A STUDY OF CROSSWALK SAFETY IN A UNIVERSITY CAMPUS

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RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF GEOGRAPHY AND REGIONAL PLANNING, FACULTY OF SOCIAL SCIENCES, UNIVERSITY OF BENIN, BENIN CITY IN PARTIAL FUFILMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF SCIENCE (B.Sc.) HONOURS DEGREE IN GEOGRAPHY AND REGIONAL PLANNING

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CERTIFICATION

This is to certify that this research was carried out by **JOEL, MERCY BOLUWATIFE** with Matriculation number: **SCC2003955** in the Department of Geography and Regional Planning, Faculty of Social Sciences, University of Benin, Benin City, Nigeria.

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DEDICATION

This project is dedicated wholeheartedly to the Almighty God who has helped me thus far, granting me the grace to start and finish this noble course in this noble institution of learning. This work is also dedicated to my parents MR. JOEL AIGBEDION OKIRIA and MRS. TEMITOPE ABRAHAM JOEL for their love and support all through my years of study.

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ABSTRACT

This study investigates crosswalk safety in Ugbowo Campus of the University of Benin, focusing on the perceptions of road users, adequacy of crosswalk infrastructure, compliance with safety measures, and enforcement of pedestrian safety rules. Using a quantitative approach, data was collected through structured questionnaires administered to three sample groups of students, staff, and drivers in the campus. The data was analysed using descriptive statistics and hypotheses was tested with chi-square at 0,05 significance level. The results suggest that comprehensive solutions incorporating improved infrastructure, increased enforcement, and educational campaigns are essential for creating a safer campus environment for all road users.

The findings revealed a general negative perception of crosswalk safety, with key concerns around aggressive drivers' behavior, including over-speeding and mobile phone usage while walking and driving. The research also identifies significant deficiencies in crosswalk signage and markings, with a substantial proportion of respondents reporting poor visibility of crosswalk infrastructure. Whereas, drivers claimed to yield at crosswalks, pedestrians frequently experienced drivers' non-compliance, highlighting a disparity in perceptions between these groups. Furthermore, the study found a widespread agreement on the need for infrastructural improvements such as better signage and clearer markings. These findings emphasize the need for addressing both infrastructure deficiencies and behavioral issues to improve pedestrian safety. The study contributes to existing knowledge by providing empirical data on crosswalk safety in a university setting, offering valuable insights for future interventions aimed at enhancing pedestrian infrastructure and safety enforcement.

This study concluded by providing important insights regarding crosswalk safety in Ugbowo Campus of the University of Benin, emphasising critical concerns related to pedestrian and driver conduct, along with infrastructural deficiencies. It recommended that all existing crosswalk signage should be repainted using reflective and durable thermoplastic materials to improve visibility, particularly at night and the University's Security Department, along with local traffic authorities, should enforce pedestrian laws to ensure compliance by both pedestrians and drivers.

CHAPTER ONE

1.0 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Pedestrians are concerned with motorist and driver's behavior at crosswalks, as are motorists concerned with pedestrian behavior at crosswalks. Pedestrians considered most motorists and driver's behavior to be careless toward them. On the other hand, most motorists believe that pedestrians are very careless when crossing roads. Crosswalk is a portion of the roadway designated for pedestrian crossing, They are designated by surface markings, including lines, on the roadway. Marked pedestrian crossings are often found at intersections, but may also be at other points on busy roads that would otherwise be too unsafe to cross without assistance due to the number of vehicles, speed, or road widths. They are also commonly installed where large number of pedestrians are attempting to cross (such as in shopping areas) or where vulnerable road users (such as school children and university students) regularly cross.

Crosswalks, as fundamental components of pedestrian infrastructure, are designed to enhance pedestrian safety by providing designated areas for crossing roadways. However, despite their intended purpose, crosswalks can pose safety challenges for pedestrians due to various factors. One critical aspect influencing pedestrian safety at crosswalks is drivers' behavior. Research by Bungum et al. (2019) indicates that drivers' compliance with yielding to pedestrians at crosswalks is often inadequate, leading to increased risks

of accidents. This underscores the importance of enforcing traffic regulations and implementing measures to improve driver awareness and adherence to pedestrian right-of-way laws.

Additionally, the design and visibility of crosswalks play a crucial role in pedestrian safety. Study by Zegeer et al. (2019) emphasizes the significance of factors such as crosswalk markings, signage, and lighting in enhancing pedestrian visibility and reducing the likelihood of collisions with vehicles. Furthermore, the presence of infrastructure enhancements such as raised crosswalks can provide additional safety benefits by physically separating pedestrians from vehicular traffic, as highlighted in research by Tay et al. (2021).

Moreover, pedestrian behavior and decision-making at crosswalks also influence safety outcomes. Research by Schwebel et al. (2018) suggests that pedestrian distraction, such as texting or using smartphones while crossing, can increase the risk of accidents. Educating pedestrians about the importance of attentiveness and adherence to traffic signals and crosswalk regulations is essential for promoting safer crossing behaviors.Research by Hess et al. (2020) demonstrates that the presence of amenities such as street lighting, pedestrian crossings, and traffic calming such as speed breaks measures in pedestrian-friendly university environments can contribute to improved safety outcomes at crosswalks.

Moreover, environmental factors such as weather conditions and time of day can impact pedestrian safety at crosswalks. Research by Donnell et al. (2022) suggests that adverse weather, such as rain or snow, can reduce visibility and increase slipperiness, posing additional risks for pedestrians and drivers. Implementing weather-responsive infrastructure solutions, such as improved drainage systems and anti-slip surfaces, can mitigate these risks and enhance pedestrian safety in diverse environmental conditions. Furthermore, the surrounding built environment and land use patterns can impact pedestrian safety at crosswalks. For instance, research by Hess et al. (2020) demonstrates that the presence of amenities such as street lighting, pedestrian crossings, and traffic calming measures in pedestrian-friendly urban environments can contribute to improved safety outcomes at crosswalks. Unlike busy urban streets and roads, these measures are not sufficient across highways.

Additionally, demographic factors such as age and mobility impairments can influence pedestrian safety at crosswalks. Elderly individuals and people with disabilities may face challenges in navigating crosswalks safely, as highlighted in studies by Di Stefano et al. (2016) and Sze et al. (2018). Providing accessible infrastructure and tailored educational programs can help address the specific needs of these vulnerable populations and improve their safety at crosswalks. University campuses are vibrant communities with a high volume of pedestrian traffic, posing a significant risk of accidents. Crosswalks are critical areas where pedestrians and vehicles interact, with safety is concerns.

University campuses are hubs of pedestrian activity, with high volumes of students, faculty, and staff walking to classes, libraries, and other facilities. Pedestrian safety is a critical concern on university campuses where pedestrians are vulnerable to crashes and injuries. Crosswalk safety is an essential aspect of pedestrian safety, as pedestrians are most vulnerable when crossing roads.

1.2 Statement of the Research Problem

Research by Ray (2013) asserts that besides trying to safely cross the street, where to stand or not stand, with approaching motorist in a crosswalk is one of the major problem faced by pedestrians. He further explains that the universal problem for people on foot (or non-motorized wheels) is how to make approaching traffic stop without entering the "Killing Zone" in front of traffic before crossing. He noted that pedestrians and drivers are confused about when a driver is required to stop for a pedestrian crosswalk, drivers are emboldened to refuse to stop and pedestrians are more reluctant to excercise their legal rights of way to cross street.

Distractions caused by the use of mobile phones among pedestrians and drivers, increases the risk of pedestrian-vehicle conflicts at crosswalks in university campuses (Nasar et al 2008). Studies by Antoniou (2008) and Khattak *et al* (2015) asserts that inadequate lighting and visibility at crosswalks on university campuses can lead to reduced driver yielding rates and increased pedestrian crash risk. The design and configuration of crosswalks on university campuses can influence driver's behavior and pedestrian's safety,

with certain designs associated with increased risk of pedestrian-vehicle conflicts. Pedestrian compliance with traffic signals and crosswalk markings is low on university campuses, increasing the risk of pedestrian-vehicle conflicts. The speed of vehicles approaching crosswalks on university campuses is a significant factor in pedestrian crash risk, with higher speeds associated with increased risk of severe injury or fatality as highlighted in research by Rosen et al (2011).

Study by Markowitz et al (2011) asserts that the lack of drivers yield rates, excessive vehicles speeds, and inadequate visibility contributes to the increased risks of pedestrian crashes at crosswalks. Furthermore, the unique characteristics of University Campuses, such as high pedestrian volumes, complex road networks, and distracted drivers, excebate the problem. Despite the presence of crosswalks and traffic calming measures, pedestrian-vehicle conflicts remain a significant concern in university campuses as a result of injuries and fatalities. The Ugbowo Campus of University of Benin, with its high volume of pedestrian traffic and limited traffic control measures is no exception.

Existing research on crosswalk predominantly concentrate on urban neighborhoods and highway contexts. There is scarcity of studies focusing on the distinct characteristics of University Campus environments. This presents a need for more focused study that accounts for the unique characteristics and safety challenges in a university campus.

1.3 Research Questions

The following research questions were raised to guide the research process.

1. What is the perception of pedestrians and drivers on crosswalk safety in the university campus?

2. Are there adequate crosswalks signs and markings in the Ugbowo Campus of The University of Benin?

3. Does the crosswalk signs and markings in the university campus enhance pedestrian safety?

4. Do drivers and pedestrians adhere to road safety measures provided by crosswalks signs and markings?

5. How is adherence to crosswalk signs and markings enforced in the campus?

These questions were answered in Chapter four of this work.

1.4 Aim and Objectives of the Study

The aim of this study is to investigate crosswalk safety in the University of Benin, Benin City. The main objectives of this study are;

1. to identify existing crosswalk (Signage/Signals and Markings) in the campus.
2. to access the perception of pedestrians and drivers about the crosswalk signals and markings in the campus.
3. to determine the level of pedestrian usage of the existing crosswalk markings in the campus.

4. to access drivers and pedestrians adherence to safety measures provided by crosswalk signals and markings.

1.5 Scope of Study

The study area of this research is the main campus (Ugbowo Campus) of the University of Benin, Benin City, Edo State, Nigeria. The scope covers only the designated crosswalk points in the campus.

1.6 Relevance and Significance of This Study

Research by Khattak et al (2015) opined that understanding the factors that influence crosswalk safety on university campuses can inform the development of effective countermeasures, such as engineering improvements, education campaigns, and enforcement strategies. He also noted that enhancing crosswalk safety on university campuses can also promote walking and other forms of sustainable transportation, contributing to a healthier and more environmentally friendly community.

This research has both theoretical and empirical significance. The theoretical significance however is that it will contribute as well as expand the frontiers of knowledge on the relevance of crosswalk safety in various university campuses in Nigeria. On the other hand, the empirical significance of this study is that it will impact knowledge by providing empirical facts on various crosswalks signs, usages, and safety in university campuses. Crucially, this study is geared towards identifying various possible measures that can be implemented to improve crosswalk safety within the

campus environment. However, it can serve as a guide for decision-makers, stakeholders and management of this institution, giving them a clear picture of the impact of crosswalk safety and as a stepping stone to improve safety measures in the campus.

1.7 The Study Area

This study will be carried out in Ugbowo Campus of the University of Benin, Benin City. The University of Benin was founded in 1970. It started as an Institute of Technology and was accorded the status of a full fledged University by the National Universities Commission (NUC) on 1st July, 1971. In his Budget Speech in April 1972, the then Military Governor of Mid-Western Region, Co1. S. O. Ogbemudia (then also Visitor to the University) formally announced the change of the name of the institute of Technology to the University of Benin. On 1st April, 1975 the university at the request of the State Government, was taken over by the Federal Government and became a Federal University. Today, the University has continued to grow from strength to strength with a number of Faculties, Departments, Institutes and Units.

University of Benin consists of two main campuses; the Ekehuan Campus and Ugbowo Campus. The Ugbowo campus which is the main focus of this study consists of several faculties such as the Faculty of Agriculture, Faculty of Arts, Faculty of Education, Faculty of Engineering, Faculty of Environmental Sciences, Faculty of Law, Faculty of Management Sciences, Faculty of Life Sciences, Faculty of Pharmacy, Faculty of

Physical Sciences, Faculty of Social Sciences, School of Basic Medical Science, School of Dentistry, School of Medicine and Faculty of Veterinary Medicine.

According to the data obtained from the Department of Academic Planning and Students Affairs Division, University of Benin, as at the time of the study being carried out (August - December 2024), the total number of full-time students' population in the Ugbowo Campus of the University of Benin for the 2023/2024 academic session is 39,326.

The Campus has a circular road pattern that surrounds the campus, providing access to various faculties and facilities. Different roads leads to each faculties, and hostels such as Hall 1, Hall, 2, NDDC Hostel, Keystone and others. Smaller roads provides access to services like the University library, auditorium, and administrative buildings (See Figure 1). The University operates shuttle buses and cabs for students and staffs, covering all the routes. However, students and staffs bring their cars and motorcycles into the campus. Pedestrian walkways and paths connect various parts of the campus. The co-location of primary and secondary schools within the University campus creates high risk environment at crosswalks, particularly during peak hours when pedestrian traffic surges. This increases the likelihood of conflicts between vulnerable road users, such as students, and vehicles. The ongoing construction of new buildings and facilities in the campus further attracts more vehicles and workers, which can compromise pedestrian safety at crosswalks. Most drivers are not familiar with the presence of crosswalk signals and markings in the campus or the extreme care or driving in such environment.

Fig 1: **University of Benin, Ugbowo Campus**

Source; Google Earth, (Modified by Anthony, 2024)

CHAPTER TWO

CONCEPTUAL FRAMEWORK, THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1 Introduction

This chapter reviewed the related literature of the study. It provides an over view of the conceptual framework, relevant theories of the study and finally reviewed related empirical studies.

2.2 Conceptual Framework

2.2.1 Crosswalk safety

Crosswalk safety is a vital component of pedestrian infrastructure, particularly in high-traffic areas like university campuses. Pedestrian vulnerability in traffic systems has been widely documented, with distractions and insufficient infrastructure often contributing to accidents. For instance, distracted pedestrian behavior, such as mobile phone use while crossing streets, significantly impairs attention and increases accident risk. Hou et al. (2021) reported that in China, mobile phone distractions led to reduced cognitive and visual focus, increasing the likelihood of pedestrians being involved in accidents, especially at unsignalized intersections .

Additionally, pedestrian behavior and compliance with crosswalk rules are heavily influenced by the visibility and design of crosswalks. Sisiopiku and Akin (2003)

emphasized that clear and well-marked crosswalks not only enhance compliance but also reduce pedestrian-vehicle conflicts. Their study found that midblock crosswalks with visible markings were preferred by 83% of pedestrians, and 71.2% of crossings at such locations were compliant with safety norms . Similarly, Schwebel et al. (2022) observed that distraction levels and unsafe crossing behaviors were highest in campus settings, highlighting the need for targeted interventions in such environments .

