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EXAMINING THE FACTORS IMPEDING CYCLING UTILISATION AMONG THE STUDENTS OF THE FEDERAL UNIVERSITY OF TECHNOLOGY AKURE, NIGERIA

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ABSTRACT

It has been established globally that one of the greatest challenges facing the human population currently is climate change, arising from the emission of greenhouse gases initiated mainly by burning fossil fuels used by motorised transportation modes. However, one of the approaches to mitigate the challenges is the adoption of cycling as a viable and sustainable mode of mobility. Recognizing its significance and widespread use in high-income countries and their university campuses, this study examined the barriers to its adoption among undergraduate students at the Federal University of Technology, Akure (FUTA), Ondo State, Nigeria. To determine the sample size for the research, the study relied on the student's information record of the undergraduate students available on the FUTA website which is currently put at seven thousand, five hundred and fifty (17,550) from which a proportionate sample size of 2% was selected using purposive and random sampling techniques. The study used a structured questionnaire to elicit data needed for the study from the three hundred and fifty-one samples (representing 2% of the research population) of the undergraduate students at FUTA. Purposive sampling ensured that only FUTA undergraduates were included, while random sampling gave each student an equal chance of selection. The collected data were analysed and presented using descriptive statistics in frequency and percentages. The Weighted Mean was also used to identify the predominant factors affecting cycling utilisation at FUTA. The results revealed that the absence of a cycling lane/infrastructure/ Lack of bicycle training (5.00), inadequate road signs (4.35), inadequate road safety for cyclist and fear of involving in accident/availability of campus shuttle (4.20) rank first, second and third respectively as the most significant barriers to cycling among undergraduate students of FUTA. Given these findings, cycling lanes must be integrated into FUTA's road network and development plan. Additionally, safety measures for cyclists and other road users on campus should be implemented.

KEY WORDS Cycling, FUTA, mobility, utilisation

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1. INTRODUCTION

Cycling as a means of mobility in recent times has gained much popularity among scholars (Dufour, Ligtermoet & Partners 2010; Kaja, Lucija, Monika & Marko 2020). Although the level of utilisation of cycling across nations varies significantly, depending on the available infrastructure for cycling (Swiers, Pritchard & Gee, 2017; Kaja *et al.*, 2020). As one of the most significant environmentally friendly means of mobility, cycling is sustained by several organisations such as the European Cyclist Federation and the mechanism of sustainable urban mobility plans, along with local cycling strategies and agendas supporting cycling as an alternative to motorized traffic in cities. Cycling policies aim at improving the quality and safety of cycling and at the same time sustaining the aesthetic appeal of the environment (Swiers *et al.*, 2017). These cycling agendas play positive roles related to personal mobility by lowering the carbon footprint of the city and thus strengthening the principles of a sustainable lifestyle (Kaja *et al.*, 2020). On the individual level, it helps reduce expenses in terms of cost of transportation, time-saving, health benefits, and reducing the effect of climate change (Pucher *et al.*, 2014; Kaja *et al.*, 2020)

Meanwhile, the increase in population across the world, particularly in the urban centres has called for a serious debate regarding its attendant problems, ranging from overcrowding, pollution, crime, traffic congestion, and increases in greenhouse gas emission as a result of over-dependence on automobiles, among others (Awosusi *et al.*, 2010); Houdhary *et al.* (2022). According to the United Nations (2022) anticipated that by the year 2030, 60% of the world population will be living in cities, and it has been found that cities are accountable for two-thirds of the global energy consumption and for up to 70% of greenhouse gas emissions (Balkmar, 2020). This scenario results in several mobility challenges at the urban centre, and the experience does not differ from what is obtainable in some university

campuses around the world. In recognizing this fact, in 2015, the United Nations (UN) approved the 2030 Agenda for Sustainable Development through 17 Sustainable Development Goals (SDGs). The 2030 Agenda becomes a prospect for many nations and their societies by forming a pathway for improving the lives of their citizen. This gives rise to SDG11, which refers to the transition to more inclusive, safe, resilient, and sustainable cities. SDG11 has come to guide the management of cities around the world in recent years; consequently, nations are actively trying to rebuild their political policies to improve the sustainability of society (Chen & Lu, 2016)

