

Exploring Sustainable Public Transport System for the Provision of Quality Education Services in Public Universities: A Situational Analysis

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ABSTRACT

This study was conducted to explore the experience of university community regarding the use of available public transport in public universities in Tanzania. The study intended to explore the common transport systems used within the public universities; the risks and challenges of using the available transport systems in execution of day-to-day core functions of the university; and lastly, the effective and efficient transport systems in promoting the teaching and learning process in public universities. A cross-sectional survey design with mixed research approaches was employed. Probability and non-probability sampling techniques were used to get a total sample of 125 respondents from public universities in Tanzania. Data were collected by using self-administered semi-structured questionnaires and in-depth interview. The findings revealed that common transport systems used within the campuses included motorcycle hire, commuter buses, walking, bicycle hire, private bicycle, private motorcycle, university buses, bajaji (rickshaws) hire, and taxi cabs. Moreover, the study revealed that the risks and challenges of using the current transport system within the university campuses included time consuming, costly, and getting late to classes, accident, tiredness, and theft. Furthermore, the study revealed that the effective and efficient transport system within university campuses included the commuter buses, motorcycle hire, private motorcycle, walking, and private cars. The study recommends establishing an internal transportation pool which will be able to offer sustainable, reliable, effective and efficient transportation means within the university. Understanding the campus impediments may help universities design more attractive and useful transport facilities. The current study will inform the university management about the need to promote bicycling and walking which are ecological friendly; improve social interactions; as well as spur physical well-being among the students, staff and university community.

Keywords: Public Universities, Quality Education, Sustainable Public Transport, Tanzania

I. INTRODUCTION

Effective and efficient transport systems are the central pillar in any transactional services. In any community, people must move from one point to another for accomplishing various socio-economic and developmental activities. Universities have been entitled with three core functions of teaching, research and community services (United Republic of Tanzania [URT], 2005). In this view, the university will not fully function without staff, students, service providers, visitors and other educational stakeholders. Higher education institutions in Tanzania have large number of students and staff who live on campuses. For instance, the enrolment status of higher education in Tanzania since 2020/21 to 2022/23 is steadily growing (UNESCO, 2022). For instance, in the academic year 2020/21, higher education institutions (HEIs) and university institutions enrolled 159,714 as compared to 204,294 students admitted in 2022/23 (Tanzania Commission of Universities – TCU, 2021; 2023).

Due to the high enrolment of students in higher education, some universities have been having undersupply of lecture rooms, accommodation, academic blocks and other social services within or near the main campuses (TCU, 2023). Universities depending on their vastness, availability of professionals and convenient courses and programmes, students have to move a long distance to access the service. Some universities have constituent colleges or semi-autonomous colleges located away from each other while some staff and teaching and learning resources are shared. For instance, the University of Dodoma is the largest higher education institution which has six colleges, three schools and two institutes in one campus with 34,113 students by 2023 (UDOM, 2023).

The government efforts to reform and enrol higher number of students in higher education may end up in vein if sustainable transportation systems are not in place. This study, therefore, intended to explore the common transport systems used in public universities to promote teaching and learning; to examine the associated risks and challenges of transport systems within public universities; and lastly, to examine the effective and efficient transport systems to promote teaching and learning process within public universities in Tanzania. The findings of this study will inform the management of universities for effective planning and management of university activities in public universities in Tanzania.

II. LITERATURE REVIEW

Most of the Universities in the world pay a great deal of attention to sustainability; however, they do often disregard issues of transportation and land use in the campus (Norton *et al.*, 2007). Most University campuses are designed as pedestrian campuses but are caught by a culture that encourages driving at every opportunity. This puts more pressure on campus students and other members to develop parking lots, increase the size and number of roadways, but neglect the types of infrastructure that do encourage non-motorised transportation (Toor & Havlick, 2004). In the view of college-campus modes of many large universities, public transport system within and beyond the campuses is inevitable for effective and timely services provision, and movement from one campus to another.

Millard-Ball *et al.* (2004) argue that universities are distinctively capable of influencing the travel behaviour of their members. Thus, they do shape the campus and the surrounding community (Larkham, 2000). They always decide land use, infrastructure and sitting facility which may in one way or another promote walking or bicycling (Ellis, 2003; Tolley, 1996). While it is true that “college campuses are privileged places to communicate sustainability”, Balsas (2003) argues that these actions are not easy to put in place because they do require drawing down many attitudinal and physical obstacles to sustainable transportation on campus. So, it is vital to understand the attitudes of university stakeholders (students and other community members) in order to identify the infrastructural impediments that may hamper effective and sufficient transportation such as non-motorised transportation. With this reason, this paper sought to develop an empirical understanding of the current transport situation in the university campus and to uncover ways that could be encouraged within the campus and between the campuses and the surrounding community.