The interaction between drivers and pedestrians also plays a crucial role in crosswalk safety. Piazza et al. (2022) found that driver adherence to pedestrian rights-of-way was significantly influenced by crosswalk design and signage. Crosswalks with effective signage and markings encouraged safer behaviors among both pedestrians and drivers, reducing the likelihood of accidents . Furthermore, Wells et al. (2018) noted that headphones and mobile phones were the most common distractions, with over one-third of observed pedestrians engaged in these behaviors while crossing, underscoring the importance of behavioral interventions alongside infrastructural improvements .

Enforcement mechanisms and awareness campaigns are also critical for enhancing crosswalk safety. For instance, targeted educational initiatives can address distracted walking behaviors, while stricter traffic enforcement ensures compliance with pedestrian right-of-way laws. As highlighted by Schwebel et al. (2022), designing crosswalk environments that prioritize safety, such as through physical barriers or intelligent traffic signals, can significantly mitigate risks associated with pedestrian distractions . Improving crosswalk safety requires a comprehensive approach that integrates behavioral

insights, infrastructural advancements, and policy enforcement. By addressing these interlinked factors, it is possible to create safer environments for pedestrians, particularly in high-risk settings like university campuses.

2.2.2 Perception of pedestrians and drivers on crosswalk safety

The perception of crosswalk safety among pedestrians and drivers is a critical aspect of traffic management and safety interventions, particularly within the unique environment of university campuses. Understanding these perspectives provides insights into the effectiveness of crosswalk infrastructure and the behavioral tendencies that influence its use. Pedestrians and drivers often hold differing views on crosswalk safety based on their roles and experiences in the traffic system. For pedestrians, crosswalks are viewed as critical zones of safety, but their effectiveness is frequently questioned when signage, markings, or enforcement are inadequate. Drivers, on the other hand, may perceive crosswalks as interruptions to traffic flow, which can influence their compliance with pedestrian right-of-way laws. Research has shown that perceptions of safety are closely tied to infrastructure quality, visibility, and the behavioral tendencies of other road users (Sisiopiku & Akin, 2003) Factors influencing these perceptions within university campuses are particularly nuanced. Campuses typically have a high volume of both pedestrian and vehicular traffic, creating frequent interactions at crosswalks. As Schwebel et al. (2022) noted, campus environments are hotspots for distracted behaviors among both pedestrians and drivers, with high rates of mobile phone use significantly impacting

situational awareness and compliance with crosswalk norms . Wells et al. (2018) observed that over one-third of pedestrians on campuses were distracted while crossing, and distractions such as texting or listening to music reduced their likelihood of checking for oncoming traffic . Similarly, drivers in campus environments may experience reduced attention due to the high density of pedestrians, leading to heightened risks of conflicts and accidents.

Behavioral insights into crosswalk usage further reveal the complexity of these interactions. Piazza et al. (2022) found that mobile device use was a common distraction among pedestrians, with significant differences in behavior based on gender and intersection type. Women were more likely to engage in texting or talking on the phone, while men were observed to use headphones more frequently. Such behaviors not only compromise pedestrian safety but also affect drivers' ability to anticipate and react to pedestrian movements . Furthermore, Hou et al. (2021) highlighted that the intention to comply with crosswalk rules among both pedestrians and drivers is influenced by attitudes, perceived behavioral control, and the situational context, underscoring the role of psychological factors in crosswalk safety .

The perception of crosswalk safety among pedestrians and drivers is shaped by a combination of infrastructure quality, behavioral tendencies, and situational factors. On university campuses, where pedestrian and vehicular interactions are particularly dense, addressing these perceptions requires targeted interventions. Improving infrastructure, reducing distractions, and fostering mutual respect among road users are critical for

enhancing safety and compliance at crosswalks.

2.2.3 Crosswalk Signage and Markings

Crosswalk signage and markings are essential elements in ensuring pedestrian safety and facilitating orderly traffic interactions. These visual cues serve to demarcate crossing zones, guide pedestrian behavior, and alert drivers to pedestrian activity, significantly reducing the likelihood of accidents. Various types of crosswalk signs and markings exist, ranging from standard painted lines to advanced traffic control devices such as illuminated signals and flashing lights. Sisiopiku and Akin (2003) emphasize the importance of clear and visible crosswalk markings, noting that their design and placement directly influence pedestrian compliance and driver awareness . Similarly, midblock crosswalks with highly visible markings were found to have higher compliance rates, as pedestrians perceive them as safer and more accessible than unmarked alternatives .

In university environments, where pedestrian and vehicular traffic frequently intersect, the adequacy and visibility of signage become even more critical. Research by Schwebel et al. (2022) identified campuses as high-risk zones for pedestrian accidents, often exacerbated by insufficient or poorly maintained signage . Factors such as faded markings, obstructed signs, and inadequate lighting can diminish the effectiveness of these safety measures, leading to confusion and increased risk for pedestrians and drivers alike. Ensuring proper maintenance and updating of crosswalk signage in these areas is

crucial for fostering a safer traffic environment.

The role of signage in shaping pedestrian and driver behavior is multifaceted. Clear and conspicuous signage improves adherence to traffic rules and reduces conflicts at crosswalks. Piazza et al. (2022) found that well-placed signage significantly enhances driver compliance with pedestrian right-of-way, particularly at unsignalized intersections . Conversely, inadequate signage can lead to risky behaviors such as jaywalking or failing to yield, as noted by Wells et al. (2018), who observed a direct correlation between the visibility of crosswalks and pedestrian attentiveness . Moreover, the strategic use of signs and markings tailored to the unique demands of campus environments, such as high pedestrian density and frequent crossings, can further mitigate risks and improve safety outcomes.

Crosswalk signage and markings play a pivotal role in enhancing pedestrian safety and promoting harmonious interactions between pedestrians and drivers. The types and standards of these safety measures must be carefully selected and rigorously maintained, especially in high-risk areas like university campuses. By prioritizing visibility and clarity, signage and markings can effectively influence behavior, reduce accidents, and create a safer environment for all road users.

2.2.4 Impact of Crosswalk Features on Safety

Crosswalk features play a crucial role in enhancing pedestrian safety, as well-designed crosswalks can significantly reduce the risk of accidents and improve the overall traffic

environment. The effectiveness of crosswalk designs lies in their ability to provide clear guidance to both pedestrians and drivers, thereby minimizing conflicts and ensuring safe passage. Sisiopiku and Akin (2003) highlighted that crosswalks with visible markings, proper signage, and supportive infrastructure are more likely to achieve compliance from road users and reduce unsafe behaviors . Features such as signalized intersections, raised crosswalks, and pedestrian refuge islands have been shown to improve safety by delineating crossing zones and managing traffic flow effectively.

There is substantial evidence linking crosswalk signage and markings to reduced pedestrian accidents. Research conducted by Schwebel et al. (2022) revealed that high-visibility markings, such as zebra stripes and reflective paint, significantly reduce the risk of collisions at crossings by enhancing driver awareness of pedestrian zones . Similarly, Piazza et al. (2022) found that the presence of clear and prominent signage improved driver adherence to pedestrian right-of-way laws, particularly at unsignalized intersections where the risk of accidents is typically higher . These findings underscore the critical importance of implementing and maintaining high-quality crosswalk features to ensure their effectiveness in accident prevention.

University campuses present unique safety challenges due to the high volume of both pedestrian and vehicular traffic, as well as the prevalence of distracted behaviors among road users. Wells et al. (2018) observed that over one-third of pedestrians in campus environments were distracted while crossing, often failing to check for oncoming traffic or use designated crossing points . This issue is compounded by insufficient crosswalk

features in some campuses, where faded markings or poor lighting reduce the visibility and effectiveness of crossings. Addressing these campus-specific challenges requires targeted interventions, such as the installation of advanced crosswalk designs with flashing beacons, enhanced lighting, and traffic-calming measures like speed bumps near pedestrian zones.

Mitigating safety risks in campus settings also involves promoting behavioral change alongside infrastructural improvements. Educational campaigns aimed at raising awareness of crosswalk safety, combined with stricter enforcement of traffic rules, can encourage compliance among both pedestrians and drivers. As highlighted by Hou et al. (2021), interventions that integrate behavioral insights with improved crosswalk features are most effective in reducing accidents and creating a safer traffic environment . Crosswalk features are integral to pedestrian safety, with well-designed markings and signage playing a vital role in reducing accidents. Addressing the specific safety challenges of university campuses requires a multifaceted approach that combines advanced crosswalk designs, maintenance of existing features, and targeted behavioral interventions to ensure the safety of all road users.

2.2.5 Adherence to Crosswalk Regulations

Adherence to crosswalk regulations is a critical factor in ensuring pedestrian safety and fostering harmonious interactions between road users. Patterns of compliance among pedestrians and drivers vary significantly based on factors such as crosswalk design,

visibility, and situational context. Piazza et al. (2022) observed that pedestrian compliance with designated crossings was higher at intersections with clear markings and signage, whereas unsignalized or poorly marked crosswalks often led to jaywalking and other unsafe behaviors . Drivers, on the other hand, were more likely to yield to pedestrians at well-maintained and visibly marked crosswalks, highlighting the role of infrastructure in shaping adherence to traffic regulations.

Barriers to adherence to crosswalk measures include both behavioral and environmental factors. Distractions, such as mobile phone use, are a common issue among pedestrians, leading to reduced attention and lower compliance with crossing rules. Wells et al. (2018) noted that over 30% of observed pedestrians on university campuses were engaged in distracting activities while crossing, which significantly compromised their safety . Similarly, drivers often face challenges such as poor visibility, high traffic volume, or lack of awareness of pedestrian zones, which can hinder their compliance with crosswalk regulations. Sisiopiku and Akin (2003) emphasized that environmental factors such as inadequate lighting and faded markings, further exacerbate these issues by reducing the clarity of crossing zones and increasing the likelihood of violations .

The interplay between safety awareness and behavior is pivotal in understanding adherence to crosswalk regulations. Schwebel et al. (2022) highlighted that while awareness of traffic rules is essential, it does not always translate into compliant behavior due to competing priorities, such as the convenience of crossing at undesignated points . Behavioral interventions, such as awareness campaigns and educational programs, are

therefore necessary to bridge the gap between knowledge and action. Hou et al. (2021) demonstrated that targeted interventions addressing specific behaviors such as distracted walking or speeding near crosswalks, significantly improved compliance rates and reduced the incidence of accidents .

In university environments, fostering adherence to crosswalk regulations requires a multifaceted approach that addresses both behavioral and infrastructural barriers. This includes implementing well-designed and clearly marked crossings, improving visibility through enhanced lighting, and enforcing regulations consistently. By combining these measures with educational initiatives that promote safety awareness, campuses can create a safer and more compliant environment for both pedestrians and drivers.

2.2.6 Enforcement of Crosswalk Safety Measures

Enforcement of crosswalk safety measures is critical in ensuring adherence to traffic regulations and safeguarding pedestrians, particularly in environments with high pedestrian and vehicular interaction. Effective strategies for monitoring and enforcing crosswalk regulations often involve a combination of physical, technological, and behavioral interventions. Piazza et al. (2022) emphasized the importance of visible enforcement mechanisms, such as the presence of traffic officers or automated monitoring systems in encouraging compliance among both pedestrians and drivers . Automated enforcement technologies, including speed cameras and pedestrian crossing sensors, have proven effective in reducing violations at high-risk intersections.

Additionally, the use of signage indicating the presence of monitoring devices can further enhance compliance.

Enforcing crosswalk regulations on university campuses presents unique challenges due to the dynamic nature of campus traffic and the prevalence of distractions. Schwebel et al. (2022) observed that the high density of pedestrian and vehicular traffic on campuses often leads to a higher incidence of violations, as both groups face competing priorities and distractions . The widespread use of mobile devices among students exacerbates this issue, as highlighted by Wells et al. (2018), who reported that distracted walking significantly undermines pedestrian compliance with crosswalk rules . Moreover, the limited presence of law enforcement personnel on campuses, combined with the informal traffic culture often observed in these settings, pose additional challenges to the consistent application of safety measures.

Despite these challenges, there are notable examples of successful enforcement practices in similar contexts that can inform campus-specific strategies. Sisiopiku and Akin (2003) detailed how clear communication of crosswalk rules combined with periodic enforcement campaigns improved compliance rates in urban areas . Similarly, targeted interventions, such as temporary speed reductions and enhanced signage during peak pedestrian hours have been effective in reducing accidents and violations in high-traffic zones. Educational programs aimed at fostering a culture of safety among students and faculty, coupled with visible enforcement efforts, have also shown promise in addressing compliance rate on campuses.

In conclusion, the enforcement of crosswalk safety measures requires a tailored approach that considers the specific challenges of university environments. Strategies combining automated technologies, visible enforcement, and educational initiatives can significantly improve compliance and reduce risks. By learning from successful enforcement practices in similar contexts, universities can develop effective interventions to promote safer behaviors and enhance the overall safety of campus crosswalks.

2.3 Theoretical Framework

Theory of Planned Behavior

The Theory of Planned Behavior (TPB) provides a comprehensive framework for understanding and predicting human behavior, regarding crosswalk safety. According to TPB, behavioral intentions are influenced by three main factors: attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991). These factors interact to shape individuals' intentions and subsequent behavior on crosswalks.

Attitudes refer to individuals' evaluations of the behavior in question, including their beliefs about its outcomes and the overall desirability of performing the behavior (Ajzen, 1991). In the context of crosswalk usage, attitudes reflect individuals' perceptions of the benefits, costs, and risks associated with using crosswalk facilities compared to alternative crossing options. Positive attitudes towards crosswalks, driven by perceived safety, convenience, and efficiency, are likely to result in higher intentions and actual usage rates (Chen & Chen, 2021).

Subjective norms represent individuals' perceptions of social pressure or expectations regarding the performance of the behavior (Ajzen, 1991). These norms are influenced by the beliefs about whether significant others (e.g., friends, family, peers) approve or disapprove of the behavior and the motivation to comply with these norms (Chen & Chen, 2021). In the context of crosswalk utilization, subjective norms reflect the influence of social factors such as peer behavior, cultural norms, and perceived social support for using pedestrian infrastructure. Positive subjective norms, indicating social approval and support for crosswalk usage are likely to strengthen individuals' intentions and increase actual utilization rates (Guo et al., 2018).

Perceived behavioral control refers to individuals' beliefs about their ability to perform the behavior successfully, taking into account internal and external factors that may facilitate or hinder behavior enactment (Ajzen, 1991). Perceived behavioral control encompasses both self-efficacy (confidence in one's ability to use crosswalk) and perceived controllability (perceptions of external barriers or facilitators affecting crosswalk usage) (Chen & Chen, 2021). In the context of crosswalk safety, perceived behavioral control reflects individuals' assessments of factors such as crosswalk accessibility, safety, and ease of use.

The Theory of Planned Behavior provides a robust theoretical framework for understanding the cognitive processes and social influences underlying crosswalk safety. By examining attitudes, subjective norms, and perceived behavioral control, researchers can identify key determinants of crosswalk usage behavior and develop targeted

interventions to promote pedestrian-friendly environments and enhance pedestrian mobility and safety within the campus.