As such, sustainable mobility solutions play a dominant role in achieving transport services with less impact on the environment by lowering emissions of polluting gases, reducing noise, and improving urban development that favours quality of life (Ransford, 2017). However, one of the approaches to reducing the threat in connection with the transportation system is through improving sustainable mobility with the adoption of cycling as an alternative means of transport. That bicycle is a means of transportation that does not require fuel and has been credited with environmental, economic, and health benefits (Pucher & Buehler, 2017; Jaszczak, Morawiak & Zukowska, 2020; Emmanuel, 2022). It is a sustainable, environmentally friendly, and non-motorised transportation that does not pollute the environment and requires less land use than other transportation, which is in line with the fulfillment of sustainable development goals (SDGs) numbers 7, 11, and 13 (Balkmar, 2020; Emmanuel, 2022). Across different social spaces and environment, life and living within the university environment remains a separate society that gives room for various activities to function in contiguity and also allows people of diverse backgrounds, cultures, classes, and incomes, among others come together to work, study, play, and live together (Emmanuel, 2022). In recent years, owing to the uniqueness of the campus, efforts have been put in place

to ensure that university environments are becoming more sustainable by lowering the increasing population's negative environmental impacts (Dehghanmongabadi & Hoşkara, 2018). The rapid progression of daily mobility of the university population via automobiles presents a great challenge to transportation on campus and frequently weakens the drive toward sustainability. Proficient transportation systems on university campuses as a prime physical and economic connection between 'town and gown' has been rooted in the wider body of scholarly works; this has rarely dominated the analyses of studies in the global south (Isiaka, Barnabas & Muhammad, 2023). The role played by other climate friendly and sustainable means of transportation like walking and bicycling is poorly understood in the region and at the same time, university management also failed to consider how to advance mobility based on the campus community's views, and campus planners rarely monitor the attributes that make up a pedestrian-friendly university environment given the relationship between bus/car terminals, walking and cycling. The main purpose of university mobility is to advance healthy living, lowering emissions, and improve sustainable transportation systems (Angelidis *et al.*, 2014; Isiaka *et al.*, 2023). This encompasses the planning and operation of different traffic modes (Rafael, Jeff, & Ruey, 2010) as well as the pedestrian walkways, cycling lanes, and bus stops as a key component in achieving a sustainable campus mobility system (Isiaka *et al.*, 2023). The essence of this is to give students access to a network that is widely connected, linking the hostels, schools, and departments, recreational centres, and other facilities, as well as enhancing campus experience based on safety, functionality, pleasure, and learning (Makki *et al.*, 2012).

Concerning the utilisation of cycling as a means of public mobility, Varonical *et al.* (2022) reported that various transport policies and plans had been adopted internationally to improve the overall quality of mobility around university campuses. According to the above

authors, some of these strategies link the university plan with the city transport plan by implementing the superblocks in the city. Another example is the University of Bristol, which has linked up the various premises around the city by developing a combined travel plan for staff and students for cycling to reduce private cars on campus. Also, the cross-pollination of the transportation system enjoyed at Michigan State University, USA, made it one of the most beautiful campuses in the United States. Besides walking, students have many options for getting around campus, including green transportation options with more than half of its roads equipped with bike lanes and more than 20,000 bicycle parking spaces (Varonical *et al.*, 2022). This kind of innovation, coupled with other provisions that make cycling enjoyable, introduced in developed universities to enhance sustainable mobility, is generally lacking in developing nations' universities, especially in Nigeria.

In Nigeria, the issue of traffic congestion, road accidents, and pollution arising from the transportation system are numerous challenges facing commuters in the country. Similarly, the constant scarcity of Premium Motor Spirit (PMS) that makes a majority of people queue for several hours at filling stations and, at the same time, robs people of their productive hours is another pertinent issue hindering mobility in the country. This scenario does not exempt university students, as many of them find it challenging to move around, especially now that fuel subsidies have been removed. This has led to an increase in transport costs within and outside universities across the country, cycling adoption that should have been the solution is fairly used due to the lack of cycling lanes, and poor safety measures for cyclists among others prevent many people particularly students from relying on the use of bicycle for their daily mobility. This, perhaps, has been a major factor impeding cycling utilisation in tertiary institutions in Nigeria. It is against this background that the study tends to examine the factors impeding cycling utilisation among the students

of the Federal University of Technology, Akure, Nigeria, to promote a sustainable transport system within the FUTA campus that will, in turn, reduce climate change.

2. LITERATURE REVIEW

Several scholars, such as Pucher & Buehler (2017), Acheampong & Siiba (2018), Jaszczak *et al.* (2020), Mogagi (2022), Rodríguez-Rad *et al.* (2023), among others, have identified cycling as a mode of transportation that has been recognised to have environmental, economic, and health benefits. Also, it has been recognised to be a sustainable, environmentally friendly, non-motorised form of transportation that does not pollute the environment nor requires much land use like other motorised transportation (Balkmar, 2020). Cycling is considered a cheap entry-level mode of transportation as it is affordable and easily accessible with little training to control it (Acheampong, 2017; Acheampong & Siiba, 2018).