Several studies on the sustainability of transport in the universities have been done in different universities. For instance, the study by Kaplan (2013) was conducted at Kent State University, the second largest university in Ohio State with approximately 28,000 students on the main campus. This study examined what was in existence in the case of transport at Kente University. It focused on the use of bicycling and walking, the attitudes of students with regard to walking or bicycling, as well as the infrastructure which could facilitate or impede non-motorised transportation. The results demonstrated that bicycle activity was a minuscule part of campus commuting. However, only 40 bicycles were observed during the 18 hours of counting. The study further reported that this was because of poor infrastructure as well as lack of parking. Furthermore, pedestrian activity was far more robust with overall 1, 853 pedestrians observed within 18 hours, with an average of 103 per hour or nearly two pedestrians per minute. However, the study revealed poor sidewalks and a lack of good crosswalks. In contrast, the Central University has large and enough spaces for packing near office blocks for residence and classes of recreational facilities.

Other studies that were done (Páez & Whalen, 2010; Delmelle & Delmelle, 2012) asked students to name the modes they were using at various times, and which mode was their primary form of transport. In these studies, students were allowed to state their modal choice in a more general way. The study revealed that single occupancy automobiles were the main mode of transport used primarily by nearly 60 per cent of all students. This was followed by walkers, students boarding buses, and few students who were using bikes. At the same time, many more students reported taking the bus occasionally and nearly half of all students reported to have been walking at times.

Handy and Xing (2011) did a study on bicycle usage in the University campus. The survey asked about conditions or attitudes that might prevent students at a middle distance (3-5 miles) from biking to different areas. Respondents mentioned a number of factors which could impede bicycle usage, including the quality of the physical environment as well as the intangible quality of a bike culture which could lead to changing attitudes towards biking in the campus. However, the respondents were of the view that with improved infrastructure, bicycle was the effective means of transport.

Studies on infrastructure (Peers, 1998; Pucher *et al.*, 2010) focused much on pedestrian and bicycling activity, and highlighted the importance of the built environment for effective transportation. However, as it was revealed, infrastructures fell short in providing easy paths to walking and biking. With the case of Central University, most of the students and visitors depend on motorcycle hire, popularly known as *bodaboda*, for their movements. However, studies reveal several challenges emanating from the use of motorcycles. Approximately 312,500 people die each year in motorcycle crashes, which constitute over 25% of all traffic crashes. Motorcycle crashes are the leading cause of fatalities (27.5%) and injuries (26.4%) compared to other modes of transportation (World Health Organization [WHO], 2009). Therefore, this study sought to evaluate the possible risk factors associated with high use of unfriendly transport system and suggest friendly means of transport within the Central University (pseudo name).

III. METHODOLOGY

This study adopted a mixed method research approach. Both quantitative and qualitative approaches were adopted in a study and could be used in a series of studies to understand a research problem (Creswell, 2014). Qualitative and quantitative research approaches were combined in this study for the purpose of triangulation and complementarity (Creswell, 2014). Questionnaires as well as interview guide were used to collect data from respondents and key informants. Questionnaires collected data from academic, administrative staff, and students. On the other hand, the interview guide was employed to collect data from service providers in public transport systems (commuter buses' university public transport drivers, drivers, conductors, and motorcycle drivers) and visitors within the Central University on the day of interview. The key informants were police officers (Traffic Police), and the Central University Transport Officer.

Furthermore, in-depth information was needed to assess the effectiveness and efficiency of public transportation in academia institutions like the Central University. The researcher probed as much as possible the quality information. Quantitative techniques or procedures were used to gather information related to the characteristics of respondents such as age, disability, status of accommodation, course registered, gender, and other information to supplement qualitative information. Respondents were randomly selected to participate in the study and the procedure was adopted to avoid the researcher's bias on the sample selection. Data were collected from 125 respondents. Data analysis involved both qualitative and quantitative elements. Descriptive data obtained from interviews were analysed qualitatively. For example, comments and advice obtained from service providers, visitors visiting the campus, police officers as well as transport officers from selected public universities were analysed qualitatively in which verbal descriptions were used to explain and clarify their views, opinions and advice. In some cases, voiced statements were presented in form of quotations. On the other hand, data from questionnaires were analysed qualitatively and quantitatively. Statistical Package for Social Sciences (SPSS) and EXCEL were employed during data analysis.

IV. FINDINGS AND DISCUSSION

4.1 Common Transport Systems in Public University

The first objective was to explore the common transport system used by students and other members of the Central University community within the university campuses. This objective sought to examine the common transport/movement methods used by students and other members of Central University community within the university campuses. Data on this objective are presented quantitatively as well as qualitatively.