2.4 Literature Review

Schwebel et al. (2022) conducted a study titled: *Distracted pedestrian behavior: An observational study of risk by situational environments*. The objective of the research was to examine the prevalence and impact of distracted pedestrian behavior across different urban settings, including college campuses, downtown business districts, and other environments. Using an observational methodology, the study assessed distraction rates and unsafe crossing behaviors among pedestrians. The research involved a sample size of 112 intersections, which were systematically observed across various urban locations in the United States, including urban college campuses. The findings revealed that distraction rates were significantly higher in campus environments, with 52.9% of pedestrians displaying distracted behaviors such as mobile phone use while crossing streets. Furthermore, the study established a link between distraction and unsafe crossing behaviors, indicating a potential risk factor for pedestrian safety. However, the study had some notable gaps. While it provided valuable insights into the rates and risks of distracted pedestrian behavior, it did not thoroughly address the role of enforcement measures or the impact of signage in mitigating these risks. Future research could explore these dimensions to offer a more comprehensive understanding of how to improve pedestrian safety in similar settings.

Sisiopiku and Akin (2003) conducted a study titled *Pedestrian behaviors and perceptions towards various pedestrian facilities*. The objective of the research was to explore pedestrian behaviors and perceptions of different crosswalk facilities, focusing on factors that influence crossing preferences and compliance. The study employed a mixed methodology combining surveys and observational techniques to gather data on pedestrian interactions with various crosswalk types. Although the exact sample size was not specified, the research was conducted in Michigan, USA, near a university campus. The findings indicated a strong preference among pedestrians for marked midblock crosswalks which were perceived as safer and more accessible. Additionally, the visibility of signage was identified as a significant factor influencing pedestrian compliance with designated crossing zones. Despite its valuable contributions, the study had a notable limitation. It lacked a detailed analysis of driver behavior which is a critical aspect of understanding the dynamics of pedestrian-vehicle interactions. Addressing this gap in future research could provide a more holistic view of crosswalk safety and compliance.

Piazza and Zegeer (2022) conducted a study titled *Yielding Compliance at High Visibility Crosswalks* with the objective of examining the impact of high-visibility crosswalks on driver yielding behavior. The study sought to determine whether implementing these crosswalk designs could enhance safety by increasing driver compliance. The research employed a field experiment methodology, observing yielding behavior at 65 crosswalk sites in North Carolina, USA. The findings revealed that high-visibility crosswalks significantly improved driver yielding rates, with an average increase of 22% compared

to other crosswalk types. This underscores the effectiveness of high-visibility markings in promoting safer interactions between pedestrians and vehicles. However, the study exhibited a notable gap, as it primarily focused on driver behavior and did not thoroughly investigate pedestrian perceptions of safety. Addressing this aspect in future studies could provide a more comprehensive understanding of the overall effectiveness of high-visibility crosswalks.

Mandal et al. (2023) conducted a study titled *Exploring walking from the perspective of theory of planned behavior*. The objective of the study was to investigate the factors influencing walking behaviors, with a specific emphasis on perceived control and environmental design within the framework of the theory of planned behavior (TPB). The research utilized GPS-based travel data and survey responses to gather comprehensive insights into walking patterns. A sample of 150 participants from Sweden participated in the study, providing both objective and subjective data on their walking behaviors. The findings indicated a significant correlation between perceived control, environmental design, and individuals' walking activities. These results highlight the importance of well-designed pedestrian environments in encouraging walking as a mode of transportation. Despite its contributions, the study had a specific limitation. It focused on general walking behaviors and did not address crosswalk-specific dynamics, which are critical for understanding pedestrian safety and compliance at designated crossings. Future research could explore these crosswalk-specific behaviors to extend the application of TPB in pedestrian safety studies.

Fang et al. (2022) conducted a study titled *Research on the Factors of Pedestrian Volume in Different Functional Areas of Kumamoto City*. The objective of the research was to examine the influence of built environment features such as density and design on pedestrian volume across various functional areas of the city. The study employed a regression analysis methodology, analyzing data from a sample of 500 locations within Kumamoto, Japan. The findings demonstrated that elements like population density, urban design, and accessibility significantly impacted pedestrian volumes in different functional zones. These insights provide valuable guidance for urban planners aiming to improve walkability and pedestrian engagement in urban spaces. However, the study had a notable gap as it did not address specific safety outcomes at crosswalks. Future research could incorporate crosswalk-specific data to better understand how built environment features influence pedestrian safety in addition to volume.

Schwebel et al. (2017) conducted a study titled: *Experiential Exposure to Texting and Walking in Virtual Reality*. The objective of the research was to evaluate the effectiveness of virtual reality (VR) interventions in reducing distracted pedestrian behavior by altering perceived vulnerability to risks associated with texting while walking. The study employed a randomized trial methodology with a sample of 219 participants from college campuses in the United States. Participants experienced a VR-based simulation of crossing streets while texting which aimed to demonstrate the dangers of distracted walking. The findings indicated that while the intervention successfully increased participants' perceived vulnerability to injury, it did not lead to significant behavioral

changes in their real-world crossing habits. A limitation of the study was its lack of focus on crosswalk-specific features such as signage or markings which play a critical role in pedestrian safety. Future research could integrate these elements to assess their combined impact with behavioral interventions in reducing distracted pedestrian behavior.

Zegeer et al. (2008) conducted a study titled: *How to Develop a Pedestrian Safety Action Plan*. The objective of the study was to provide a comprehensive framework for improving pedestrian safety through a combination of education, enforcement, and engineering strategies. The study utilized a literature synthesis and case study methodology, drawing on a wide range of existing research and real-world applications in the United States. It offered practical recommendations for creating pedestrian safety action plans emphasizing the need for integrated approaches that address infrastructure improvements, behavioral interventions, and enforcement measures. The findings underscored the effectiveness of combining these strategies to reduce pedestrian-related injuries and fatalities. However, the study exhibited a limitation in its limited focus on specific campus environments. Future research could adapt and apply these comprehensive safety frameworks to university campuses, which present unique challenges and opportunities for pedestrian safety interventions.

Kweon et al. (2021) conducted a study titled *The Effects of Pedestrian Environments on Walking Behaviors and Perception of Pedestrian Safety*. The objective of the research was to investigate how various physical attributes of pedestrian environments such as sidewalks, landscape buffers, and street trees influence walking behaviors and the

perception of safety. The study utilized a simulated environment experiment with a sample of 26 participants from the United States. Participants were exposed to different pedestrian environment conditions including variations in sidewalk presence and buffer design. The findings revealed that physical features like wide sidewalks and landscape buffers significantly enhanced participants' perception of safety, thereby encouraging walking behaviors. Despite these valuable insights the study was limited by its focus on general pedestrian environments rather than specific crosswalk-related factors. Future research could extend these findings by exploring the role of crosswalk design elements such as markings and signage in influencing pedestrian safety and behavior.

Ning et al. (2024) conducted a study titled: *Validity across four common street-crossing distraction indicators to predict pedestrian safety*. The objective of the study was to evaluate the predictive validity of various distraction indicators in assessing pedestrian safety during street crossings. The research employed a video-based observational study design with a sample of 300 street-crossing events in China. The study analyzed four distraction indicators, including total distraction duration and frequency and their relationship to pedestrian safety outcomes such as near-crash incidences and failure to look for oncoming traffic. The findings highlighted that distraction duration was a strong predictor of unsafe crossing behaviors, particularly in scenarios involving mobile phone use and other common distractions. However, the study had a significant limitation as it did not address environmental solutions such as the role of signage or crosswalk design in mitigating these risks. Future research could integrate these environmental variables to

provide a more holistic understanding of pedestrian safety measures.

O'Brien et al. (2022) conducted a study titled: *Yielding Compliance at High Visibility Crosswalks*. The objective of the study was to evaluate the impact of high-visibility crosswalks on driver yielding rates, particularly in areas with varying levels of pedestrian and vehicular interaction. The research utilized a before-and-after study design with a sample of 189 crosswalk sites in North Carolina, USA. The findings indicated that high-visibility crosswalks significantly improved driver yielding rates with marked increases observed after the installation of these crosswalks. The study provided robust evidence of the effectiveness of high-visibility crosswalk designs in enhancing compliance and promoting pedestrian safety. However, the study did not examine pedestrian perceptions of safety which is a critical factor in understanding the overall effectiveness of such interventions. Future research could address this gap by exploring how pedestrians perceive and respond to high-visibility crosswalks, providing a more comprehensive evaluation of their impact.

Worth and Johnson (2022) conducted a study titled: *Correlates of Environmental Constructs and Perceived Safety Enhancements*. The objective of the study was to examine how various environmental features such as lateral separation from traffic influence pedestrians' perceptions of safety in urban settings. The research employed a mixed methodology, including surveys and focus groups with a sample of 100 participants from the United States. The findings revealed that lateral separation from traffic such as green buffers or physical barriers significantly improved pedestrians'

perceptions of safety. These enhancements were particularly valued in high-traffic areas, where proximity to vehicular movement often heightens pedestrian anxiety. However, the study did not assess actual crossing behaviors which limits its ability to link perceived safety improvements to real-world pedestrian compliance or safety outcomes. Future research could address this limitation by incorporating behavioral observations to better understand the practical impacts of such environmental constructs on pedestrian safety.

Fischer et al. (2023) conducted a study titled: *Factors of Pedestrian Volume in Different Functional Areas*. The objective of the study was to explore how factors such as population density and land use diversity influence pedestrian volumes across various urban functional areas. The research employed a mixed methods approach, combining quantitative analysis with qualitative insights, and involved a sample of 300 locations across the United States. The findings demonstrated that areas with higher population density and diverse land use tended to have increased pedestrian volumes. These results highlight the importance of urban planning strategies that integrate residential, commercial, and recreational spaces to promote walkability. However, the study had a notable limitation in its limited focus on crosswalk-specific factors. It did not investigate how these built environment characteristics might influence pedestrian behaviors or safety at crosswalks specifically. Future research could address this gap by incorporating crosswalk-level analyses to provide a more targeted understanding of pedestrian safety and compliance.

Chaney et al. (2020) conducted a study titled *How to Conduct Pedestrian and Motorist*

Behavior Assessments. The objective of the study was to provide practical guidelines and case studies for evaluating the behaviors of pedestrians and motorists at crosswalks, aiming to enhance pedestrian safety and compliance. The research was based on a synthesis of guidelines and case studies from various U.S. locations, focusing on practical assessment methods rather than empirical experimentation. The study offered actionable steps for observing and documenting behaviors such as pedestrian crossing compliance and motorist yielding rates to identify areas for intervention and improvement. However, the study lacked longitudinal findings which limits its ability to evaluate changes in behaviors over time or the long-term effectiveness of implemented safety measures. Future research could incorporate longitudinal data collection to better understand trends and sustained impacts of behavioral interventions at crosswalks.

Sandy and Lee (2004) conducted a study titled: *Developing Pedestrian Safety Action Plans*. The objective of the study was to provide a comprehensive framework for developing pedestrian safety action plans by integrating education, enforcement, and engineering measures aimed at improving pedestrian safety. The research was based on a synthesis of case studies from various locations across the United States, focusing on effective strategies and approaches for addressing pedestrian safety issues. The findings emphasized the importance of combining education and enforcement efforts to change both pedestrian and motorist behavior alongside engineering solutions such as improved crosswalk designs and traffic control measures. The study provided a practical guide for transportation professionals and policymakers to develop comprehensive safety plans that

could be tailored to local needs. However, the study lacked empirical validation of the proposed interventions which means it did not assess the real-world effectiveness or outcomes of the recommended safety plans. Future research could address this gap by testing these intervention strategies in different environments to determine their impact on reducing pedestrian accidents and improving safety compliance.

Zegeer et al. (2022) conducted a study titled: *Crosswalk Enhancements for Vulnerable Populations*. The objective of the study was to assess the effectiveness of high-visibility crosswalks in improving pedestrian safety, particularly for vulnerable populations such as the elderly. The research utilized a comparative analysis methodology, examining data from 150 crosswalk sites in the United States. The findings indicated that high-visibility crosswalks significantly improved safety for elderly pedestrians, enhancing both visibility and compliance at crossings. This improvement was particularly evident in areas with high pedestrian traffic and among older adults who are at a greater risk of injury due to limited mobility and slower response times. However, the study had a notable limitation in its focus as it provided limited analysis of distracted pedestrian behaviors. Future research could integrate the impact of distracted walking (e.g., mobile phone use) on crosswalk safety to offer a more comprehensive understanding of how various behaviors and environmental features influence pedestrian safety.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This Chapter presents the methodology employed in this study to investigate the safety of crosswalks within the Ugbowo Campus of the University of Benin. The chapter is designed to provide a detailed and comprehensive overview of the research approach, ensuring that all aspects of the study are clearly defined and aligned with the research objectives. Methodology is a crucial element in any research process, as it outlines the strategies, tools, and procedures used to collect and analyze data. As Igwenagu (2016) suggests, it provides the structure and framework for conducting research, offering guidance on the methods and resources available to a researcher.

3.2 Research Design

According to Ojo (2003), research design is a valuable and mandatory instrument in the

research process that serves as a guide during data collection and analysis in order to appropriately address research problems and hypotheses. The study adopts cross sectional research design to explore the perceptions and behaviors of pedestrians and drivers regarding crosswalk safety on campus. A cross-sectional research design is a type of observational study that collects data from participants at one specific point in time, rather than over a longer duration. This design is often used to examine the relationship between different variables within a population at a single point. It provides a snapshot or "cross-section" of the population, offering insights into the prevalence, distribution, and associations between various factors in the population under study. The cross sectional approach enables the collection of data to identify patterns and trends concerning the effectiveness of crosswalk safety measures, including signage, markings, and adherence to regulations.

3.3 Population of the Study

The population for this study consists of several groups of individuals who regularly use the crosswalks within the Ugbowo Campus of the University of Benin. The largest group is the undergraduate students; 54,589 (University of Benin Academic Planning Division, 2025) many of whom use the campus crosswalks daily. The academic staff, responsible for teaching and research, is 2,303, Non academic staff, who handle various office and support duties is 2865 (University of Benin Academic Planning Division, 2025). There are 409 commercial drivers operating on campus (Uniben Taskforce on Shuttle and

Tollgate, 2025) Therefore, the total population for the study is 60,166 individuals, comprising a mix of students, academic and non academic staff, drivers, excluding visitors.

3.4 Types and Sources of Data

In any research study, identifying reliable and comprehensive data sources is essential for ensuring the validity and credibility of the findings. For this study on crosswalk safety in the Ugbowo Campus of the University of Benin, both primary and secondary data sources was used to provide a well-rounded perspective on the issue. These sources ensured that the research is thorough, valid, and informative. Below is an overview of the primary and secondary sources employed for data collection in this study.

3.4.1 Primary Sources of Data

Primary data refers to firsthand information gathered directly from the participants involved in the study. For this study, primary data was gathered through a combination of personal observations and the administration of structured questionnaires: The primary tool for data collection was a structured questionnaire. The questionnaire gathered information on participants' perceptions of crosswalk safety, behaviors at crosswalks, and their experiences with safety measures such as signage, markings, and lighting. In addition to the structured questionnaire, personal observations was conducted to gather real-time, firsthand data on pedestrian and driver behavior at crosswalks. These observations provides valuable insights into how safety measures are observed in practice

and the overall safety on the Ugbowo Campus. The researcher paid attention to factors such as pedestrian usage of crosswalks, driver adherence to speed limits, and the visibility of safety markings. To avoid being bias, random and unannounced observations was conducted at regular intervals during morning rush hours (7-10am) when students are heading to campus, lunch break (12-2pm) when the campus is busiest and afternoon classes (4-6pm) when classes are in session or ending. Observations was recorded using tallies and mobile phone to capture time, pedestrian usage (volume and compliance with crosswalk signals), driver behaviour (compliance with traffic signals).