Despite these benefits, Magagi (2022) established that cycling remains a marginalised mode of transportation, particularly in developing countries, especially in Nigeria. The lack of interest from planners and policymakers, coupled with the lack of cycling and other non-motorised transport lanes, has been identified as part of the barrier hindering effective utilisation of cycling in developing nations, especially in Nigeria (Mogaji 2022; Yakeen, 2019). Despite the above challenges, cycling has always played a dominant role in the sustainable development of urban mobility across the world compared to when using motorised transport. For instance, Brand *et al.* (2021); Giga *et al.* (2021) opined that cycling or walking had no daily mobility-related CO₂ emissions, while those who use motorised transport generate higher daily total CO₂ emissions. More so, Giga *et al.* (2021) noticed that increasing universal attention towards cycling as a mode of transportation is attributed to its environmental and health advantages, as well as its capacity for smooth integration with public transportation

systems.

The approach to achieving sustainable urban transport is widely recognised and dominant in developed nations compared to what is obtainable in developing nations. Cycling offers numerous benefits for individuals, ranging from improved health and reduced traffic congestion to environmental sustainability. Nevertheless, the planning and implementation of cycling infrastructures in large cities encounter significant challenges. To solve these impediments, a comprehensive understanding of the factors that foster cycling in cities as well as the barriers impeding its growth is essential (Iwinska *et al.*, 2018). The issue of an impediment to effective cycling utilisation is not only felt in developing nations' universities but also manifested in developed nations' universities. For instance, Usman & Adeel (2024) stated that despite the benefits of cycling and its utilization, modal share are still very low on various U.S. university campuses as a result of a lack of cycling infrastructure, to avoid biking due to perceived dangers or lack of safe route, societal norms, among others. Also, Shaaban, (2020); Ravensbergen, Buliung & Laliberté, (2020); Pearson, Gabbe, Reeder & Beck (2023); Gopi, Pathak & Pratap (2024) acknowledged several obstacles that can stop people from cycling to comprise of physical barriers such as traffic congestion, poor bicycle lane, and societal opinion. Owing to the above, Eom, Iseki & Warner (2017); Fortes & Giannotti, (2023) opined that transportation planners are devising means to encourage cycling at university campuses by recognize its several benefits over other transportation modes, to include capability of reducing traffic congestion and improving air quality, yet it remains a relatively underutilized form of transportation on many campuses.

Vanparijs *et al.* (2017); Usman & Adeel (2024) also identified infrastructural weaknesses such as the lack of bike-specific roadway infrastructure as some of the impediment that forces cyclists to use shared paths with pedestrians and motorized traffic, which can lead to

feeling unsafe while cycling. Providing bike-specific lanes, traffic signal controls, and other safety measures can improve the perception of safety and increase the legitimacy of cycling as a means of mobility within and outside the campus (Usman & Adeel, 2024). Several studies have been done regarding cycling in both developed and developing nations of the world. Although studies established that a high number of these studies were found in developed countries with well-developed transport networks and growing cycling adoption, there is a shortage of insights about cycling in many developing nations of the world (Acheampong, 2017; Mogaji, 2022). For instance, Boniphace & Himidi (2016) studied the Prospects and Barriers for Campus Bike Share Systems for Universities in Dar es Salaam, Tanzania. The study adopted a survey method, and a questionnaire was collected from 604 respondents. And findings show that 35%, 41%, and 36% were likely to use bike-share systems for commuting, intra-campus, and off-campus movement, respectively, if the system could be made available. However, the study failed to reveal the barrier to effective bike-sharing for going to classes and other places within and outside the campus. Yakeen (2019) looked at the determinants of Students' Adoption of Bicycle Commuting on Campus: The Case of Lagos State University, Ojo. This study investigates the factors influencing students' adoption of bicycle commuting at Lagos State University, Ojo campus. The study used the Theory of Planned Behaviour (TPB) to explain students' behavioural intention towards cycling on campus, and data for the study were collected from 100 students of Lagos State University, Ojo, using a self-administered questionnaire and purposive sampling techniques. Findings show that perceived behavioural control had the greatest significant and direct effect on students' intention to cycle on campus, followed by the subjective norm. However, the author failed to provide information on the likely barriers to fully adopting cycling as a form of mobility in the University. Also, Usman & Adeel

(2024) carried out a study on Exploring the University Campus Community's Perceptions and Barriers toward Biking using the University of Tennessee, Knoxville as a case study. The study uses a binary logit model to estimate students' willingness to use bikes on campus. They found out that about 47% of the students revealed vehicular traffic as the reason for feeling unsafe while biking, among others. However, the author failed to reveal the level of cycling ridership among students in the study area. The veracity of the gaps found in the previous study, coupled with the shortage of research on cycling in Nigeria, remains a major concern to address in the study to bridge the gaps in the literature to explore factors impeding cycling utilisation among the students of the Federal University of Technology, Akure, Nigeria.