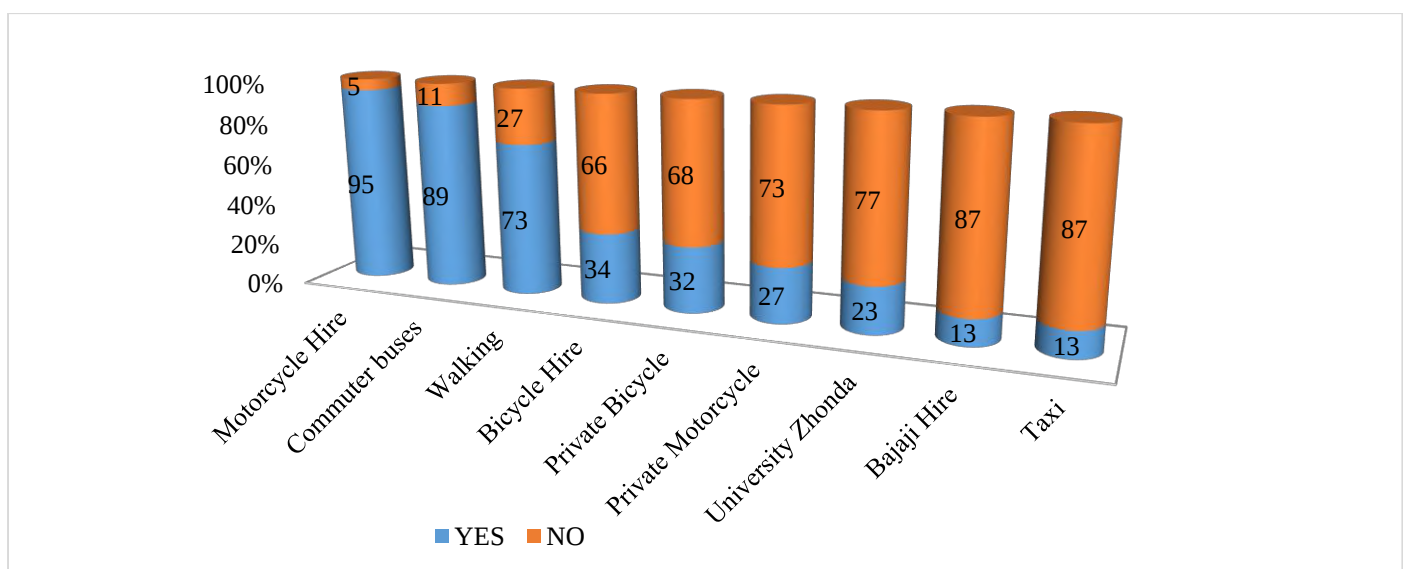


Figure 1

Percentage Usage of Common Transport System within the Central University Campuses (N=96)

The results summarised in Figure 1 depict that the most commonly used transport modes in the university campuses were motorcycle hire (95%); commuter buses (89%); walking (73%); bicycle for hire (34%); and private cars (32%). Some of the respondents reported that they were using their own/private motorcycles a form of transport which accounted for 27% of all the respondents. It was noted that some of the respondents were using the university buses. These accounted for about 23% of all the respondents. Moreover, bajaji (rickshaws) for hire and taxi accounted for 13%. It was noted that the latter mode of transport was rarely used in the university campuses possibly due to the limited availability and even the expenses associated with their use.

The results further reflect the reality prevailing in our environment that motorcycles are plenty and quickly available for use. It was noted that students were using them to move around the university campuses and even beyond the university campuses. However, the challenges with this mode of transport are risks associated with their use, which are road accidents and theft. It was revealed that commuter buses were playing a great role in transporting members and visitors to and out of the university. As it was found, their routes were based on the trunk roads and decided by LATRA; hence, they were not friendly to some of the users. As it was revealed, they are generally associated with theft, the use of abusive languages by their operators, being overcrowded, tiredness and contaminations among users. The findings in the current study are in line with the study by Kanyama et al. (2005) who revealed that the presence of overloaded or highly overloaded commuter buses led to incidents of pick-pocketing, impaired air circulation, and bad smells due to warm weather and sweat, and fear of the spread of communicable diseases such as Tuberculosis (TB).

It was revealed that since students have limited budget, most of them were opting to walk from one place to another. Walking from one college to another is about 30 to 45 minutes to cover a distance of more than 4 km. Through this kind of 'transport', students, teachers, and other community members get tired. It is even worse for students because they get tired before commencement of important sessions like lectures, seminars, and practices. They get late to lectures and even miss quizzes, exams and other important assessments and evaluations. Furthermore Kanyama et al. (2005) found that the costs of travelling were very high and they recommended that travelling costs for public should be reduced to improve public transport. In line with this finding, it is the argument of this study that the Central University with a projected number of 40,000 students by 2025 calls for reliable, safe, and affordable transport means to improve mobility within the university's premises

Likewise, data collected from interview revealed that the most used transport means in the university campus included but was not limited to commuter buses (76%), walking (82%), motorcycle hire (64%) as well as the use of privately owned bicycles (38%). It was found that most of the university community members reported to move from one campus to another through the use of commuter buses. However, it was further argued that the commuter buses were not reaching each college as well as each destination. Therefore, after stopping at the bus stop, they would be required to walk either 1 to 2 km to reach the destination which could be classes, offices or hospitals. In support of the quantitative findings, one respondent reported that:

"I do use commuter buses, but they are not friendly. For example, if I would like to go to the administration block, I would need to use a bus, but they never reach there. Instead, they will drop you somewhere and then you start walking to the administration block. The time you use to walk on foot up to your destination is twice to thrice of the time you would use in the commuter bus. Therefore, it is sometimes like waste of money, but we don't have an option" (Visitor A, June, 2021)

The quotation above shows that despite the fact that most of the members were using commuter buses, they were not satisfied with the service since these services were not helping them reach the point they wanted to reach. Therefore, this means that if there could be any other option apart from commuter buses, it would be more welcome. Furthermore, the interview sessions revealed that most of the community members were walking from one point to another in their daily activities at the University. The interview with the respondents revealed that most of the students were walking on foot from hostels to classes, offices or hospitals. The interviewed students reported to have been walking a minimum of 2 to 4 km from hostels to classes or offices. This was noted to have been tiring students even before attending classes. It was revealed that it was not only students who were walking on foot but also other members of the community such as staff and other members seeking service reported to have been doing the same. Regarding these findings, one of the students had these to say:

"We do walk from hostels to classes; it is a long distance that takes us 20 to 30 minutes to reach there. We do not only walk when we are going to classes but also when going to offices for consultancies. It generally takes us more minutes to reach there because either you need to walk or hire a motorcycle, something which is not easy to afford" (Student A1, July, 2021)

With reference to the same issue, another respondent added that:

"I do walk to classes and offices. It is a tiresome activity since you need to walk a long distance to reach classes. However, there are no pedestrian roads to ensure safety. It would be much easier to walk to and from such places if there were any easy means such as buses to take us from hostels to classes and offices" (Student D2, June, 2021).

The statements by the two respondents above show that although most of the community members were walking as the means of moving from one point to another, they were not much comfortable with this means. Walking seems to have many side effects including becoming tired and therefore in one way or another may affect students' learning or make them fail to access the required service on time. Another effect that was noted is safety. As the respondents argued, the campus had no sufficient pedestrian routes; therefore, the same roads used by cars are also the ones used by pedestrians. Therefore, this may cause accidents to pedestrians.

It was noted that the community members in the university premises were generally used to move from one station to another using hired motorcycles. The respondents said that there were many motorcycles for hire at a cost ranging from three thousand shillings (3000 TZS) to five thousand shillings (5000 TZS) depending on the distance one was moving to. Despite the fact that this means of transport was readily available and quick, it was also reported to be very expensive and not easy to afford. On this particular regard, one of the students was quoted saying:

"Imagine, I have three lecture sessions per day; I need to pay six thousand Tanzanian shillings (6000 TZS) per day if my trip is a thousand shillings (1000 TZS) since I need to go to the lecture rooms and go back to the hostels. How can I afford this? Let say if a person is to pay two thousand shillings (2000 TZS) per trip; he/she is to pay twelve thousand shillings (12,000 TZS) for those trips" (Student K, June 11, 2021).

Given the fact motorcycle hire was noted to be the easiest transport as it was being generally used by the university members, but it was the most expensive kind of transport that could not be easily afforded by most of the community members. Therefore, despite the fact that it was being used, it was not a reliable and sufficient means of transport to be used within the University. These findings echo those by Fitzharris et al. (2009) and Oluwadiyaa et al. (2009) who found that the use of motorcycles as a major means of transport in many developing countries is costly and very risky. In this context, motorcyclists are considered one of the groups most vulnerable to transport accidents (WHO, 2009). However, as it was noted, the community members of the Central University were opting to use it just because they had no alternative affordable and safe transport means.

Some (38%) of the interviewed respondents said that they owned bicycles. This was the means of transport that was reported to be cheap to use. However, a small number of the community users seemed to use this means of transport. During the interview with respondents, it was noted that there were very few owned bicycles and there was no or there was limited number of bicycles for hire. It was noted that some of the students were using their own bicycles to move from one point to another in the university premises. Furthermore, other respondents who supported the use of bicycle were of the view that when they were using bicycles, they could do their businesses on time and afford to attend classes accordingly without feeling tired. However, it was also noted that the infrastructure for cycling was not much user friendly. Focusing on this, one of the respondents had these to say:

"I do use my bicycle for different movements in the campus. It always helps me very much when I compare myself with other members who simply walk or use other means such as motorcycle. I don't incur much cost as I can do each and everything according to my timetable. However, there is a challenge of roads that can be used for cycling because we do use the same roads with motorised transport such as cars, commuter buses and motorcycles. This is sometimes not safe for us" (Respondent F, July 15, 2021).

Regarding the expression by the respondent, it can be viewed that despite the fact that bicycle was mentioned by few respondents, it is a very useful means of transport that can be used by members of the community. Given this context, there is a need for improving the infrastructure for cycling in order to enable those using bicycles to have smooth cycling from one college to another or from classes to the blocks of residences.

4.2 Risks and Effects of Using Various Transport Systems

The study further investigated the risks and effects of using various transport modes within Central University campuses. The data were collected using questionnaires and interview respectively. The quantitative data collected through questionnaires are presented in Figure 2.