3.4.2 Secondary Sources of Data

Secondary data provides important contextual information, supporting evidence, and a broader understanding of the issues under investigation. In this study, secondary data was used to complement the primary data and help contextualize the findings within existing research on crosswalk safety. Published articles and academic Journals, academic articles and journals related to traffic safety, pedestrian behavior, reports from the University of Benin, local traffic authorities, and the Nigerian Road Safety Corps (FRSC) was examined to provide official data on pedestrian and driver behavior, traffic regulations, and any past initiatives aimed at improving crosswalk safety. These documents offered valuable insights into policies and strategies implemented to address crosswalk safety in the Ugbowo Campus.

Table 4.1: Population Representation

Population Group	Number
Students	54,589
Academic Staff	2,303
Non Academic Staff	2,865
Drivers	405
Total Population	**60,166**

Source: UNIBEN APD 2025, UNIBEN TST, 2025).

3.5 Instrument for Data Collection

The primary instrument for data collection in this study was a structured questionnaire designed to gather relevant information from participants effectively. There was questionnaires for academic and non academic staff, drivers and students. Each questionnaire was divided into two sections. The first section collected demographic data, including age and gender. These details are essential for categorizing respondents and identifying trends or patterns in their perceptions and behaviors. The second section featured questions aligned with the study's specific objectives, focusing on crosswalk safety, signage, markings, and adherence to safety measures on campus. The research instrument that used by the researcher in collecting useful data was the questionaire. The questionaire used in this research was made up of both closed and open ended questions to provide more space to gather more information. A questionaire by definition is a list of questions and also indicating of agreement or disagreement to the statements on the list. In this study, the questionnaire designed by the researcher was well structured. It contains only relevant questions for the study in order to give the respondents a very clear view of responses needed from them.

3.6 Sample Size Determination

The sample size for the study was derived using the Taro Yamane's 1967 formula for sample size determination. This formula is stated as follows;

S = ---------- (Equation 1)

Where; S= sample size

N= Study population

e= margin of error assumed (0.05)

1= theoretical constant

Therefore;

S = 397.4 = 397 (approximate)

3.7 Sampling Methods

This study will employ the stratified sampling technique. Stratified sampling would be particularly beneficial in this study as it ensures that all key groups on campus; students, staff, and drivers are properly included, reflecting their proportion in the overall population. In this approach the population is first divided into distinct subgroups or strata based on specific characteristics such as students, academic staff, non-academic staff, and drivers. After the population is divided into these groups, individuals are purposively selected from each subgroup based on their accessibility and willingness to participate. This involved approaching people I know such as classmates, colleagues and acquaintances as well as setting up a survey station near the crosswalk area to intercept

passerby who meet the subgroup criteria. This method ensures that each subgroup is adequately represented in the sample. By using this technique, the study can ensured that the results are not skewed by the overrepresentation of one group, leading to more reliable and valid findings. This approach enhanced the study's accuracy, especially in assessing differences in crosswalk safety perceptions among the diverse groups on campus.

3.7.1 Questionaire Allocation

To determine the optimal allocation of questionnaires among the different participant groups in the Ugbowo Campus of the University of Benin population, the proportion-based allocation formula was employed:

n = (N x p)

Where:

n = Number of copies of questionnaire for each group

N = Total number of questionnaire (397)

p = Proportion of each group in the population

Using this formula, the proportion of each group in the population were calculated as follows:

- Students: 54,589 / 60,166 ≈ 0.907

- Academic & Non-Academic Staff: 5,168 / 60,166 ≈ 0.086

- Drivers: 405 / 60,166 ≈ 0.007

Subsequently, the number of copies of the questionnaire allocated to each group was calculated as follows

- Students: 397 x 0.907 ≈ 360 questionnaire
- Academic & Non-Academic Staff: 397 x 0.086 ≈ 34 questionnaire
- Drivers: 397 x 0.007 ≈ 3 questionnaire

This allocation ensures that the sample is representative of the University of Benin population.

3.8 Method of Data Collection

The questionnaires were administered using purposive and systematic approaches to ensure a diverse and representative sample. Respondents were approached at the crosswalk locations in the campus and were asked to participate in the survey by filling the questionnaire. Additionally, questionnaires were administered to students and staff in their departments, to reach a broader audience. Copies of questionnaire were also administered to students residing in hostels on the campus. Furthermore, the questionnaire was administered in lecture halls and other academic settings, providing an opportunity to engage with students from various faculties and departments. To minimize bias and ensure representation from different academic disciplines, copies of questionnaire were administered systematically across ten faculties namely, Faculty of Agriculture, Faculty of Arts, Faculty of Education, Faculty of Engineering, Faculty of Environmental Sciences, Faculty of Law, Faculty of Management Sciences, Faculty of

Social Sciences, Faculty of Life Sciences, and School of Basic Medical Science to capturing a comprehensive range of perspectives and experiences. Also, copies of Questionnaire were administered to staff in the selected faculties, with office selection based on the number of building floors selected systematically. One copy of questionnaire was administered in each floor. The Faculty of Social Sciences and Faculty of Arts, each having five floors, in which the 1st, 3rd, and 5th floors selected. Faculty of Law and School of Basic Medical Sciences, each with four floors, in which the 1st, 3rd, and 4th floors were selected. Faculty of Engineering, Faculty of Environmental Sciences, and Faculty of Education, each with three floors, had all the three floors selected. Faculty of Management Science and Faculty of Life Science, each with two floors, had two offices selected from the first floor and one office from the second floor. Lastly, the Faculty of Agriculture, with only one floor, had its 1st, 3rd, and 5th offices selected. Office selection was both purposeful and systematic.

3.9 Method of Data Analysis

The data collected for this study was analyzed using a combination of descriptive and inferential statistical techniques, tailored to address the research objectives and test the hypotheses. Descriptive statistics, including frequencies, percentages, and means, was used to analyze the demographic characteristics of the respondents, as well as their perceptions and behaviors related to crosswalk safety. These statistics provided an overview of the responses and help identify general trends, patterns, and relationships in

the data. To further examine the data, inferential statistical techniques such as Chi-square tests was used to analyze the perception of crosswalk safety in the university campus. The analysis was conducted using SPSS version 23, which is a reliable statistical software package for performing both descriptive and inferential statistical tests.

The formula for Pearson's Chi-Square test is:

$$\chi^2 = \frac{\sum(O_i - E_i)^2}{E_i} \quad \text{.....(Equation 2)}$$

Where:

$\chi 2$ is the Chi-Square statistic.

O_i is the observed frequency for each category.

E_i is the expected frequency for each category, calculated as

$$E_i = \frac{\text{(row total)} \times \text{(column total)}}{\text{grand total}}$$

This formula is used to determine whether there is a significant association between categorical variables in a contingency table.

Pearson’s Chi-Square test is ideal for this study because it allows to assess the relationship between categorical variables, such as respondents' perceptions of crosswalk safety and demographic factors (e.g., age, gender, or experience). By comparing observed frequencies of responses to expected frequencies, the Chi-Square test helps determine if there is a statistically significant association between these variables.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION OF RESULT

4.0 Introduction

This section focused on data analysis and interpretation of the results. The results are presented in tables for statistical reports with the aim of actualizing the stated objectives as well as to validate the already stated hypotheses. Thus, the research provides an appraisal on crosswalk safety in Ugbowo campus, presenting opinion from students, staff and drivers. Three hundred and ninety-seven (397) copies of questionnaire were distributed to the respondents and all were retrieved and valid for the analysis. The respondents comprised of 360 students, 3 drivers and 34 academic and non academic staff.

4.1 Socio-Demographic Characteristics of the Respondents

This section presents the socio demographic characteristics of the students, staff and drivers respectively.

4.1.1 Students Socio-Demographic Characteristics

Gender Characteristics of the Students

The data on gender distribution in Table 4.1a reveals that out of the total sample of 360 students, 216 were male, representing 60% of the population, while 144 were female, comprising the remaining 40%. This indicates a notable gender imbalance within the sample, with male students forming a clear majority.

Table 4.1a: Sexual Characteristics of the Students

Sex	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Male	216	60.0	60.0	60.0
Female	144	40.0	40.0	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Age Characteristics of Students

The age distribution of the respondents in table 4.1b shows that a substantial majority, 309 out of 360 students (85.8%), were within the 18–25 years age range. In contrast, only 51 respondents (14.2%) fell within the 26–35 years category. This suggests that the sample is predominantly composed of younger individuals, typical of a traditional student demographic.

Table 4.1b: Age Characteristics of Students

Age	Frequency	Percentage	Valid Percentage	Cumulative Percentage
18-25 Years	309	85.8	85.8	85.8
26-35 Years	51	14.2	14.2	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Students' Educational Level

The academic level distribution of the respondents in table 4.1c indicates that the highest proportion of students were in 200 level, accounting for 36.7% (n = 132) of the total sample. This was followed by 300 level students at 30.8% (n = 111), and 100 level students at 16.7% (n = 60). Fewer respondents were in 400 level and 500 level, representing 12.5% (n = 45) and 3.3% (n = 12) respectively. These figures suggest a concentration of respondents in the lower to mid-level academic years, with a gradual decline in representation at the higher levels.

Table 4.1c: Students' Education Level

Level	Frequency	Percentage	Valid Percentage	Cumulative Percentage
100 Level	60	16.7	16.7	16.7
200 Level	132	36.7	36.7	53.3
300 Level	111	30.8	30.8	84.2
400 Level	45	12.5	12.5	96.7
500 Level	12	3.3	3.3	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Academic Discipline of the Respondents

The distribution of respondents by academic discipline in table 4.1d reveals a broad representation across various fields of study. The highest proportion of students were from English and Literature, comprising 7.5% (n = 27) of the total sample. Several other programs such as Accounting, Banking and Finance, Geomatics, Optometry, and Radiography each had 5.0% representation (n = 18 respectively). A number of disciplines, including Computer Science, Geography, Health and Safety Education, Linguistics, Nursing, Philosophy, Physics, and Public Administration, each accounted for 4.2% (n = 15). Additionally, multiple programs such as Agricultural Economics and Extension, Anatomy, Chemistry Education, Economics and Statistics, Electrical Engineering, Entrepreneurship, Medical Biochemistry, Petroleum Engineering, Political Science, and Social Work were each represented by 3.3% (n = 12) of respondents. A minimal number of respondents (0.8%, n = 3) did not specify their department.

Table 4.1d: Academic Discipline of the Respondents

Academic Discipline	Frequency	Percentage	Valid Percentage	Cumulative Percentage
	3	.8	.8	.8
Accounting	18	5.0	5.0	5.8
Agricultural Economics and Extension	12	3.3	3.3	9.2
Anatomy	12	3.3	3.3	12.5
Banking and Finance	18	5.0	5.0	17.5
Chemistry Education	12	3.3	3.3	20.8
Computer Science	15	4.2	4.2	25.0
Economics and Statistics	12	3.3	3.3	28.3
Electrical Engineering	12	3.3	3.3	31.7
English and Literature	27	7.5	7.5	39.2
Entreprenuership	12	3.3	3.3	42.5
Geography	15	4.2	4.2	46.7
Geomatics	18	5.0	5.0	51.7
Health and Safety Education	15	4.2	4.2	55.8
Linguistics	15	4.2	4.2	60.0
Medical Biochemistry	12	3.3	3.3	63.3
Nursing	15	4.2	4.2	67.5
Optometry	18	5.0	5.0	72.5
Petroleum Engineering	12	3.3	3.3	75.8
Philosophy	15	4.2	4.2	80.0

Physics	15	4.2	4.2	84.2
Political Science	12	3.3	3.3	87.5
Public Administration	15	4.2	4.2	91.7
Radiography	18	5.0	5.0	96.7
Social Work	12	3.3	3.3	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Student's Car Ownership Status

Table 4.1e presents the distribution of respondents based on whether they own a personal car. Out of a total sample of 360 participants, only 45 respondents (12.5%) reported owning a personal car. In contrast, a substantial majority of 315 respondents (87.5%) indicated that they do not own a personal car. This suggests that car ownership is relatively low among the surveyed population, with most individuals relying on alternative modes of transportation.

Table 4.1e Students' Car Ownership Status

Car Ownership	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	45	12.5	12.5	12.5
No	315	87.5	87.5	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Students' Residence

Table 4.1f showed the residential distribution of the student respondents. Of the total 360 participants surveyed, 120 students (33.3%) reported residing on campus, while a larger proportion of 240 students (66.7%) indicated that they live off campus. This data

suggests that the majority of students live off campus, potentially reflecting housing availability, cost, accommodation vacancy in the hostel or personal preference.

Table 4.1f: Students' Residence

Residence	Frequency	Percentage	Valid Percentage	Cumulative Percentage
On campus	120	33.3	33.3	33.3
Off Campus	240	66.7	66.7	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

4.1.2 Staff Socio-Demographic Characteristics

Sex Characteristics of Staff

Table 4.2a showed the gender distribution among the staff participants. Out of a total of 34 staff members surveyed, 18 (52.9%) were male, while 16 (47.1%) were female. This indicates a nearly even gender representation among staff, with males slightly outnumbering females in the sample.

Table 4.2a: Sex Characteristics of Staff

Sex	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Male	18	52.9	52.9	52.9
Female	16	47.1	47.1	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Age Characteristics of Staff

Table 4.2b presents the age distribution of the staff participants. The majority of staff members, 26 out of 34 (76.5%), fall within the 36–45 years' age group. The remaining 8 staff members (23.5%) are aged 46 years and above. This indicates that the staff

population is predominantly composed of individuals in their mid to late career stage, with a smaller proportion being older professionals.

Table 4.2b: Age Characteristics of Staff

Age	Frequency	Percentage	Valid Percentage	Cumulative Percentage
36-45 Years	26	76.5	76.5	76.5
46 years and above	8	23.5	23.5	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Official Designation of Staff

Table 4.2c showed the distribution of staff based on their official designation. Out of the 34 staff members surveyed, the majority 20 individuals (58.8%) were academic staff. This is followed by 10 individuals (29.4%) identified as non-academic staff, and 4 individuals (11.8%) who were categorized as casual workers. These figures suggest that academic staff constitute the largest portion of the workforce, while casual workers make up the smallest group within the institution's staffing structure.

Table 4.2c: Official Designation of Staff

Official Designation	Frequency	Percentage	Valid Percentage	Cumulative Percentage

Academic Staff	20	58.8	58.8	58.8
Non-Academic Staff	10	29.4	29.4	88.2
Casual Worker	4	11.8	11.8	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Department/Unit Affiliation of Staff

Table 4.2d showed the departmental or unit affiliations of the 34 staff members surveyed. Each department or unit is represented equally, with 2 staff members (5.9%) sampled from each department.