2.1. Theoretical Framework

2.1.1. THEORY OF VELOMOBILITY

According to Till &Tom (2014), Cox (2019), and Bosinuola (2023), the theory of Velomobility is concerned with the connections between diverse elements that are essential to create cycling mobility. In dealing with the cycle-rider combination, adequate room must be created within the environment. Velomobility theory encompasses the cycle and rider, and the space in which this riding takes place. Research has established that in many cities, particularly in developing countries, cycling receives little or no attention from transport planners and is a marginalised mode of transport. Motorised modes of transport take much attention and more space in cities and within transport planning. Thus, a new theory for bicycle planning, the politics of velomobility, is developed, which is grounded in Cresswell's (2010) theory of the politics of mobility.

In transport planning, sustainable transport is frequently linked to increasing walking and bicycling and to increasing the use of public transport without compromising the benefit of others (Till

&Tom, 2014). Walking and bicycling are regularly seen as incontrovertible in the discussions of sustainable transport and sustainable urban development. Likewise, both walking and cycling have many health benefits, since these are active modes of transport (Garrard, Rissel, & Bauman, 2012). Consequently, research on cycling and the proliferation of cycling can be seen as contributing to a sustainable transport system and to achieving better public health (Haines *et al.*, 2010).

Hence, the planning for walking and bicycling has not been adequately championed by policymakers to reveal its wider benefits and its capability to improve the environment via a sustainable mobility transport agenda (Bosinuola, 2023). It is pertinent to note that walking and bicycling are often included in both concepts as a way to transport people and increase mobility in a sustainable transport system without increasing car use (Till &Tom, 2014). Using the bicycle as a mode of transport is regularly seen as one of the most sustainable portions of a transportation system since bicycles do not emit pollutants into the environment. In addition, bicycling does not require much space in urban areas and creates few risks for other road users or people in public spaces. Despite this, there is little research into planning theories for cyclists and bicycling, and the theoretical basis for planning for cyclists is poorly developed.

However, the focus on bicycle research has often been on the analysis of empirical evidence rather than on theoretical issues. While the work by authors such as Pucher and Buehler includes some theoretical considerations, it does not contribute to a larger theoretical understanding of bicycle planning. Therefore, theories in the field of mobility and velomobility have contributed to the theoretical understanding of bicycling as well as people's mobility patterns (Aldred, 2013; Pesses, 2010). The important benefit of the theory to this research is to balance the elements that are essential to creating cycling mobility

and utilisation for the purpose of overcoming the challenges impeding walking and cycling utilisation through informed planning theories that are instituted to achieve sustainable transport development.

2.1.2. THEORY OF PLANNED BEHAVIOUR (TPB)

The theory of planned behavior (TPB), according to Zhang (2018), originates from the theory of multiattribute attitude (TMA) and theory of reasoned action (TRA). Theory is a branch of social-psychological theory that describes the behavioural decision-making manners of human beings with the intention of understanding and predicting the behavior of individuals, ensuring that the successful completion of human behaviour is mainly controlled by individual will. Theory of planned behaviour (TPB) is hinged on the following factors: belief, intention, subjective norm, attitude, and perceived behavioral control perceived behavioral control which serves as the push for human decision as indicated in Figure 1

