (2014) and identified numerous service quality problems faced by minibus taxi commuters on a daily basis. The study is believed to be the first empirical research to isolate safety and comfort as the most critical concerns amongst minibus taxi commuters. These are important for service providers in that it provides clear indication of the areas that needs attention when considering improvement of the service.

Although government attempted to address the safety and comfort concerns with the taxi recapitalisation process (Arrive Alive, n.d.), the results of the study clearly indicate that these measures were insufficient to address these fundamental concerns. For policy makers, regulators and transport authorities, the individual issues identified within the safety and comfort dimension provide the detailed concerns on which future improvement initiatives can be focussed.

8. CONCLUSIONS

This study has presented the findings of a survey that examined the gap between the expectations and the perceptions of minibus taxi users in the Johannesburg area. The study demonstrates the application of a modified SERVQUAL instrument for the measurement of transport service quality of the minibus taxi industry.

The SERVQUAL methodology, as envisaged by Parasuraman, *et al.* (1985), which commonly uses the RATER (reliability, assurance, tangibility, empathy, responsiveness) dimensions was modified to include the RECSA (Reliability, extent of service, comfort, safety and affordability) dimensions with 25 items evenly distributed across the five dimensions.

The overall perception scores, for all dimensions, were less than the expectation scores, which indicate a less than satisfactory service quality experience. In particular, the areas where minibus taxi services fell short were in the safety and comfort dimensions. In terms of safety, all sub-dimension showed considerable gaps between perceived service levels and expected service levels, indicating that operators have failed to address the safety concerns of the users and that the latter feel vulnerable when using this form of public transport. In particular, users feel that drivers are ill-equipped to deal with unsafe driving and road conditions, drivers are reckless and disregard the well-being of their customers and inadequate safety measures are taken both on the vehicle and at taxi rank. From a comfort perspective, users highlighted cleanliness and maintenance, both at taxi ranks and within the vehicle. From a managerial perspective, these findings provide clear directions for future interventions aimed at improving service levels in the industry.

Although this research has provided a fresh perspective on the use of the service level dimensions, it has some limitations, such as the sample size, the inherent weaknesses associated with the SERVQUAL methodology and the limited geographic area which was investigated. These limitations also provide considerable scope for future research. It is suggested that the current research be expanded to include other major metropolitan areas in South Africa, as well as smaller towns, villages and rural areas to determine whether the results are generalizable to the population or whether other areas have different service level concerns.

REFERENCES

Andreassen, T. W. & Lervik, L., 1999. Perceived relative attractiveness today and tomorrow as predictors of future repurchase intention. *Journal of Service Research*, Volume 2, pp. 164-172.

Arrive Alive, n.d. *Minibus Taxis and Road Safety*. [Online] Available at: <https://www.arrivealive.co.za/Minibus-Taxis-and-Road-Safety> [Accessed 15 June 2017].

Arrive Alive, n.d. *Taxi recapitalization*. [Online] Available at: www.arrivealive.co.za/Taxi-Recapitalization [Accessed 30 May 2017].

Awasthi, A., Chauhan, S. S., Omrani, H. & Panahi, A., 2011. A hybrid approach based on SERVQUAL and fuzzy TOPSIS for evaluating transportation service quality. *Computers & Industrial Engineering*, Volume 61, pp. 637–646.

Barabino, B. & Deiana, E., 2013. On the Attributes and Influencing Factors of End-users Quality Perceptions in Urban Transport: An Exploratory Analysis. *Procedia - Social and Behavioral Sciences*, Volume 87, pp. 18-30.

Barabino, B., Deiana, E. & Tilocca, P., 2012. Measuring service quality in urban bus transport: a modified SERVQUAL approach. *International journal of quality and service sciences*, 4(3), pp. 238-252.

Bitner, M. J. & Hubbert, A. R., 1994. Chapter 3: Encounter Satisfaction versus Overall Satisfaction versus Quality: The Customer's Voice. In: *Service Quality: New Directions in Theory and Practice*. London: Sage, pp. 72-94.

Chinomona, R., Mofokeng, T. & Pooe, D., 2013. The influence of condition of minibus taxis, compliance with road rules on quality of service and commuter satisfaction in Harrismith, South Africa. *Mediterranean Journal of Social Science*, Volume 4, Issue 14, pp. 319-328.

Daniel, C. N. & Berinyuy, L. P., 2010. *Using the SERVQUAL model to assess the service quality and customer satisfaction: An empirical study of grocery stores in Umea*. s.l.:Umea School of Business.

Department of Transport, 1996. *White Paper on National Transport Policy*, Pretoria: Department of Transport.

Department of Transport, 2015. *National Land Transport Strategic Framework: Final Draft - March 2015*. [Online] Available at: <http://www.gov.za/sites/www.gov.za/files/gen823.pdf> [Accessed 29 October 2015].

Department of Transport, 2015. *NATMAP 2050: National Transport Master Plan Synopsis Update*, Pretoria: Department of Transport.

Eboli, L. & Mazzulla, G., 2007. Service Quality attributes affecting customer satisfaction for bus transit. *Journal of Public Transportation*, Volume 10, Issue 3, pp. 21-34.

Eboli, L. & Mazzulla, G., 2009. A new customer satisfaction index for evaluating transit service quality. *Journal of Public Transportation*, Volume 12, Issue 3, pp. 21-37.

Field, A., 2013. *Discovering statistics using IBM SPSS Statistics*. 4th ed. London: Sage.

Govender, R. & Allopi, D., 2006. *Towards a safer minibus taxi industry on South Africa*. Pretoria, Southern African Transport Conference.

Hensher, D. A. & Prioni, P., 2002. A service quality index for an area-wide contract performance regime. *Journal of Transport Economics and Policy*, Volume 36, Issue 1, pp. 93-113.