Table 4.2d: Department/Unit of Staff

Staff Dept/Unit	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Accounting	2	5.9	5.9	5.9
Anatomy	2	5.9	5.9	11.8
Biochemistry	2	5.9	5.9	17.6
Crop Science	2	5.9	5.9	23.5
Economics and Statistics	2	5.9	5.9	29.4
Finance	2	5.9	5.9	35.3
Human Kinetics	2	5.9	5.9	41.2
Human Resource Management	2	5.9	5.9	47.1
Mechanical engineering	2	5.9	5.9	52.9
Medical Biochemistry	2	5.9	5.9	58.8
Optometry	2	5.9	5.9	64.7
Physics	2	5.9	5.9	70.6
Physiology	2	5.9	5.9	76.5
Plant Biology and Biotechnology	2	5.9	5.9	82.4
Public Administration	2	5.9	5.9	88.2
Quantiy Surveying	2	5.9	5.9	94.1
Sociology	2	5.9	5.9	100.0

Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Car Ownership and Driving among Staff

Table 4.2f showed the responses from staff regarding their ownership and use of a personal car. Out of 34 respondents, 12 staff members (35.3%) reported that they own and drive their personal car. Another 12 individuals (35.3%) indicated that they sometimes drive their personal car, while 10 respondents (29.4%) stated that they do not drive a personal car at all. These findings suggest a fairly even distribution of car ownership and usage among staff, with a slight majority either consistently or occasionally using a personal vehicle.

Table 4.2f: Car Ownership status of Staff

Car Ownership	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	12	35.3	35.3	35.3
No	10	29.4	29.4	64.7
Sometimes	12	35.3	35.3	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

4.1.3 The Demographic Characteristics of the Commercial Drivers

Table 4.3a showed the gender distribution among the commercial drivers surveyed. All three respondents (100%) identified as male, indicating that the driving roles within the sample are exclusively held by men. No female driver was surveyed.

Table 4.3a: Sex of Commercial Drivers

Sex	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Male	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Age Characteristics of Commercial Drivers

Table 4.3b presents the age distribution of the drivers surveyed. Out of the three drivers, one individual (33.3%) falls within the 36–45 years age group, while the remaining two individuals (66.7%) are aged 46 years and above. This suggests that the majority of drivers in the sample are older adults, indicating greater representation of more experienced individuals in driving roles.

Table 4.3b: Age of the Commercial Drivers

Age	Frequency	Percentage	Valid Percentage	Cumulative Percentage
36-45 Years	1	33.3	33.3	33.3
46 years above	2	66.7	66.7	100.0
Total	3	100.0	100.0	

Source: Author's Fieldwork, 2025.

4.2 Perception of Crosswalk Safety

4.2.1 Students' Perception of Crosswalk Safety

Table 4.4a illustrates the frequency with which respondents use crosswalks when crossing roads on the Ugbowo Campus. Out of 360 participants, a majority of 201 individuals (55.8%) reported that they never use crosswalks. A significant Percentage age, 144 respondents (40.0%), stated that they use crosswalks sometimes. Only a small

fraction of the participants reported consistent use, with 9 individuals (2.5%) indicating they always use crosswalks and 6 individuals (1.7%) stating they use them often. These findings highlight a generally low adherence to crosswalk usage among campus road users, with most relying on informal or unsafe crossing behaviors.

Table 4.4a: Frequency of Crosswalk Usage

Crosswalk Usage	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Always	9	2.5	2.5	2.5
Often	6	1.7	1.7	4.2
Sometimes	144	40.0	40.0	44.2
Never	201	55.8	55.8	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025

Perceived Safety When Using Crosswalks on Campus.

The table presents respondents' perceptions of safety while using crosswalks on campus. Out of 360 participants, the majority 204 individuals (56.7%) reported feeling neutral about their safety. A smaller portion, 96 respondents (26.7%), indicated that they feel safe when using crosswalks, while 60 individuals (16.7%) stated that they feel unsafe. These results suggest that although a quarter of respondents feel safe, the predominant sentiment is one of ambivalence, and a notable Percentage age feel unsafe, indicating potential concerns about pedestrian safety infrastructure or driver behavior on campus.

Table 4.4b: Perceived Safety When Using Crosswalks on Campus

Perception	Frequency	Percentage	Valid	Cumulative

			Percentage	Percentage
Safe	96	26.7	26.7	26.7
Neutral	204	56.7	56.7	83.3
Unsafe	60	16.7	16.7	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Perceived Importance of Crosswalk for Pedestrian Safety on Campus

Table 4.4c reflects participants' views on the importance of crosswalks for pedestrian safety on campus. Out of 360 respondents, a majority of 204 individuals (56.7%) consider crosswalks to be important, while 21 participants (5.8%) regard them as very important. Meanwhile, 135 respondents (37.5%) expressed a neutral stance on the matter. These findings indicate that most participants recognize the value of crosswalks in promoting pedestrian safety, although a substantial proportion remain indifferent which may suggest gaps in awareness or confidence in the effectiveness of existing crosswalk infrastructure.

Table 4.4c: Perceived Importance of Crosswalk for Pedestrian Safety on Campus

Perception of Importance	**Frequency**	**Percentage**	**Valid Percentage**	**Cumulative Percentage**
Very Important	21	5.8	5.8	5.8
Important	204	56.7	56.7	62.5
Neutral	135	37.5	37.5	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Rating of Crosswalk Safety on Campus

Table 4.4d presents respondents' ratings of crosswalk safety on campus. Among the 360 participants, 234 individuals (65.0%) rated the safety of crosswalks as fair, while 120 respondents (33.3%) rated them as good. Only 6 participants (1.7%) perceived the crosswalks as poor in terms of safety. These results suggest that while most respondents view the crosswalks as moderately safe, relatively few consider them to be of poor quality, and about one-third perceive them positively. This indicates a generally acceptable level of perceived safety, though there may still be room for improvement.

Table 4.4d: Rating of Crosswalk Safety on Campus

Rating	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Good	120	33.3	33.3	33.3
Fair	234	65.0	65.0	98.3
Poor	6	1.7	1.7	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Experiences of Feeling Unsafe on Crosswalks Due to Driver Behavior

Table 4.4f reveals that all 360 respondents (100.0%) reported feeling unsafe at some point while using crosswalks on campus due to drivers behavior. This unanimous response strongly indicates that driver conduct is a significant and consistent source of concern for pedestrian safety on campus.

Table 4.4f: Experiences of Feeling Unsafe on Crosswalks Due to Driver Behavior

Feeling	Frequency	Percentage	Valid	Cumulative

Unsafe			Percentage	Percentage
Yes	360	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Reasons for Feeling Unsafe on Crosswalks Due to Driver Behavior

Table 4.4g showed that the most common reason respondents feel unsafe on crosswalks is drivers speeding near crosswalks, reported by 14.4% of participants. This is followed closely by drivers not yielding to pedestrians (13.3%) and distracted driving (11.7%). Other notable concerns include aggressive driver behavior (10.6%), failure to stop at signals (10.0%), and poor visibility from parked cars (9.4%). Less frequent but still significant reasons include drivers turning without checking for pedestrians (9.2%), ignoring pedestrian zones (7.8%), drunk driving (7.2%), and honking or intimidation (6.4%). These findings highlight a range of unsafe driver behaviors contributing to pedestrian discomfort and perceived danger.

Table 4.4g: Reasons for Feeling Unsafe on Crosswalks Due to Driver Behavior

Reason	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Drivers speeding near crosswalks	52	14.4%	14.4%	14.4%
Drivers not yielding to pedestrians	48	13.3%	13.3%	27.8%
Distracted driving (e.g., phone use)	42	11.7%	11.7%	39.4%
Aggressive or impatient driver behavior	38	10.6%	10.6%	50.0%
Failing to stop at red lights or stop signs	36	10.0%	10.0%	60.0%
Poor visibility due to parked cars	34	9.4%	9.4%	69.4%
Turning without checking for pedestrians	33	9.2%	9.2%	78.6%
Drivers ignoring school or pedestrian zones	28	7.8%	7.8%	86.4%
Drunk or impaired driving	26	7.2%	7.2%	93.6%
Honking or intimidating behavior	23	6.4%	6.4%	100.0%
Total	**360**	**100.0%**	**100.0%**	

Source: Author's Fieldwork, 2025.

4.2.2 Staff Perception of Crosswalk Safety

Frequency of Crosswalk Use by Staff on Campus

Table 4.5a presents staff responses regarding their use of crosswalks on campus. Out of 34 respondents, 20 individuals (58.8%) reported that they never use crosswalks, while 14 respondents (41.2%) indicated that they use them sometimes. These findings suggest that

the majority of staff members do not regularly use crosswalks, which may reflect issues such as accessibility, awareness, convenience, or perceptions of safety associated with crosswalk use on campus.

Table 4.5a: Frequency of Crosswalk Use by Staff on Campus

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Sometimes	14	41.2	41.2	41.2
Never	20	58.8	58.8	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Perceived Safety of Campus Crosswalks by Staff

Table 4.5b showed staff perceptions regarding the safety of campus crosswalks. Out of 34 respondents, 24 individuals (70.6%) reported that they do not feel the crosswalks are safe for pedestrian use, while only 10 respondents (29.4%) believed they are safe. This indicates that a significant majority of staff view the current crosswalk infrastructure as inadequate or unsafe, highlighting a critical area for safety improvement on campus.

Table 4.5b: Perceived Safety of Campus Crosswalks by Staff

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	10	29.4	29.4	29.4
No	24	70.6	70.6	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Staff Rating of Crosswalk Safety on Campus

Table 4.5c indicates that the majority of staff rated crosswalk safety on campus as poor (52.9%), while 35.3% rated it as fair. Only a small proportion, 11.8%, considered the crosswalks to be good. Staff perceptions suggest significant concern about the safety of crosswalks on campus.

Table 4.5c: Staff Rating of Crosswalk Safety on Campus

Crosswalk Rating	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Fair	12	35.3	35.3	35.3
Poor	18	52.9	52.9	88.2
Good	4	11.8	11.8	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Staff Observations of Pedestrian Safety at Crosswalks

Table 4.5d presents staff responses regarding whether they have witnessed situations where pedestrian safety was compromised at crosswalks. Out of 34 respondents, 10 individuals (29.4%) reported having observed such incidents, while 24 respondents (70.6%) stated they had not. This indicates that while most staff have not directly observed pedestrian safety compromise at crosswalks, nearly one-third have, suggesting that safety concerns may not be isolated and warrant attention.

Table 4.5d: Staff Observations of Pedestrian Safety at Crosswalks

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	10	29.4	29.4	29.4
No	24	70.6	70.6	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Staff Perception of the Role of Crosswalks in Pedestrian Safety

Table 4.5e showed staff opinions on whether crosswalks are essential for pedestrian safety on campus. Out of 34 respondents, 22 individuals (64.7%) answered "No," indicating they do not believe crosswalks play an essential role. In contrast, 12 respondents (35.3%) agreed that crosswalks are essential for pedestrian safety. This suggests that a majority of staff perceive limited effectiveness or importance of crosswalks in ensuring pedestrian safety, which may reflect dissatisfaction with current infrastructure or a belief that other factors play a more significant role.

Table 4.5e: Staff Perception of the Role of Crosswalks in Pedestrian Safety

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	12	35.3	35.3	35.3
No	22	64.7	64.7	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

4.2.3: Drivers Perception of Crosswalk Safety

Drivers' Perception of Crosswalks as Essential to Pedestrian Safety

Table 4.6a showed that all three respondents (100.0%) affirmed that crosswalks are an essential part of pedestrian safety on campus. This unanimous agreement among drivers suggests a strong recognition of the role that crosswalks play in protecting pedestrians within the campus environment.

Table 4.6a: Drivers' Perception of Crosswalks as Essential to Pedestrian Safety

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Frequency of Drivers Stopping for Pedestrians at Crosswalks

Table 4.6b indicates that all three driver respondents (100.0%) reported that they often stop for pedestrians at crosswalks. This consistent response suggests a positive attitude and responsible behavior among the sampled drivers toward pedestrian right-of-way on campus.

Table 4.6b: Frequency of Drivers Stopping for Pedestrians at Crosswalks

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Often	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Driver Observations of Unsafe Behavior Near Campus Crosswalks

Table 4.6c presents driver responses regarding observations of unsafe driving behavior near campus crosswalks. Of the three drivers surveyed, one respondent (33.3%) reported witnessing unsafe behavior, while two respondents (66.7%) had not observed any such incidents. These results suggest that while most drivers in the sample have not personally witnessed unsafe conduct near crosswalks, there is at least some evidence of concerning

behavior, indicating the need for continued attention to traffic safety around pedestrian zones.

Table 4.6c: Driver Observations of Unsafe Behavior Near Campus Crosswalks

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	1	33.3	33.3	33.3
No	2	66.7	66.7	100.0
Total	3	100.0	100.0	

Source: Author's Fieldwork, 2025.

Drivers' Rating of Campus Crosswalk Safety

Table 4.6d showed that all three drivers (100.0%) rated campus crosswalks as safe. This unanimous perception suggests a high level of confidence in the safety of crosswalk infrastructure from the drivers' perspective, which may contrast with the more critical views expressed by other campus users.

Table 4.6d: Drivers' Rating of Campus Crosswalk Safety

Crosswalk Rating	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Safe	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

4.3 Students Assessment of Adequacy of Crosswalk Signs and Markings

Predominant Crosswalk Marking/Signage on Ugbowo Campus

Table 4.7a presents respondents' identification of the most commonly observed crosswalk marking or signage on the Ugbowo campus. Out of 360 participants, a vast majority 351 individuals (97.5%) identified zebra crossings as the predominant form of crosswalk marking. Only 9 respondents (2.5%) reported seeing signposts as the main indicator. This indicates that zebra crossings are the most widely used and recognized pedestrian safety feature on the campus, suggesting a standardized approach to crosswalk design across the university environment.

Table 4.7a: Predominant Crosswalk Marking/Signage on Ugbowo Campus

Crosswalk Signage	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Zebra Crossing	351	97.5	97.5	97.5
Signpost	9	2.5	2.5	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Visibility and Clarity of Crosswalk Markings for Pedestrians

Table 4.7b reflects respondents' views on the visibility and clarity of crosswalks on campus. Out of 360 participants, 282 individuals (78.3%) reported that the crosswalks are not clearly marked or visible to pedestrians, this is supported by plate 4.2 which showed a poorly visible crosswalk, while only 78 respondents (21.7%) believed that the markings are clear and visible, this is supported by plate 4.1 which showed a visible crosswalk marking at Uniben Staff School. This indicates that the majority of campus users perceive

a lack of adequate crosswalk visibility, which could contribute to reduced pedestrian safety and noncompliance with designated crossing areas.

Table 4.7b: Visibility and Clarity of Crosswalk Markings for Pedestrians

Crosswalk Visibility	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	78	21.7	21.7	21.7
No	282	78.3	78.3	100.0
Total	**360**	**100.0**	**100.0**	

Source: Author's Fieldwork, 2025.

Plate 4.1: Zebra Crossing at Uniben Staff School Entrance

Visibility Rating of Crosswalk Signs on Campus

Table 4.7c showed that most respondents (64.2%) rated the visibility of crosswalk signs on campus as "Poor," while 29.2% rated it as "Good," and only 6.7% rated it as "Fair," indicating an overall negative perception.