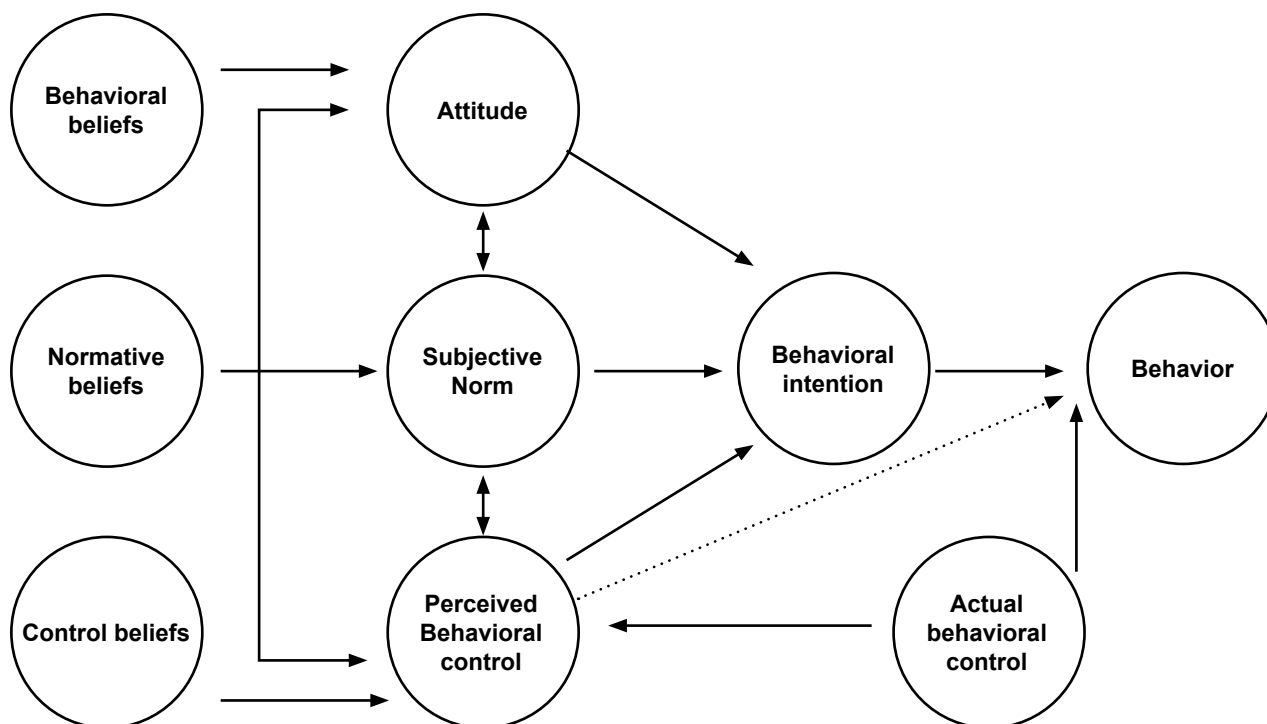


Figure 1: Revised Model of the Theory of Planned Behavior

Source: Zhang (2018)

This theory plays a dominant role, particularly when carrying out a study on adoption or utilisation because of its capability to measure

the extent of the utilisation or adoption, which is dependent on the behavioural belief, attitude, and behavioural intention, among others. The theory has been used widely in cycling studies, mainly by authors such as Acheampong (2017) and Yakeen (2019) to explore the extent to which socio-psychological constructs such as attitude, perceived behavioural control, and subjective norm stimulate the intention in the adoption of cycling as a means of mobility. However, the important benefit of this theory to this research is to reveal the extent of utilization of cycling and the impeding factors among undergraduate students of the Federal University of Technology (FUTA), Nigeria.

3. STUDY AREA

The Federal University of Technology Akure (FUTA) is located in Ondo State, Nigeria, and the school was founded in 1981 by the government of Nigeria to create universities that specialized in producing graduates with practical as well as theoretical knowledge in technologies. The school is situated along the Ilesha-Ibadan expressway. FUTA is experiencing rapid growth and concentration of people as a result of increments in the number of students enrolled in the university at both undergraduate and postgraduate levels. According to the information available on the University Website, the current

population of undergraduates stands at seventeen thousand five hundred and fifty (17,550) while that of postgraduate students is found to be five thousand, five hundred and fifty (5,550) with fifty-eight (58) departments and eight (8) schools respectively. The increase in the population of students on campus has brought about a high demand for transportation on campus, and this has led to several challenges, such as traffic congestion, accidents, and pollution, among others. The major transportation system available to satisfy the demand for transportation in the university is road mode transportation with buses and cars as the dominant means of movement, while few people rely on motorcycles

and bicycles (Olorunfemi, Adeniran & Adepoju 2019). Figure 1 below shows the Map of the FUTA campus in its National setting.

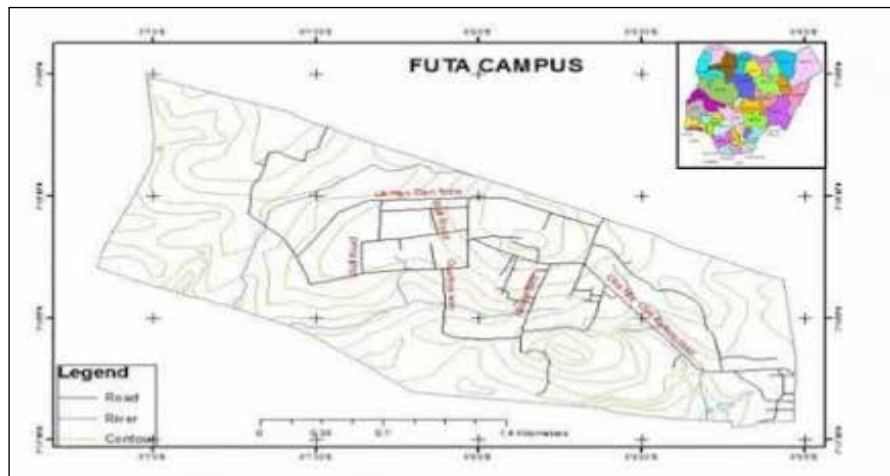


Figure 2: Map of Federal University of Technology, Akure, Nigeria

Source: Olorunfemi et al. (2019)