Hensher, D. A., Stopper, P. & Bullock, P., 2003. Service quality-developing a service quality index in the provision of commercial bus contracts. *Transportation Research Part A*, Volume 37, pp. 499-517.

Heyns, G. J. & Luke, R., 2016. *South African public opinion on the state of urban transport: an appraisal of the achievement of policy objectives*. Crete, Wessex Institute of Technology.

Hill, N., Brierley, G. & MacDougall, R., 2003. *How to measure customer satisfaction*. Hampshire: Gower Publishing.

Horsu, E. N. & Yeboah, S. T., 2015. Influence of service quality on customer satisfaction: A study of minicab taxi services in Cape Coast, Ghana. *International Journal of Economics, Commerce and Management*, Volume 3, Issue 5, pp. 1451-1464.

Johnson, M. D. A., Andreassen, T. W., Lervik, L. & Cha, J., 2001. The evolution and future of national customer satisfaction index models. *Journal of Economic Psychology*, Volume 22, pp. 217-245.

Khuong, M. N. & Dai, N. Q., 2016. The Factors Affecting Customer Satisfaction and Customer Loyalty — A Study of Local Taxi Companies in Ho Chi Minh City, Vietnam. *International Journal of Innovation, Management and Technology*, Volume 7, Issue 5.

Kumar, M., Kee, F. T. & Manshor, A. T., 2009. Determining the relative importance of critical factors in delivering service quality of banks. *Managing service quality: An international journal*, Volume 19, Issue 2, pp. 211-228.

Luke, R., 2016. *A study of car ownership perceptions and aspirations among students attending a major metropolitan university in South Africa*. Cracow, Academy of World Business, Marketing and Management Development, pp. 116-125.

Luke, R. & Heyns, G. J., 2014. *The state of transport opinion poll South Africa: a comparison of the 2012 and 2013 results*. Pretoria, Southern African Transport Conference.

McKnight, C. E., Pagano, A. N. & Paaswell, R. E., 1986. *Using quality to predict demand for special transportation*. Utrecht: VNU Science Press.

Mhlanga, S., 2017. *An Assessment of the Regulatory Arrangements in the Minibus Taxi Industry in South Africa*. Pretoria: South African Transport Conference.

Morton, C., Caulfield, B. & Anable, J., 2016. Customer perceptions of quality of service in public transport: Evidence for bus transit in Scotland. *Case Studies on Transport Policy*, Volume 4, Issue 3, pp. 199-207.

Muthupandian, K. S. & Vijayakumar, C., 2012. *Measurement of passenger service quality in public transportation: SERVQUAL analysis*. s.l.: MPRA.

National Planning Commission, 2011. *National Development Plan 2030: Our future - make it work*. [Online] Available at: <http://www.poa.gov.za/news/Documents/NPC%20National%20Development%20Plan%20Vision%202030%20-lo-res.pdf>[Accessed 14 November 2013].

Ojo, T. K., Mireku, D. O., Duada, S. & Nutsogbodo, R. Y., 2014. Service quality and customer satisfaction of public transport on Cape Coast- Accra route, Ghana. *Developing Country Studies*, Volume 4, Issue 18, pp. 142-149.

- Pallant, J., 2016. *SPSS Survival manual, 6th ed.* New York: McGraw-Hill Education.
- Parasuraman, A., Berry, A. & Zeithaml, L. L., 1991. Refinement and reassessment of the SERVQUAL scale. *Journal of Retailing*, Volume 67, Issue 4, pp. 420-451.
- Parasuraman, A., Valarie, A., Zeithaml, V. & Berry, L. L., 1988. SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64, Issue 1, pp. 12-40.
- Parasuraman, A., Zeithaml, V. & Berry, L. L., 1985. A conceptual model of service quality and its implications for future research. *Journal of Marketing*, Volume 49, pp. 41-50.
- Randheer, K., AL-Motawa, A. A. & Vijay, J. P., 2011. Measuring commuters' perception on service quality using SERVQUAL in public transportation. *International Journal of Marketing Studies*, Volume 3, Issue 1, pp.21-34.
- Republic of South Africa, 2009. *National Land Transport Act, Act No. 5*, Pretoria: Government Printers.
- Rust, R. T. & Oliver, R. L., 1994. *Service quality. new directions in theory and practice.* London: Sage.
- Saturday Star, 2014. *Taxis a mirror to SA's dark side.* [Online] Available at: <http://www.iol.co.za/saturday-star/taxis-a-mirror-to-sas-dark-side-1737856> [Accessed 20 June 2017].
- Statistics South Africa, 2014. *National Household Travel Survey 2013*, Pretoria: Statistics South Africa.
- Too, L. & Earl, G., 2010. Public transport service quality and sustainable development: a community stakeholder perspective. *Sustainable Development*, Volume 18, pp. 51-61.
- Venter, C., 2011. Transport expenditure and affordability: The cost of being mobile. *Development Souther Africa*, Volume 28, Issue 1, pp. 121-140.
- Verma, M., Verma, A., Ajith, P. & Sindhe, S., 2013. *Urban bus transport service quality and sustainable development: Understanding the gaps.* Rio de Janeiro, s.n.
- Vilakazi, A. & Govender, K. K., 2014. Commuters' perception of public transport in South Africa. *Journal of Social Sciences*, Volume 3, Issue 1, pp. 258-270.
- Wisniewski, M. & Donnelly, M., 1999. Measuring service quality in the public sector: the potential for SERVQUAL. *Total Quality Management*, Volume 7, Issue 4, pp. 357-365.
- Zikmund, W. G., Babin, B. J., Carr, J. C. & Griffin, M., 2013. *Business research methods.* 9th ed. Mason: South-Western, Cengage Learning.