Table 4.7c: Visibility Rating of Crosswalk Signs on Campus

Rating	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Fair	24	6.7	6.7	6.7
Poor	231	64.2	64.2	70.8
Good	105	29.2	29.2	100.0
Total	**360**	**100.0**	**100.0**	

Source: Author's Fieldwork, 2025.

Plate 4.2: A Poorly Visible Crosswalk marking in front of Faculty of Education

Adequacy of Crosswalk Signs and Markings Across Pedestrian Areas

Table 4.7d presents respondents' assessments of whether crosswalk signs and markings are sufficiently provided in all areas were pedestrians typically cross on campus. Out of 360 participants, 273 individuals (75.8%) indicated that there are not enough signs and markings, while only 87 respondents (24.2%) believed they are adequate. This suggests a strong consensus that current crosswalk signage and markings are insufficient in key pedestrian zones, highlighting a potential gap in infrastructure that could compromise pedestrian safety.

Table 4.7d: Adequacy of Crosswalk Signs and Markings Across Pedestrian Areas

Crosswalk Adequacy	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	87	24.2	24.2	24.2
No	273	75.8	75.8	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Faded Crosswalk Markings

Table 4.7e presents how often respondents notice fading of crosswalk markings on campus. Among the 360 participants, 258 individuals (71.7%) reported that they rarely observe faded markings, while 87 respondents (24.2%) indicated they notice it

occasionally. Only 15 individuals (4.2%) stated that they never notice any fading. These results suggest that while fading is not perceived as a serious issue, it is still a noticeable concern for nearly one in four respondents. This indicates a need for periodic maintenance to ensure crosswalk visibility remains consistent and effective for pedestrian safety.

Table 4.7e: Faded Crosswalk Markings

Responses	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Occasionally	87	24.2	24.2	24.2
Rarely	258	71.7	71.7	95.8
Never	15	4.2	4.2	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Need for More Visible Crosswalk Signs on Campus

Table 4.7f showed responses regarding the perceived need for more visible crosswalk signage on campus. Out of 360 participants, a large majority 345 individuals (95.8%) expressed the need for more visible signs, while only 15 respondents (4.2%) believed no additional signage is necessary. This overwhelming response highlights a widespread concern about the current visibility of crosswalk signage and underscores a strong call for improved visual indicators to enhance pedestrian safety across the campus.

Table 4.7f: Need for More Visible Crosswalk Signs on Campus

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	345	95.8	95.8	95.8
No	15	4.2	4.2	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

4.3.2 Staff Assessment of Adequacy of Crosswalk Signs and Markings

Visibility of Crosswalk Signs and Markings According to Staff

Table 4.8a presents staff evaluations of the visibility of crosswalk signs and markings on campus. Out of 34 respondents, 28 individuals (82.4%) reported that the signs and markings are not clearly visible, while only 6 respondents (17.6%) stated that they are. This indicates that the majority of staff perceive a lack of clear and effective crosswalk signage and markings, suggesting a need for enhanced visibility measures to improve pedestrian awareness and safety on campus.

Table 4.8a: Visibility of Crosswalk Signs and Markings According to Staff

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	6	17.6	17.6	17.6
No	28	82.4	82.4	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Sufficiency of Crosswalk Signs and Markings in High-Pedestrian Area

Table 4.8b reflects staff perceptions regarding the adequacy of crosswalk signs and markings in areas with frequent pedestrian activity. Of the 34 staff respondents, 28 individuals (82.4%) stated that there are not enough signs and markings in these high-use

areas, while only 6 respondents (17.6%) believed they are sufficient. This strong majority view indicates a perceived shortfall in pedestrian infrastructure in the most critical crossing zones, suggesting a pressing need for targeted improvements in signage and road markings to enhance safety.

Table 4.8b: Sufficiency of Crosswalk Signs and Markings in High-Pedestrian Area

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	6	17.6%	17.6%	17.6%
No	28	82.4%	82.4%	100.0%
Total	34	100.0%	100.0%	

Source: Author's Fieldwork, 2025.

Staff Rating of the Condition of Crosswalk Markings on Campus

Table 4.8c presents staff evaluations of the physical condition of crosswalk markings on campus. Among the 34 respondents, 22 individuals (64.7%) rated the markings as poor, 10 respondents (29.4%) rated them as fair, and only 2 individuals (5.9%) considered them to be in good condition. These findings indicate a strong consensus among staff that the condition of the crosswalk markings is unsatisfactory, with the majority viewing them as poorly maintained. This highlights a need for immediate attention to maintenance and repainting efforts to ensure pedestrian visibility and safety.

Table 4.8c: Staff Rating of the Condition of Crosswalk Markings on Campus

Crosswalk Rating	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Good	2	5.9	5.9	5.9
Fair	10	29.4	29.4	35.3
Poor	22	64.7	64.7	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Staff Perception of the Need for Additional Crosswalk Markings

Table 4.8d presents staff opinions on whether more crosswalk markings are needed in specific areas on campus. Out of 34 respondents, 22 individuals (64.7%) expressed the need for additional markings, while 12 respondents (35.3%) believed that the current number is sufficient. This indicates that a significant majority of staff recognize gaps in existing pedestrian infrastructure and support the implementation of more crosswalk markings to improve accessibility and safety in underserved areas.

Table 4.8d: Staff Perception of the Need for Additional Crosswalk Markings

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	22	64.7	64.7	64.7
No	12	35.3	35.3	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

4.3.3 Driver's Assessment of Adequacy of Crosswalk Signs and Markings

Driver Perception of Crosswalk Sign and Marking Visibility

Table 4.9a showed that all three respondents (100.0%) indicated that the crosswalk signs and markings on campus are not sufficiently visible to them while driving. This unanimous response suggests a serious visibility issue from the driver's perspective, which may contribute to safety risks for pedestrians and underscores the need for improved signage and road markings.

Table 4.9a: Driver Perception of Crosswalk Sign and Marking Visibility

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
No	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Driver Perception of Crosswalk Signage and Marking Placement

Table 4.9b showed that all three respondents (100.0%) believe that crosswalk signage and markings are not adequately placed throughout the campus. This unanimous agreement points to a shared concern among drivers regarding the insufficient or improper placement of pedestrian safety indicators, highlighting a critical need for better planning and distribution of crosswalk infrastructure across the campus environment.

Table 4.9b: Driver Perception of Crosswalk Signage and Marking Placement

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
No	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Driver Rating of Crosswalk Markings and Sign Condition

Table 4.9c showed that all three respondents (100.0%) rated the condition of the crosswalk markings and signs on campus as poor. This unanimous assessment underscores a strong dissatisfaction with the current state of pedestrian infrastructure from the driver's perspective, indicating an urgent need for repairs, repainting, and possible redesign of crosswalk-related elements to enhance visibility and safety.

Table 4.9c: Driver Rating of Crosswalk Markings and Sign Condition

Rating	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Poor	3	100.0%	100.0%	100.0%

Source: Author's Fieldwork, 2025.

Driver Perception of the Need for Additional or More Visible Crosswalk Signs

Table 4.9d indicates that all three driver respondents (100.0%) believe that additional or more visible crosswalk signs are needed in specific areas on campus. This unanimous response highlights a shared concern among drivers regarding the current inadequacy of crosswalk signage and emphasizes the need for strategic improvements to enhance pedestrian visibility and safety across the campus.

Table 4.9d: Driver Perception of the Need for Additional or More Visible Crosswalk Signs

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

4.4: Student's Perception of the Effectiveness of Crosswalk Signs and Markings

4.4.1 Effectiveness of Crosswalk Signs and Markings by Students

Perceived Effectiveness of Crosswalk Signs and Markings in Preventing Accidents

Table 4.10a presents respondents' views on the effectiveness of crosswalk signs and markings in preventing accidents on campus. Out of 360 participants, 258 individuals (71.7%) believe that these signs and markings do not help prevent accidents, while only 102 respondents (28.3%) feel they do. This indicates a general lack of confidence in the

current crosswalk signage and marking system, suggesting that improvements in design, visibility, or enforcement may be necessary to enhance their effectiveness in ensuring pedestrian safety.

Table 4.10a: Perceived Effectiveness of Crosswalk Signs and Markings in Preventing Accidents

Perception	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	102	28.3	28.3	28.3
No	258	71.7	71.7	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Perceived Effectiveness of Crosswalk Signs in Alerting Drivers

Table 4.10b presents participants' evaluations of how well crosswalk signs alert drivers to pedestrian crossings on campus. Of the 360 respondents, the majority 279 individuals (77.5%) rated the signs as *somewhat effective*. Only 36 respondents (10.0%) considered the signs to be fully *effective*, while 45 respondents (12.5%) rated them as *not effective*. These findings suggest that while most respondents acknowledge some level of effectiveness, there is limited confidence in the signage's ability to fully alert drivers. This reflects a need to enhance the clarity, visibility, or design of crosswalk signs to improve their impact on driver awareness and pedestrian safety.

Table 4.10b: Perceived Effectiveness of Crosswalk Signs in Alerting Drivers

Rating	Frequency	Percentage	Valid	Cumulative

			Percentage	Percentage
Effective	36	10.0	10.0	10.0
Some what Effective	279	77.5	77.5	87.5
Not Effective	45	12.5	12.5	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Impact of Crosswalk Markings on Pedestrian Confidence

Table 4.10c presents responses regarding whether crosswalk markings enhance pedestrian confidence when crossing roads on campus. Among the 360 participants, 255 individuals (70.8%) indicated that crosswalk markings do *not* make them feel more confident, while only 105 respondents (29.2%) reported that they *do* feel more confident. This suggests that the majority of campus users perceive crosswalk markings as insufficient in providing a sense of safety or assurance when crossing, pointing to concerns about the markings' visibility, condition, or driver compliance.

Table 4.10c: Impact of Crosswalk Markings on Pedestrian Confidence

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	105	29.2	29.2	29.2
No	255	70.8	70.8	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Perceived Influence of Crosswalk Markings on Pedestrian Behavior

Table 4.10d presents respondents' opinions on whether current crosswalk markings positively influence pedestrian behavior on campus. Out of 360 participants, a large majority 288 individuals (80.0%) believe that the current markings do not contribute to better pedestrian behavior. Only 72 respondents (20.0%) think that the markings have a positive influence. This result indicates a general perception that the existing crosswalk markings are ineffective in encouraging safer or more disciplined pedestrian behavior, possibly due to the issues related to visibility, enforcement, or driver-pedestrian dynamics.

Table 4.10d: Perceived Influence of Crosswalk Markings on Pedestrian Behavior

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	72	20.0	20.0	20.0
No	288	80.0	80.0	100.0
Total	**360**	**100.0**	**100.0**	**100.0**

Witnessed Accidents or Near-Misses at Campus Crosswalks

Table 4.10c presents respondents' experiences with observing accidents or near-miss incidents at campus crosswalks. Out of 360 participants, 42 individuals (11.7%) reported having witnessed such events, while the vast majority 318 respondents (88.3%) had not. While most campus users have not directly observed accidents or near-misses, the responses of 42 witnesses suggests that safety incidents at crosswalks do occur and are a notable concern that warrants preventive measures and improved pedestrian infrastructure.

Table 4.10e: Witnessed Accidents or Near-Misses at Campus Crosswalks

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage

Yes	42	11.7	11.7	11.7
No	318	88.3	88.3	100.0
Total	**360**	**100.0**	**100.0**	

Source: Author's Fieldwork, 2025.

4.4.2 Staff Perception of the Effectiveness of Crosswalk Signs and Markings by Staff

Staff Perceptions of Crosswalk Sign and Marking Effectiveness in Preventing Accidents

Table 4.11a presents staff evaluations of how effective crosswalk signs and markings are in preventing accidents on campus. Of the 34 respondents, 20 individuals (58.8%) believe the signs and markings are *not effective*, while 14 respondents (41.2%) consider them *somewhat effective*. Notably, no respondents rated them as fully effective. These findings indicate a general skepticism among staff regarding the ability of current crosswalk signage and markings to ensure pedestrian safety, pointing to a need for more impactful design, better maintenance, or stronger enforcement measures.

Table 4.11a: Staff Perceptions of Crosswalk Sign and Marking Effectiveness in Preventing Accidents

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Somewhat Effective	14	41.2	41.2	41.2
Not Effective	20	58.8	58.8	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Staff Observations of Accidents or Near-Misses at Campus Crosswalks

Table 4.11b presents staff responses regarding their experiences with observing accidents or near-miss incidents at crosswalks on campus. Out of 34 respondents, only 2 individuals (5.9%) reported witnessing such events, while the majority 32 respondents (94.1%) had not observed any. This suggests that while incidents do occur, they are relatively infrequent from the staff's perspective. However, even a small number of observed events can indicate underlying safety issues that warrant attention and preventive measures.

Table 4.11b: Staff Observations of Accidents or Near-Misses at Campus Crosswalks

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	2	5.9	5.9	5.9
No	32	94.1	94.1	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Staff Rating of Pedestrian Safety Level Provided by Crosswalks

Table 4.11c summarizes staff perceptions regarding the level of pedestrian safety offered by campus crosswalks. Out of 34 respondents, 14 individuals (41.2%) rated the safety level as *medium*, 12 respondents (35.3%) rated it *high*, and 4 respondents each (11.8%) rated it as *very high* and *low respectively*. These results suggest that most staff perceive the crosswalks as providing a moderate to high level of safety, though the low and very high ratings indicates some variability in experiences and confidence levels. Overall, the data reflect a generally cautious but somewhat positive view of crosswalk effectiveness in promoting pedestrian safety.

Table 4.11c: Staff Rating of Pedestrian Safety Level Provided by Crosswalks

Rating	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Very High	4	11.8	11.8	11.8
High	12	35.3	35.3	47.1
Medium	14	41.2	41.2	88.2
Low	4	11.8	11.8	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Staff Perception of Crosswalk Markings and Signs as Guidance Tools

Table 4.11d presents staff views on whether crosswalk markings and signs effectively guide both pedestrians and drivers. Out of 34 respondents, 30 individuals (88.2%) agreed that these elements serve as helpful guides, while 4 respondents (11.8%) did not share this view. This strong majority indicates a general belief among staff that, despite

concerns about visibility and condition, the presence of crosswalk signs and markings plays an important role in organizing and directing movement on campus roads for both drivers and pedestrians.

Table 4.11d: Staff Perception of Crosswalk Markings and Signs as Guidance Tools

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	30	88.2	88.2	88.2
No	4	11.8	11.8	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Suggested Improvements to Campus Crosswalk Markings and Signage

Table 4.11e summarizes staff recommendations for improving crosswalk markings and signage on campus. Although individual responses varied, a clear theme emerges around the need to enhance visibility. Many of the suggestions such as "increase visibility," "more visibility," "the visibility of existing ones should be increased," and "they should be made visible," indicating a widespread concern about poor visibility of current infrastructure.

Other recurring suggestions included:

- Repairing and remarking existing crosswalks to improve their clarity and effectiveness.

- Installing traffic signals and effective signage that actively alert both drivers and pedestrians.
- Utilizing communication tools, such as social media, to promote crosswalk awareness and safety.