4. METHODOLOGY

The research adopts a descriptive cross-sectional survey research design involving a collection of data from a sample of individuals from a population at a single point in time. This survey design is appropriate for this study because it provides a timely assessment of factors impeding cycling utilisation in FUTA, and the design is resource-efficient, making it feasible for researchers with limited resources. Both primary and secondary sources. The research adopts both primary and secondary forms of data collection. The primary data was collected with the aid of questionnaire administration cum personal observation to find out the demographic information of FUTA undergraduate students and impeding factors to the utilisation of cycling in FUTA. While the secondary data essential for this study includes the map of The Federal University of Technology Akure (FUTA), undergraduate students' information sourced from the FUTA Website, as well as a variety of published and unpublished materials, such as journals, bulletins, magazines, among others, related to the study. Undergraduates were selected because they remain one of the important stakeholders whose they are welfare is crucial, particularly when making important university decisions regarding issues like transportation, housing, among others, that can ensure smooth academic activities to prepare them for further academic pursuit in the future.

To determine the sample size for the research, the study relied on the student's information record available on the FUTA website, which is currently put at seven thousand, five hundred and fifty (17,550) (Computer Resource Centre, FUTA, 2025). However, to arrive at a bearable sample size for the study, a proportionate sample size of 2% was used using purposive and random sampling techniques. This implies that three hundred and fifty-one copies of questionnaires were administered during this study. The purposive sampling used is to ensure that only candidates who are students of FUTA were surveyed, while the random technique is to ensure that individual students have equal rights to be sampled. The collected data were analysed and presented using descriptive statistics in the form of frequencies and percentages. Additionally, factors impeding cycling utilisation in FUTA were measured on a five-point Likert scale (1=Strongly Disagree; 2= Disagree; 3= Undecided; 4= Agree, and 5= Strongly Agree), and the weighted mean was used to determine the

major factors hindering cycling utilisation in FUTA.

5. FINDINGS AND DISCUSSION

5.1. Demographic Information of the FUTA Students

The demographic information of the students considered in this study includes their gender, age, monthly stipend, and means of movement on campus, among others (see Table 1). The gender of the respondents shows that 66% of the students were males and 34% were females. This implies that males are more than their female counterparts at the Federal University of Technology, Akure. Corroborating the above, the Centre for Gender Issues in Science and Technology (2018) stated that over 9,000 of the 12,000 students in the FUTA population are males, with the widest disparities in faculties of engineering and mineral sciences, as well as some departments such as Architecture, Computer Science, and Physics.

The age status shows that 26% of the students were less than 20 years old, 56% fell within 20-25 years, and 18% were above 25 years. This shows that the majority of the students' ages were within 20-25 years. The monthly stipend of the students revealed that 35% of the students earned less than 20,000.00 (\$12.46), 29% of them earned 20,000 (\$12.46) - 25,000.00 (15.58), 20% of them collected 25,000.00 (15.58) - 30,000.00 (\$18.69) and 16% of the students earned above 30,000.00 (\$ 18.69). From the above, it is indicated that the majority of the students received less than 20,000.00 (\$ 12.46) as their monthly stipend from their parents or guidance. Judging from the economic reality of the country, the stipend received may not be able to cater for their expenses, and as such, it may affect their choice of mobility within and outside the campus. This, perhaps, may be the reason why some of the students walk in the morning to save money, especially those living within the campus, and use

the bus in the afternoon/evening, as evidenced through the field survey.

Table 1: Demographic Information of FUTA Undergraduate Students

S/N	Variable	No. of Respondents	Percentage
1.	Gender		
	Male	231	66.00
	Female	120	34.00
	Total	351	100.00
2	Age		
	Less than 20 Years	92	26.00
	20 – 25 Years	195	56.00
	Above 25 Years	64	18.00
	Total	351	100.00
3	Monthly Stipend		
	Less than 20,000.00	124	35.00
	20,000.00 – 25,000.00	101	29.00
	25,000.00 – 30,000.00	71	20.00
	Above 30,000.00	55	16.00
	Total	351	100.00

Source: Author's Field Work, 2025.