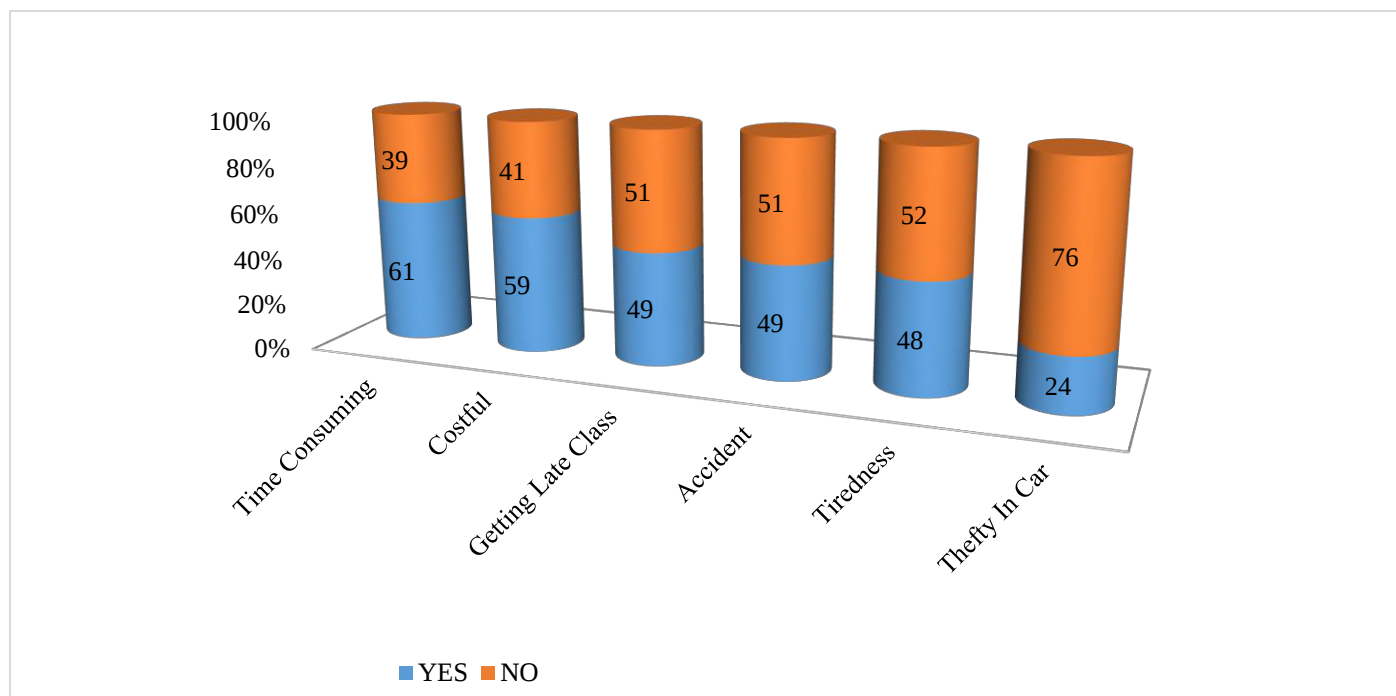


Figure 2

Percentage of the Risks and Effects of using Common Transport System within Central University Campuses (N=96)

What can be noted from Figure 2 is that the respondents mentioned different effects associated with such kind of transport as being time consuming which accounted for 61%, costly (59%), getting late to the classroom sessions and road accidents (49%) respectively, tiredness (48%) and theft (24%).

Furthermore, the findings in Figure 2 signify the previous argument of this particular article that transport modes pose serious risks and effects to visitors, students, and other Central University community members such as getting late to important academic sessions, costs of using these transport modes to students in particular due to their limited income, time wastage when going from one place to another especially for commuter buses users, tiredness and theft.

The qualitative data from interviews revealed that one of the most used means of transport was motorcycle hire because of its possibility to quickly and timely rush the passenger to the point of destination. However, in respect to this kind of transport, the respondents revealed several effects, the biggest being that it was associated with accidents. Regarding this, about 82% of the respondents said the biggest problem with motorcycles as a mode of transport within the university premises was accidents; 71.3% said it was costly; and being late to important academic sessions accounted for 62%. Regarding this, student respondents argued that using motorcycle was very risky in terms of accidents since most of the motorcyclists were not professionals and were riding those motorcycles at a very high speed. Furthermore, the respondents reported of some motorcyclists to be drunk when riding the motorcycles, hence putting them at a high risk of getting accidents. On this particular regard, one of the respondents had these to say:

“It is only God who protects us; we are driven by young boys who have poor driving skills and who, I believe, have not attended any training. Some of them are drunk when they ride their motorcycles, but you realise that he is drunk when you have already started moving and therefore it is too late and costly to reverse the decision. Therefore, with this kind of transport, the risk of accidents becomes too high” (Respondent Y, July 20, 2021).