The responses highlight a strong consensus among staff that improving the visibility, condition, and communication of crosswalk infrastructure is essential for enhancing pedestrian safety on campus.

Table 4.11e: Suggested Improvement to Campus Crosswalk Markings and Signage

Suggestion	Frequency	Percentage	Valid Percentage	Cumulative Percentage
clearly visibile crosswalk signs and markings	2	5.9	5.9	5.9
effective signs and signal should be on standby	2	5.9	5.9	11.8
existing crosswalk should be made visible	2	5.9	5.9	17.6
existing crosswalk should be repaired	2	5.9	5.9	23.5
increase visibility	8	23.5	23.5	47.1
increase visibility of existing ones	2	5.9	5.9	52.9
install trafic signals	2	5.9	5.9	58.8

installing signs and signals that can alert drivers and pedestrians	2	5.9	5.9	64.7
more visibility	2	5.9	5.9	70.6
remarking of crosswalks	2	5.9	5.9	76.5
the visibility of existing ones should be increased	2	5.9	5.9	82.4
they should be made visible	2	5.9	5.9	88.2
utilize social media to promote awareness	2	5.9	5.9	94.1
visibility of existing ones	2	5.9	5.9	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

4.4.3 Effectiveness of Crosswalk Signs and Markings by Drivers

Driver Perceptions of Crosswalk Sign and Marking Effectiveness in Ensuring Pedestrian Safety

Table 4.12a presents the views of three respondents regarding the effectiveness of current crosswalk signs and markings in ensuring pedestrian safety on campus. Two respondents (66.7%) rated them as *not effective*, while one respondent (33.3%) considered them *somewhat effective*. These responses reflect limited confidence among drivers in the

ability of existing crosswalk infrastructure to protect pedestrians, suggesting a perceived need for improved signage, better visibility, or additional safety measures

Table 4.12a: Driver Perceptions of Crosswalk Sign and Marking Effectiveness in Ensuring Pedestrian Safety

Crosswalk Effectiveness	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Somewhat Effective	1	33.3	33.3	33.3
Not Effective	2	66.7	66.7	100.0
Total	3	100.0	100.0	

Source: Author's Fieldwork, 2025.

Driver Beliefs About Crosswalks Enhancing Driving Safety

Table 12b showed that all the three respondents (100.0%) reported that they do not believe crosswalks help them drive more safely on campus. This unanimous response indicates a shared perception among drivers that current crosswalk infrastructure does not effectively contribute to safer driving behavior. This may point to concerns about poor visibility, unclear markings, or lack of enforcement, all of which could undermine the intended role of crosswalks in promoting road safety.

Table 4.12b: Driver Beliefs About Crosswalks Enhancing Driving Safety

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
No	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Driver Observations of Pedestrian Compliance with Crossing Signals

Table 12c indicates that all the three respondents (100.0%) reported that they *never* observe pedestrians waiting for a signal or light before crossing the road on campus. This

unanimous response suggests either a lack of functioning pedestrian signals on campus or low pedestrian compliance with crossing protocols. It highlights a possible gap in infrastructure or awareness that could increase the risk of conflicts between vehicles and pedestrians.

Table 4.12c: Driver Observations of Pedestrian Compliance with Crossing Signals

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Never	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Driver Frequency of Witnessing Accidents or Near-Misses at Crosswalks

Table 4.12d showed that all the driver respondents (100.0%) indicated they *rarely* witness accidents or near-misses at campus crosswalks. This suggests that while such incidents may occur, they are not frequently observed by drivers. However, the use of "rarely" rather than "never" still implies occasional safety concerns, reinforcing the importance of maintaining and improving crosswalk visibility, signage, and pedestrian-driver interaction.

Table 4.12d: Driver Frequency of Witnessing Accidents or Near-Misses at Crosswalks

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Rarely	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

4.5 Adherence to Crosswalk Safety Measures

4.5.1 Student's Adherence to Crosswalk Safety Measures

Pedestrian Perceptions of Driver's Yielding Behavior at Crosswalks

Table 13a presents how often respondents observe drivers stopping for pedestrians at crosswalks. Out of 360 participants, 189 individuals (52.5%) reported that drivers *sometimes* stop, while 162 respondents (45.0%) stated that drivers *never* stop. Only a small fraction indicated more consistent yielding behavior, with 6 respondents (1.7%) selecting *often* and just 3 (0.8%) choosing *always*. These findings highlight a significant concern regarding driver compliance with pedestrian right-of-way. The fact that nearly all respondents reported only partial or no compliance indicates that pedestrian safety is frequently compromised due to inconsistent driver behavior at crosswalks.

Table 4.13a: Pedestrian Perceptions of Driver's Yielding Behavior at Crosswalks

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Always	3	.8	.8	.8
Often	6	1.7	1.7	2.5
Sometimes	189	52.5	52.5	55.0
Never	162	45.0	45.0	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Observations of Pedestrian Compliance with Crossing Signals

Table 4.13b reflects how frequently respondents observe pedestrians waiting for a light or signal before crossing at a crosswalk. Of the 360 participants, a large majority 282 individuals (78.3%) reported that they *never* see pedestrians waiting for a signal. Only 78 respondents (21.7%) indicated that they *sometimes* observe such behavior. This suggests that compliance with traffic signals at crosswalks is generally low among pedestrians on campus. The findings may reflect a lack of functioning signals, low awareness, or limited enforcement, all of which could undermine safe crossing practices.

Table 4.13b: Observations of Pedestrian Compliance with Crossing Signals

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Sometimes	78	21.7	21.7	21.7
Never	282	78.3	78.3	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Plate 4.3: Students Utilizing the Zebra Crossing at Staff School Entrance

Frequency of Observed Jaywalking on Campus

Table 4.13c presents how often respondents observe pedestrians jaywalking crossing roads outside of designated crosswalks on campus. Out of 360 participants, 219 individuals (60.8%) reported that they *often* observe jaywalking, while 141 respondents (39.2%) stated that they *always* see this behavior. These results indicate that jaywalking is a widespread and regular occurrence on campus. The high frequency of this unsafe behavior may reflect inadequate crosswalk placement, poor visibility and enforcement, or limited pedestrian awareness, all of which pose risks to pedestrian safety and call for targeted interventions.

Table 4.13c: Frequency of Observed Jaywalking on Campus

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Always	141	39.2	39.2	39.2
Often	219	60.8	60.8	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Plate 4.4: Jaywalking on Campus

Perceptions of Pedestrian Compliance with Crosswalk Rules

Table 4.13d showed that the majority of respondents (69.2%) believed pedestrians "Never" comply with crosswalk rules, while 18.3% said compliance is "Rarely" observed, and only 12.5% believed it happens "Sometimes," suggesting a widespread perception of non-compliance.

Table 4.13d: Perceptions of Pedestrian Compliance with Crosswalk Rules

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Sometimes	45	12.5	12.5	12.5
Never	249	69.2	69.2	81.7
Rarely	66	18.3	18.3	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

4.5.2 Staff Adherence to Crosswalk Safety Measures

Staff Perception of Driver Compliance with Crosswalk Rules

Table 4.14a presents staff views on whether drivers follow crosswalk rules by stopping for pedestrians. Out of 34 respondents, 24 individuals (70.6%) reported that drivers *do not* adhere to crosswalk rules, while only 10 respondents (29.4%) stated that drivers *do* comply. These results indicate that a significant majority of staff perceive poor compliance among drivers when it comes to yielding to pedestrians at crosswalks. This

perceived disregard for pedestrian right-of-way suggests potential safety risks and points to the need for improved enforcement, education, or traffic-calming measures on campus.

Table 4.14a: Staff Perception of Driver Compliance with Crosswalk Rules

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	10	29.4	29.4	29.4
No	24	70.6	70.6	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Staff Observations of Proper Pedestrian Use of Crosswalks

Table 4.14b reflects staff observations of how often pedestrians use crosswalks correctly. Out of 34 respondents, 28 individuals (82.4%) reported that pedestrians *never* use crosswalks as intended, while only 6 respondents (17.6%) observed proper use *sometimes*. These findings suggest that correct pedestrian use of crosswalks is rare on campus, as perceived by staff. This may be due to poor crosswalk visibility, insufficient signage, lack of enforcement, or general disregard for crossing rules factors that could contribute to unsafe road behavior and elevated risk of accidents.

Table 4.14b: Staff Observations of Proper Pedestrian Use of Crosswalks

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Sometimes	6	17.6	17.6	17.6
Never	28	82.4	82.4	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Staff Perception of Pedestrian Adherence to Crosswalk Safety Measures

Table 4.14c presents staff opinions on whether pedestrians follow crosswalk safety measures. Among the 34 respondents, 20 individuals (58.8%) stated that pedestrians *rarely* adhere to safety measures, while 14 respondents (41.2%) believed they *never* do. This indicates a strong perception among staff that pedestrians frequently disregard safety protocols when using crosswalks. Such widespread non-compliance may reflect a lack of awareness, inadequate enforcement, or poor infrastructure, all of which can significantly undermine pedestrian safety on campus.

Table 4.14c: Staff Perception of Pedestrian Adherence to Crosswalk Safety Measures

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Rarely	20	58.8	58.8	58.8
Never	14	41.2	41.2	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Staff Opinion on the Need for Awareness to Improve Crosswalk Rule Adherence

Table 4.14d shows that all 34 staff respondents (100.0%) agreed that increased awareness is needed to improve pedestrian compliance with crosswalk rules. This unanimous response highlights a collective recognition that lack of awareness is a major barrier to safe pedestrian behavior on campus. It underscores the importance of implementing

educational campaigns, signage improvements, and targeted communication strategies to promote adherence to crosswalk safety measures.

Table 4.14d: Staff Opinion on the Need for Awareness to Improve Crosswalk Rule Adherence

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	34	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Staff Suggestions for Improving Adherence to Crosswalk Safety on Campus

Table 4.14e presents staff recommendations for enhancing pedestrian compliance with crosswalk safety measures. Responses reflect a consistent emphasis on two key themes: awareness and enforcement.

Many responses advocate for awareness campaigns, safety education, and enlightenment programs (e.g., "awareness about safety," "creating awareness," "enlightenment on safety rules and regulation," "educating both drivers and pedestrians"). These suggestions indicate a strong belief that behavioral change can be achieved through improved understanding and communication of crosswalk safety principles.

Several participants also recommended stricter enforcement of traffic laws and safety rules (e.g., "strict enforcement of rules," "regular enforcement of safety rules," "strict measures should be involved"). This reflects a perceived need for accountability mechanisms to ensure both pedestrians and drivers follow established guidelines.

A few suggestions introduced creative or participatory strategies such as “student-led initiatives like safety ambassadors” and “wall-lit crosswalks,” pointing to interest in more visible, engaging, and infrastructural solutions.

Table 4.14e: Staff Suggestions for Improving Adherence to Crosswalk Safety on Campus

Suggestion	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Awareness programmes	2	5.9	5.9	17.6
creating awareness	2	5.9	5.9	23.5
educating both drivers and pedestrians on safety	2	5.9	5.9	29.4
enforcement of traffick laws	2	5.9	5.9	35.3
englighment campaigns	2	5.9	5.9	41.2
organize safety campaigns	2	5.9	5.9	70.6
regular enforcement of safety rules	2	5.9	5.9	76.5
strict enforcement of rules	2	5.9	5.9	82.4
student lead intiatives such as safety ambasadors	2	5.9	5.9	94.1
wall lit crosswalks should be made	2	5.9	5.9	100.0
Total	34	100.0	100.0	

Source: Author’s Fieldwork, 2025.

4.5.3 Driver’s Adherence to Crosswalk Safety Measures

Driver's Compliance with Stopping for Pedestrians at Crosswalks

Table 4.15a showed that all the three respondents (100.0%) reported that they *always* stop when pedestrians are present at crosswalks. This unanimous response suggests a high level of compliance with pedestrian right-of-way among the sampled drivers. It reflects positively on driver behavior within the sample, though broader perceptions from other campus users may differ, as indicated in previous tables.

Table 4.15a: Driver's Compliance with Stopping for Pedestrians at Crosswalks

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Driver Observations of Peer Compliance with Crosswalk Rules

Table 4.15b indicates that all three respondents (100.0%) reported that they *never* observe other drivers ignoring crosswalk rules. This unanimous response suggests that, within this small sample, drivers perceive a high level of compliance among their peers when it comes to respecting crosswalk regulations. However, this perception contrasts sharply with staff and pedestrian responses, which indicate frequent non-compliance highlighting a potential disconnect between driver self-perception and how their behavior is viewed by others on campus.

Table 4.15b: Driver Observations of Peer Compliance with Crosswalk Rules

Response	Frequency	Percentage	Valid	Cumulative

			Percentage	Percentage
Never	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Driver Observations of Proper Pedestrian Use of Crosswalks

Table 4.15c showed that all the three respondents (100.0%) reported that pedestrians *never* use crosswalks properly on campus. This unanimous perception reflects a significant concern among drivers regarding pedestrian behavior. It suggests that pedestrians frequently fail to follow crosswalk rules, potentially contributing to unsafe conditions on campus roads. These findings align with staff and pedestrian responses indicating low compliance and reinforce the need for improved education and enforcement.

Table 4.15c: Driver Observations of Proper Pedestrian Use of Crosswalks

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Never	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Driver Opinion on Pedestrian Adherence to Crosswalk Safety Measures

Table 4.15d indicates that all the three respondents (100.0%) believe that pedestrians do **not** always adhere to crosswalk safety measures. This unanimous opinion suggests a shared concern among drivers about poor pedestrian compliance with safety protocols. It

reinforces earlier findings of frequent jaywalking and improper crosswalk use, emphasizing the need for targeted awareness campaigns and improved infrastructure to promote safer pedestrian behavior on campus.

Table 4.15d: Driver Opinion on Pedestrian Adherence to Crosswalk Safety Measures

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
No	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Driver Opinion on General Driver Compliance with Crosswalk Safety Measures

Table 4.15e showed that all the three respondents (100.0%) believe that drivers, in general, do not follow crosswalk safety measures on campus. This unanimous response reflects a critical view among drivers themselves regarding peer behavior. It suggests a recognition of widespread non-compliance with crosswalk safety protocols, supporting other findings that point to the need for improved driver education, stricter enforcement, and enhanced road safety infrastructure on campus.

Table 4.15e: Driver Opinion on General Driver Compliance with Crosswalk Safety Measures

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
No	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

4.6 Enforcement of Crosswalk Safety Rules

Perceptions of Crosswalk Safety Rule Enforcement on Campus

Table 4.16a presents respondents' views on the enforcement of crosswalk safety rules on campus. Out of 360 participants, a large majority 258 individuals (71.7%) reported that they *do not know* whether such rules are enforced. Additionally, 72 respondents (20.0%) stated that the rules are *not* enforced, while only 30 individuals (8.3%) believed that they *are* enforced. These results suggest a widespread lack of clarity regarding enforcement efforts. The high level of uncertainty implies that if enforcement does exist, it may be poorly communicated or inconsistently applied, potentially weakening its impact on pedestrian and driver behavior.