5.2. Means of Mobility on Campus

The mean of mobility students within the campus of FUTA revealed that 22% of the students engaged in walking as a form of mobility within the campus, 7% used bicycles, 5% relied on motorcycles, 15% used tricycles, 24% used cars, and 29% used buses. This shows that the majority of the students used buses as a means of mobility on campus. Corroborating the above, Olorunfemi et al. (2019) established that the most accessible means of movement in FUTA is a bus. Although the study of Olorunfemi et al. (2019) confirmed that the majority of students were not satisfied with the condition of most of the buses used for campus shuttles. This shows that there is a need for an alternative, sustainable means of movement, such as walking and cycling, coupled with supporting infrastructure to enhance students' mobility on campus. In the same vain, Cox (2019) and Bosinuola (2023), emphasized that forproper sustainability of cycling, the adoption of velomobility theory will strengthening

the elements that are essential to creating cycling mobility and a way of overcoming the challenges impeding walking and cycling utilisation through informed planning theories that are instituted to achieve sustainable transport development.

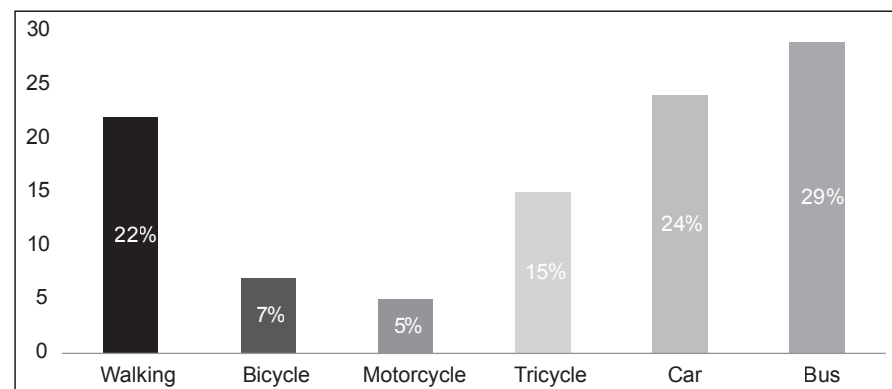


Figure 2: Means of Students' Mobility

Source: Author's Field Work, 2025.

5.3. Factors Impeding Effective Cycling Utilisation

The demand for transportation on campus arises as a result of increases in the population of students across tertiary institutions in Nigeria, and this oftentimes has resulted in transport externality such as traffic congestion, accidents, and pollution among others.

Consequently, these transport externalities remain a major impediment to effective cycling and walking utilisation (Olorunfemi & Adeniran, 2024). Table 2 revealed the factors impeding cycling utilisation in FUTA. These factors were equally ranked using a weighted mean based on the respondents' perception to determine the most pressing factors impeding effective cycling utilisation in the study area. The factors identified in the study area include lack of cycling lane/infrastructure, Lack of cycling lane, inadequate cycling route planning on campus, inadequate road safety for cyclists, fear of involving in an accident/availability of campus shuttle, an exasperating form of transport, not knowing how to ride a bicycle, am ashamed of riding bicycle because it is culturally belief that anyone riding a bicycle is poor, inadequate road signs, terrain problem and weather condition, and lack of bicycle training.

Among these factors, lack of a cycling lane/ infrastructure (W.M=5.00) and lack of cycling training (W.M=5.00) ranked first as the most significant factors impeding effective cycling utilisation in FUTA. These findings is in agreement with the study of Boniphace & Himidi (2016); Pearson et al. (2023); Gopi et al. (2024) and Usman & Adeel (2024) that lack of cycling lanes/ infrastructure and cycling training may be a major barrier to cycling adoption as a means of mobility.

Inadequate road signs (M.W. 4.35) ranked second as one of the factors impeding effective utilisation in FUTA. Road signs play a major role in guiding road users by enhancing the safety measures on the road. It is a device that shows road users about traffic regulations, special hazards, and other road conditions; and it helps to control the movement of vehicles, to reduce

the hazard of traffic operations, and to improve the quality of flow (Okoko, 2018; Olorunfemi, 2021). Road signs are of different shapes and colours and are installed in association with road markings. The functions are to give timely warnings of hazardous situations when they are not self-evident, impart messages to the drivers about the need to stop or limit their speeds and time, and to provide information to the road users on direction within cities/towns, or villages. Most of these signs are not adequate on FUTA roads, and this may result in conflict between the pedestrians and other road users on campus.

Inadequate road safety for cyclists and fear of being involved in road accidents, coupled with the availability of campus shuttle (M.W = 4.20), ranked third respectively as factors impeding cycling utilisation in FUTA. Supporting the above, Mbuya & Baker-Guni (2011) observed that safety remains a significant barrier to cycling, and where the safety is compromised, the utilisation of such mode/means may not be effective. These factors, as evidenced in many Nigerian campuses, remain a barrier that prevents many students from adopting cycling as a form of mobility and at the same time creates a major gap in the actualisation of the sustainable campus transport mobility agenda (Isiaka *et al.*, 2023). This may be the major reason why the majority of the students relied on the campus shuttle for their daily mobility.