On the same vein, it was reported that most of the motorcyclists were not having the passengers’ helmets which are expected to protect the customer in case of accident. It was said that it was only the motorcyclists who were using those helmets and sometimes even themselves did not have any. Given this situation, if an accident occurred, the

possibility of death would be high. These findings are in line with the study by Dall (1983) who reported that motorcycles were facing multiple safety challenges despite the role that they were playing in improving mobility. The findings in both studies imply that using motorcycles in some cases is not safe; we need to be innovative to introduce other alternative transport means.

Apart from accidents, the issue of cost received great attention as most of the student respondents and community members estimated one trip being not less than *one thousand Tanzanian shillings* (1000 TZS) to *three thousand Tanzanian shillings* (3000 TZS) depending on the distance per college. Student respondents reported of moving a long distance from hostels to motorcycle hire terminal and therefore finding themselves very tired, something which was forcing them to use motorcycle transport despite the fact that it was not user friendly in terms of cost. To meet the transport costs, some of the students were reported to have been skipping meals in order that they could get some money to hire motorcycle to take them to the lecture rooms. With regard to this, one of the student respondents was quoted saying: *"Sometimes I decide not to take breakfast in order that I may save money for hiring motorcycle when going to the lecture rooms"* (Student H, 13 June, 2021)

Apart from students, the University is receiving many visitors who come for different purposes such as applications, graduates collecting their certificates, tourists, and learners from other institutions such as primary and secondary schools. The respondents from this side revealed that most of them were facing the challenge of transport costs. It was said that sometimes it cost up to ten thousand Tanzanian Shillings (10,000 TZS) to make all necessary processes a person needed to since one was supposed to move from one office to another. One of the visitors who was in the process of collecting the certificate after graduation said it was very costly to move from one point to another in the university as all processes were not done at one point. Clarifying her claim, she said:

"I am supposed to hire a motorcycle from the college to the administration block because I can get the transcript here at the college but I can't get the certificate. Apart from that, I need to make some payments at the bank which also costs more than two thousand. Therefore, till the process is over, I am likely to have spent not less than ten thousand Tanzanian Shillings (10,000 TZS). This is not really friendly in terms of cost" (Visitor A, June 13, 2023).

As revealed by the data collected through questionnaires as well as interview, the means of transport within the University is not friendly to the users. This is because most of the respondents who reported on the use of the available means of transport reported it as being costly, prone to accidents, and even theft within the given transport. However, those who reported not using the available transport and opting for walking instead reported of being very tired, which adversely affected their learning in case of students. The findings in other studies like the study by Salum et al. (2019) reported that about 20% of the monthly income goes to the school children for their transportation in a family with extremely low income. In a family with a very common level of income, the cost for affording transport becomes difficult. Students and some of community members and visitors have limited income, and they equally need to access some places for services. The university and other stakeholders need to establish reliable transport means to ensure punctuality, attendance, and service provision.

4.3 Effective and Efficient Transport System

The third objective sought to identify effective and friendly transport modes within the university campuses and neighbouring places. The data were analysed quantitatively and qualitatively. Figure 3 summarises the quantitative analysis.