Findings also indicated that 'I don't know how to ride a bicycle' (W.M = 4.00) ranked fourth, and 'I am ashamed of riding a bicycle because it is a cultural belief that anyone riding a bicycle is poor' (M.W = 3.62) ranked fifth, respectively. These findings concur with the study of Nkurunziza, Zuidgeest, Brussel & Van Maarseveen (2012) and Boniphace & Himidi (2016), although with different percentages and locations.

More so, terrain issues and weather conditions (M.W = 3.60) ranked sixth as one of the factors impeding cycling utilisation in FUTA. Terrain and weather conditions issues are natural issues that, in most cases, man cannot control. Boniphace & Himidi (2016) opined that poor weather condition is found to be one of the main challenges for bike-share/cycling systems. Rainfall and hot season, as well as poor terrain, were discovered by Ahmed, Rose & Jacob (2010) and Isiaka *et al.* (2023) to be obstructions for riding a bike or cycling in some cities in many parts of the world. However, the level of obstacles caused by weather conditions is not as much, compared to safety and infrastructure (Boniphace & Himidi, 2016).

Inadequate cycling route planning on campus (M.W = 3.30) ranked seventh. Poor cycling route planning has been a major issue impeding cycling utilisation in most tertiary institutions in Nigeria because most roads constructed are not pedestrian inclusive, which hampers effective walking and cycling. Corroborating the above, Akanmu (2023) observed that poor road planning standards adopted in most Nigerian cities have made movement difficult, especially during the peak period of the day, resulting in delays and wasting of time among others.

Exasperating form of transport (2.80) ranked eighth and the least among the factors impeding cycling utilisation in FUTA. Though cycling operation requires energy of force to pedal, especially if one is using manually pedal bicycle and could result in fatigue. This has been discovered to be a hindrance for many people to adopt bicycle as form of mobility. This, perhaps may be the reason why some scholars, such as Boniphace, & Himidi (2016), Mogaji (2022), and Usman & Adeel (2024), among others, are clamoring for the use of electric bike/cycling systems for mobility, especially at the urban centre.

Table 2: Factors impeding cycling utilisation in FUTA.

S/N	Factors Impeding Cycling Utilisation in FUTA	Weighted Mean	Rank
1.	Lack of cycling lane/infrastructure	5.00	1
2.	Inadequate cycling route planning on campus	3.30	7
3.	Inadequate road safety for cyclists	4.20	3
4.	Fear of being involved in an accident/availability of campus shuttle	4.20	3
5.	Exasperating form of transport	2.80	8
6.	Don't know how to ride a bicycle.	4.00	4
7.	I am ashamed of riding a bicycle because it is a cultural belief that anyone riding a bicycle is poor	3.62	5
8.	Inadequate road signs	4.35	2
9.	Terrain problems and weather conditions,	3.60	6
10	Lack of bicycle training	5.00	1

Source: Author's Field Work, 2025.

5.4. Conclusion and Recommendation

The study has examined the factors impeding cycling utilisation among students of the Federal University of Technology, Akure, Nigeria. Findings revealed that lack of cycling lanes/infrastructure and cycling training ranked first as the most significant factors impeding effective cycling utilisation in FUTA, inadequate road signs ranked second, inadequate road safety for cyclists and fear of involving road accident ranked coupled with the availability of campus shuttle ranked third respectively, 'I don't know how to ride a bicycle' ranked fourth and 'I am ashamed of riding bicycle because it is culturally belief that anyone riding a bicycle is poor' ranked fifth respectively;

terrain issues and weather condition ranked sixth, inadequate cycling route planning on campus ranked seventh and exasperating form of transport ranked eighth and the least among the factors impeding cycling utilisation in FUTA.

To ameliorate these challenges as identified in this study, there is a need for cycling lanes/infrastructure to be integrated into FUTA's road network and development plan. This will motivate the students to see cycling as a form of campus mobility and will encourage them to key into the sustainable mobility agenda to reduce the impact of climate change on campus by leveraging environmentally friendly means of mobility to create well aesthetics pleasing university environment. For robust cycling utilization in FUTA, it is pertinent to ensure that adequate safety measures for cyclists and other road users on campus need to be implemented. This can be achieved with a clear road signs designed that will be adequately fixed in strategic places to be visible to all road users on campus to enhance the safety of both pedestrians and other motorists within the university environment. There is a need for the establishment of a cycling club or association in FUTA. This club or association will be saddled with the responsibility of providing training to the students on how to ride a bicycle. This will encourage many of them to start using bicycles and change their orientation about the cultural belief that anyone riding a bicycle is poor.

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Notes