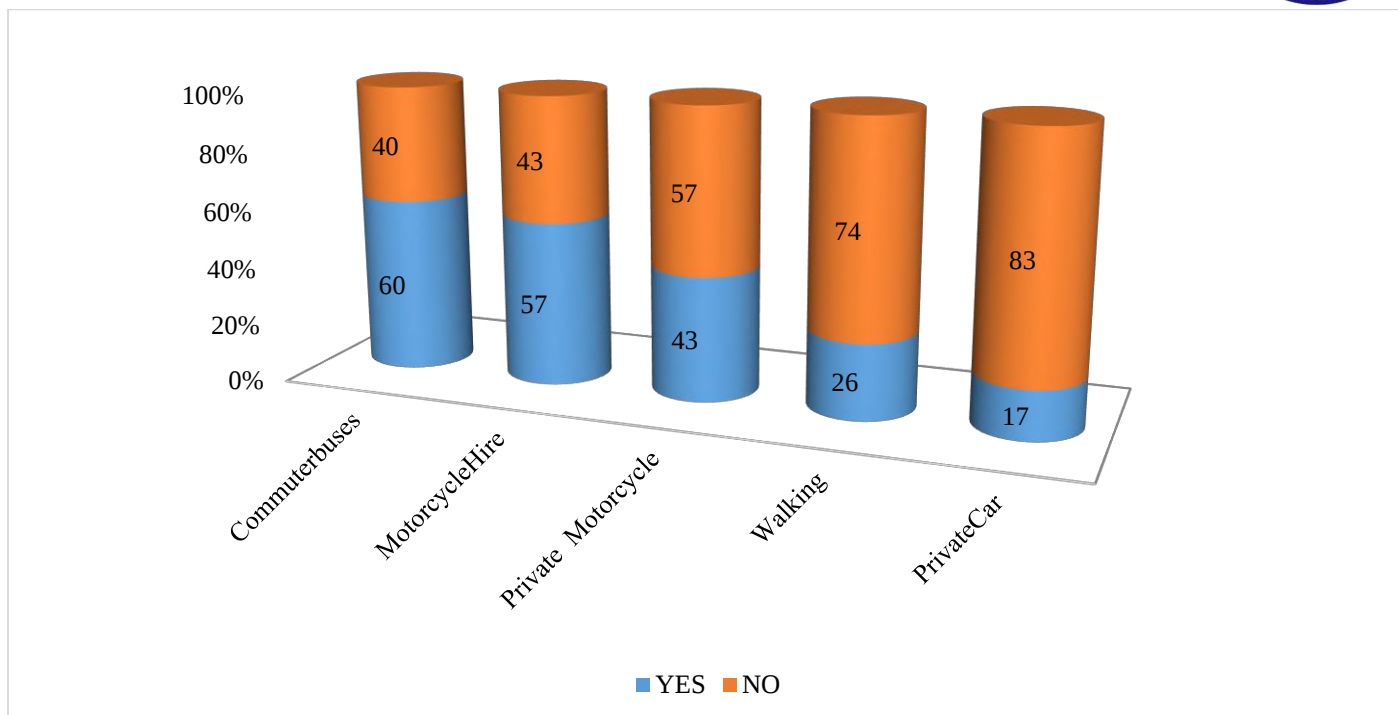


Figure 3
Percentage of the Effective and Friendly Transport System within Central University Campuses (N=96)

The study has identified the most used transport modes which are thought to be effective and friendly. Figure 3 summarises the findings in which many of the respondents revealed to prefer commuter buses because they are less costly compared to other available transport modes in the university campuses and other areas around the university premises. This kind of transport accounted for 60% of all the responses despite the fact that commuter buses are privately owned and operated, they play a great role in transporting students who are main consumers and many other university community members and university neighbourhood members.

As the findings in Figure 3 show, motorcycles are second to commuter buses accounting for 57%. They are quick and accessible at a time of preference of the customers but not at any time. However, as it has been revealed above, students cannot afford using motorcycle all the time when needs arise because of costs and other risks associated with them. Private motorcycle is another transport mode which is opted for by Central University community members. It accounts for 43% of all the responses given. Owning a motorcycle is thought to be a better option, but it is difficult for students to own motorcycles given the costs involved in buying and running them. Figure 3 depicts that walking is the last option as there is no way students and other Central University community members should not resort to given the scarcity of resources to afford other transport modes. They walk from one college to another to attend important academic sessions. Walking accounts for only 26% of all the responses and private cars account for 17% of all the responses. Few students own cars and other university community members. Given this situation, the university community members are obliged to use other transport modes such as commuter buses and motorcycles.

Likewise, through interview with the respondents, it was revealed that commuter buses (62%) were the best and effective means of transport that was being used by the university community members compared to other modes of transport such as motorcycle (28%) and bajaji for hire (14%). The reason behind this was reported to be cost effectiveness. However, the respondents were of the view that despite the commuter buses being effective and most used transport, it is very challenging since it has not been planned for university movements. Instead, it has been planned for people who would like to move from the University premises to downtown. With this reason, on campus movements remain a challenging issue that requires the university community members to use motorcycle hire which was reported not to be a sufficient and effective means of transport. Regarding this, one of the respondents had these to say:

“What I can regard as an efficient transport to me is the one that is less costly and, in this context, it is the commuter buses. However, the problem with commuter buses is that they do not move from one college to another; instead, they move from the Central University to town. Therefore, you are supposed to get off at one

point and then hire a motorcycle or simply walk to different colleges according to your purpose” (Respondent C, July 23, 2021).

The explanations given by the respondents reveal that despite the fact that commuter buses are viewed as the most effective transport mode for community members, it is a challenging mode of transport to most of the consumers since it does not satisfy the consumers.

Apart from commuter buses, the interviewees revealed also that if there were different means of transport available in the University, they could be more effective. The rated percentages on these means of transport are in brackets. These modes of transport include University shuttles (56%) and bicycle hire (52%). University shuttles for all University members were among the most reported means that could be most effective and efficient. The discussion with interviewees revealed that the university has shuttles specifically for the university staff that help them to move from one college to another within the University campus according to the arranged routes and not at one's call. The same scenario was noted in Malaysia where Almselati et al. (2011) studied transportation problems for students in Malaysia Universities and found that one of the main transport problems was the distance between the academic blocks and the students' residences. The study recommended having university shuttles to facilitate easy mobility in the campuses. On this aspect, the respondents agreed that if the University had shuttles moving from one college to another, they could easily facilitate movements within the university.

The respondents were of the view that this service could be offered in terms of payments. Thus, the fare of four hundred Tanzania shillings (400 TZS) from one college to another for commuter buses can be applied and this could be an effective and less costly means of transport within the college. Regarding this, one respondent reported that:

“I think because the University is very big, it could be better to have inter-college shuttles which we could be paying the same amount as prescribed by LATRA. This could help us move from one college to another safely” (Staff B, May 14, 2021).

Another respondent added that: *“I see lecturers using University shuttles going to classes and other colleges. Why can't this service be given to all members even if it is by paying some modest amount?” Student E, June 14, 2021).*

With these voices of the respondents, it can be viewed that most of the respondents were in need of the University shuttles and they are willing to pay. Therefore, the University could think of having three to four shuttles moving from one college to another. This could easily facilitate transport of the clients seeking different services like attending classes, offices, and hospitals for students as well as other members seeking social and official services at the University.

Apart from the University shuttles, respondents were also of the view that bicycle hire (52%) was also among the most effective and autonomous transport that could help in moving from one point (college) to another. Respondents were of the view that if there are good routes for cycling, this can be the most effective and advantageous means of transport to the University as well as users. Several advantages were spelt out such as cost effectiveness, environmental friendliness, health and autonomy. Kodukula (2011) supports cycling as a way that can help reduce pollution and traffic congestion. Bicycles have low energy consumption and make their users healthy. They can also provide quick and affordable access to the parts of cities that are more difficult to reach by public transport or large vehicles. These findings may further imply that establishing transport pool that contains varieties of transport modes is important at the Central University in improving timely access to different points of destination and as a way of providing service to the university community and its outside customers. It will be a kind of self-sustaining project through the income it generates.

Respondents were of the view that the University is an academic area that requires calm environment for studies to take place smoothly. With this reason, the respondents argued that even the transport to be used should be environmentally friendly. On that regard, many of them suggested bicycles would be a better option among the means that could be effective in terms of controlling noise and air pollution compared to other motorised transports.

Furthermore, a health vantage point was also mentioned as one of the advantages which would make the bicycle an effective means of transport at the University. Respondents argued that when a person is involved in cycling, he/she is also involved in exercises, something that is very important for health. Therefore, a person involved in addressing the issue at hand, and in this context, travelling to a point of destination and at the same time engaged in cycling as a kind exercise gets double advantages: firstly, he/she saves money; and secondly, he/she improves his/her health. Likewise, Karanikola et al. (2018) argue that cycling as a mode of transport is a health-improving way and offers environmental benefits. Therefore, cities should promote it. Riding a bicycle is a concern over climate change,

pollution, congestion, and obesity among others. Therefore, environmentally friendly transport modes should be promoted to keep our environment clean.

Another issue that was raised by the respondents on the effectiveness of using a bicycle is autonomy. Regarding this, the respondents argued that the use of different means of transport such as commuter buses and motorcycle hire limit the customers' autonomy. For instance, the respondents reported that when you have an issue to attend for few minutes, it is difficult for the driver to wait for you and the waiting charges are too costly. But the use of bicycle allows the customer to freely schedule his/her timetable and comfortably attend the issue at hand. Furthermore, a bicycle is an inexpensive mode of transport with low maintenance costs and the benefits of investments in cycling infrastructure are estimated to be four to five times greater than the costs and are more beneficial to society than automobile-related transport investments (Karanikola et al., 2018). On this issue, one of the respondents had these to say:

"When I use a bicycle, I can do all my activities freely and at the time I wish. For example, when I go to the lecture session or to my office to address different academic issues, I can do all I wish to do without having to worry about time which otherwise goes with waiting charges if one has hired a taxi or motorcycle" (Staff B, July 24, 2021).

With this expression by the respondent, it is revealed that the use of the bicycle can be an efficient means since people can reach the point of destination on time. They can be free to do all the necessary activities they wish to do at low cost with less inconveniences.

V. CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

The findings of this study have provided the perceptions and feelings of various members of university community on the critical issue of public transportation systems in academia. Based on the study findings, students who live on campus have been walking as a principal mode of transportation to classes while some have been using motorcycles which are reported to be risky. Moreover, the commuter buses are used by most people to move from the university to town while bicycling is still fairly rare as a means of transport. It was not identified if the university had centres and services for bicycle hire services for community uses within the university campus. Despite the large number of students, staff, visitors and other community members, public universities have done little on the investment of public transportation for improved performance of teaching and learning. Effective and efficient public transportation system within public universities is vital for attaining teaching, research and consultancy. Staff and students should be mobile in order to perform and accomplish various academic and social activities within the campus. Universities may have people with different vulnerability, social, poor and physical conditions like disabilities which require effective and affordable public transport systems within the campuses.

5.2 Recommendations

This study recommends to establish an internal transportation pool which will be able to offer sustainable, reliable, effective and efficient transportation means within the university. The pool, if established, will ensure public transport that is more attractive by providing door to door movements and development of transportation services which is capable of ensuring social quality. Moreover, the pool will be able to scrutinise drivers to get those who are ethical and professional – who will work with high integrity to overcome the reported weaknesses from the existing transportation means which has been alleged to be unprofessional and unethical, with high costs.

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