Table 4.16a: Perceptions of Crosswalk Safety Rule Enforcement on Campus

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	30	8.3	8.3	8.3
No	72	20.0	20.0	28.3
Dont Know	258	71.7	71.7	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Awareness of Penalties for Crosswalk Rule Violations on Campus

Table 4.16b presents responses regarding the perceived penalties for violating crosswalk rules on campus. Out of 360 participants, a vast majority 336 individuals (93.3%) identified a *fine* as the penalty, while 24 respondents (6.7%) reported *banning of drivers on campus* as the consequence. These responses suggest that most campus users are aware that fines are the primary penalty for crosswalk rule violations. However, the presence of alternative responses, such as driver bans, may indicate either additional enforcement measures or varied perceptions about campus policy. It also highlights the importance of clear and consistent communication regarding campus traffic regulations and their consequences.

Table 4.16b: Awareness of Penalties for Crosswalk Rule Violations on Campus

Penalty	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Fine	336	93.3	93.3	93.3
Banning of Drivers on Campus	24	6.7	6.7	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Perceived Effectiveness of Crosswalk Safety Rule Enforcement on Campus

Table 4.16c presents participants' evaluations of how effective crosswalk safety rules are enforced on campus. Out of 360 respondents, an overwhelming majority 351 individuals (97.5%) rated the enforcement as *not effective*, while only 9 respondents (2.5%)

considered it *somewhat effective*. These results indicate a widespread perception that crosswalk safety rules are poorly enforced. The near-unanimous response underscores a significant gap in enforcement visibility or impact, suggesting an urgent need for stronger implementation, monitoring, and communication of pedestrian safety policies on campus.

Table 4.16c: Perceived Effectiveness of Crosswalk Safety Rule Enforcement on Campus

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Somewhat Effective	9	2.5	2.5	2.5
Not Effective	351	97.5	97.5	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Visibility of Crosswalk Rule Enforcement by Campus Officials

Table 4.17d presents participants' observations regarding the presence of campus management officials enforcing crosswalk rules, such as checking for jaywalking. Out of 360 respondents, only 3 individuals (0.8%) reported having noticed any enforcement activity, while an overwhelming 357 respondents (99.2%) indicated that they have *not* seen any such enforcement. This near-universal response highlights a serious lack of visible enforcement efforts by campus authorities. It suggests that even if enforcement mechanisms exist, they are largely unseen and therefore unlikely to influence pedestrian

or driver behavior effectively. This points to a major gap in the campus safety strategy that needs to be addressed through more active and visible enforcement measures.

Table 4.16d: Visibility of Crosswalk Rule Enforcement by Campus Officials

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	3	.8	.8	.8
No	357	99.2	99.2	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Opinions on Increasing Crosswalk Safety Rule Enforcement on Campus

Table 4.16e presents respondents' views on whether crosswalk safety rule enforcement should be strengthened. Of the 360 participants, a vast majority 351 individuals (97.5%) expressed support for increased enforcement, while only 9 respondents (2.5%) opposed the idea. This overwhelming consensus underscores a strong demand for more active and visible enforcement measures on campus. It reflects broad recognition among the campus community that current enforcement is inadequate and that stronger oversight is essential to improving pedestrian safety and compliance with crosswalk rules.

Table 4.16e: Opinions on Increasing Crosswalk Safety Rule Enforcement on Campus

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	351	97.5	97.5	97.5
No	9	2.5	2.5	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

Observations of Penalties for Crosswalk Rule Violations

Table 4.16d showed that all 360 respondents (100.0%) reported that they have *never* seen anyone whether pedestrian or driver fined for violating crosswalk safety rules on campus. This unanimous response strongly suggests that enforcement of penalties, even if officially in place, is either not occurring or not visible to the campus community. The lack of observed consequences undermines the credibility of crosswalk regulations and may contribute to widespread non-compliance among both pedestrians and drivers.

Table 4.16d: Observations of Penalties for Crosswalk Rule Violations

Response	Frequency	Percentage	Valid	Cumulative

			Percentage	Percentage
No	360	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Suggestions for Enhancing Crosswalk Safety Enforcement on Campus

Table 4.16e summarizes participant suggestions for improving the enforcement of crosswalk safety on campus. The responses reflect a mix of infrastructure, education, reporting, and policy-based strategies, distributed fairly evenly among nine key themes: Encouraging student reporting of incidents (11.7%) – Highlights the importance of community involvement in enforcing safety rules by empowering students to report violations. Public enlightenment and education (combined ~34.2%) – Includes "public enlightenment," "rules and regulations should be given to enlighten people," and "proper education on the use of crosswalks." These responses stress the need for awareness campaigns and safety education to improve compliance. Infrastructure improvements (~43.2%) – A significant number of respondents suggested physical enhancements such as: *Addition of iron bars to crosswalks* (10.8%) to direct pedestrian flow, *Provision of more crosswalks on campus* (10.8%), *Visibility improvements* like "clearly visible

crosswalks" (10.8%) and "more predominant crosswalk markings" (10.8%). These responses indicate that many campus users believe enforcement can be supported through better visibility, clearer infrastructure, and greater user awareness.

Table 4.16e: Suggestions for Enhancing Crosswalk Safety Enforcement on Campus

Suggestions	Frequency	Percentage	Valid Percentage	Cumulative Percentage
addition of ironbars to the crossways	39	10.8	10.8	10.8
encouraging students to report incidents	42	11.7	11.7	22.5
more crosswalk should be in campus	39	10.8	10.8	33.3
proper education on the use of crosswalk	39	10.8	10.8	44.2
provision of clearly visible crosswalks	39	10.8	10.8	55.0
public enlightenment	42	11.7	11.7	66.7
rules and regulation on crosswalk safety should be given to enlighten the people	42	11.7	11.7	78.3
there should be more predominant crosswalk marking	39	10.8	10.8	89.2
visibility of crosswalks	39	10.8	10.8	100.0
Total	360	100.0	100.0	

Source: Author's Fieldwork, 2025.

4.6.2 Enforcement of Crosswalk Safety Rules

Staff Perceptions of Crosswalk Safety Rule Enforcement on Campus

Table 4.17a presents staff responses regarding the enforcement of crosswalk safety rules on campus. Out of 34 respondents, 28 individuals (82.4%) reported that crosswalk safety rules are *not* being enforced, while only 6 respondents (17.6%) believed that enforcement is taking place. This strong majority view reflects a general perception among staff that enforcement efforts are either lacking or ineffective. The findings reinforce earlier concerns about poor visibility of enforcement, contributing to continued non-compliance with crosswalk rules and increased risks to pedestrian safety.

Table 4.17a: Staff Perceptions of Crosswalk Safety Rule Enforcement on Campus

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	6	17.6	17.6	17.6
No	28	82.4	82.4	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Staff Awareness of Penalties for Crosswalk Rule Violations

Table 4.17b presents staff perceptions of the penalties for violating crosswalk safety rules on campus. Out of 34 respondents, the majority 30 individuals (88.2%) identified a *fine* as the primary penality, while 4 respondents (11.8%) cited *banning of driving on campus*. These results suggest that most staff are aware of fines as the main form of penalty for crosswalk rule violations. However, the inclusion of driving bans by a smaller group may reflect either additional disciplinary measures or varied understanding of campus

enforcement policies. This points to a possible need for clearer communication about existing rules and their consequences.

Table 4.17b: Staff Awareness of Penalties for Crosswalk Rule Violations

Penalty	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Fine	30	88.2	88.2	88.2
Banning of Driving on Campus	4	11.8	11.8	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Staff Rating of Crosswalk Rule Enforcement Effectiveness

Table 4.17c presents staff evaluations of how effectively crosswalk rules are enforced on campus. Out of 34 respondents, 32 individuals (94.1%) rated the enforcement as *not effective*, while only 2 respondents (5.9%) considered it *somewhat effective*. These results clearly indicate that the vast majority of staff perceive crosswalk rule enforcement as largely ineffective. This perception reinforces earlier findings of low compliance, weak visibility of enforcement efforts, and general dissatisfaction with the current state of pedestrian safety governance on campus.

Table 4.17c: Staff Rating of Crosswalk Rule Enforcement Effectiveness

Enforcement	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Somewhat Effective	2	5.9	5.9	5.9
Not Effective	32	94.1	94.1	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Staff Opinion on the Impact of Stricter Crosswalk Rule Enforcement

Table 4.17d showed that all the 34 staff respondents (100.0%) agreed that *stricter enforcement* of crosswalk rules would improve safety on campus. This unanimous response reflects a strong consensus among staff that enhanced enforcement is a critical strategy for addressing current safety challenges. It underscores the perceived link between consistent rule enforcement and improved pedestrian and driver behavior, emphasizing the urgent need for proactive safety governance on campus.

Table 4.17d: Staff Opinion on the Impact of Stricter Crosswalk Rule Enforcement

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	34	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Staff Experience with Crosswalk Rule Penalties

Table 4.17e presents staff responses regarding personal experience with penalties for violating crosswalk safety rules. Of the 34 respondents, 32 individuals (94.1%) reported that they have *not* been fined or penalized, while only 2 respondents (5.9%) indicated that they *have*. These results suggest that penalties for crosswalk rule violations are rarely applied or experienced among staff. This aligns with earlier findings pointing to weak enforcement visibility and effectiveness, and may contribute to ongoing non-compliance and reduced perception of accountability on campus.

Table 4.17e: Staff Experience with Crosswalk Rule Penalties

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Yes	2	5.9	5.9	5.9
No	32	94.1	94.1	100.0
Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

Staff Suggestions for Improving Crosswalk Safety Enforcement on Campus

The table presents staff-recommended strategies for enhancing the enforcement of crosswalk safety rules. Key themes emerged from the responses:

Increased Campus Police Presence (35.2%) with a total of 12 respondents (17.6% + 17.6%) called for more frequent *campus security patrols* to monitor and enforce crosswalk rules. This reflects a desire for greater visibility and active monitoring by security personnel.

Warning Systems and Signals (23.6%) with multiple suggestions emphasized the need to *implement warning signals and systems* for both drivers and pedestrians. These include

physical alerts or technological systems designed to enhance awareness and encourage compliance.

Strict Rule Enforcement and Penalties (29.4%) with several participants proposed stricter enforcement of existing rules, including *penalties* for violators and consistent application of safety policies. This underscores a belief that accountability measures are currently weak or inconsistently applied.

Dedicated Traffic Enforcement Officers (11.8%) with a smaller but notable group recommended that *traffic enforcement officers* should specifically focus on crosswalk safety issues.

Table 4.17f: Staff Suggestions for Improving Crosswalk Safety Enforcement on Campus

Suggestion	Frequency	Percentage	Valid Percentage	Cumulative Percentage
campus police patrols should be increased	6	17.6	17.6	17.6
implement warning signals	4	11.8	11.8	29.4
implement warning systems for drivers and pedestrians	4	11.8	11.8	41.2
implementation of rules and making sure this rules are strictly followed	4	11.8	11.8	52.9
increase campus police patrols	6	17.6	17.6	70.6
penalties should be strictly enforced	6	17.6	17.6	88.2
traffic enforcement officers to focus on crosswalk safety	4	11.8	11.8	100.0

Total	34	100.0	100.0	

Source: Author's Fieldwork, 2025.

4.6.3 Enforcement of Crosswalk Safety Rules

Driver's Perception of Crosswalk Safety Rule Enforcement on Campus

Table 4.18a showed that all the three respondents (100.0%) reported that crosswalk safety rules are *not* being enforced on campus. This unanimous response reflects a clear consensus among drivers that enforcement is absent or ineffective. It aligns with broader findings from staff and pedestrian responses and reinforces the urgent need for visible, consistent, and structured enforcement mechanisms to improve compliance and enhance pedestrian safety on campus.

Table 4.18a: Driver's Perception of Crosswalk Safety Rule Enforcement on Campus

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
No	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Driver's Awareness of Penalties for Crosswalk Rule Violations

Table 4.18b showed that that all the three respondents (100.0%) identified a *fine* as the penalty for violating crosswalk safety rules on campus. This unanimous response suggests that among drivers, there is a clear understanding that financial penalty is the official consequence for crosswalk rule violations. However, considering earlier findings

indicating a lack of observed enforcement, this awareness does not necessarily translate into perceived or actual accountability.

Table 4.18b: Driver's Awareness of Penalties for Crosswalk Rule Violations

Penalty	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Fine	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Driver's Evaluation of Crosswalk Rule Enforcement on Campus

Table 4.18c showed that all the three respondents (100.0%) rated the enforcement of crosswalk rules on campus as *somewhat effective*. This indicates that while drivers acknowledge some level of enforcement, they do not view it as fully effective. This moderate assessment may reflect limited or inconsistent enforcement presence, and suggests room for strengthening enforcement strategies to ensure better compliance and improved pedestrian safety.

Table 4.18c: Driver's Evaluation of Crosswalk Rule Enforcement on Campus

Evaluation	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Somewhat Effective	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Driver's Opinion on Stricter Enforcement of Crosswalk Rules

The table indicates that all three driver respondents (100.0%) agreed that crosswalk rules should be more strictly enforced on campus. This unanimous view highlights strong support among drivers for stricter enforcement measures. It suggests a recognition that existing enforcement may be insufficient and that stronger regulatory action is necessary to ensure pedestrian safety and responsible driver behavior.

Table 4.18d: Driver's Opinion on Stricter Enforcement of Crosswalk Rules

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
	Yes	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Driver's Observations of Crosswalk Rule Violations by Other Drivers

Table 4.18e showed that all the three respondents (100.0%) reported that they *never* witness other drivers violating crosswalk safety regulations on campus. This unanimous response suggests that within this small sample, drivers perceive high levels of compliance among their peers. However, this perception contrasts with reports from staff and pedestrians, who have noted frequent violations. The discrepancy may indicate a difference in awareness or perspective between road users and warrants further investigation into actual driving behavior and visibility of infractions.

Table 4.18e: Driver's Observations of Crosswalk Rule Violations by Other Drivers

Response	Frequency	Percentage age	Valid Percentage	Cumulative Percentage
Never	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Driver's Experience with Penalties for Crosswalk Violations

Table 4.18f indicates that all the three respondents (100.0%) reported that they have *never* been fined or penalized for crosswalk violations on campus. This consistent response reinforces previous findings of limited or non-existent enforcement. Despite awareness of fines as the official penalty, the absence of actual enforcement experiences among drivers suggests a lack of implementation, which may contribute to low accountability and compliance issues related to crosswalk safety.

Table 4.18f: Driver's Experience with Penalties for Crosswalk Violations

Response	Frequency	Percentage	Valid Percentage	Cumulative Percentage
No	3	100.0	100.0	100.0

Source: Author's Fieldwork, 2025.

Driver's Suggestions for Enhancing Crosswalk Rule Enforcement on Campus

Table 4.18g summarizes driver-provided suggestions for improving crosswalk rule enforcement. Each of the three respondents offered a unique recommendation:

One respondent called for *the authorities of the campus to improve* their enforcement efforts, implying a need for more active and structured institutional involvement.

Another suggestion emphasized *creating awareness of safety* on campus, highlighting the role of education in shaping behavior and compliance.

The third response advocated for ensuring that *drivers are made aware of crosswalk safety*, indicating a perceived gap in understanding or prioritization of pedestrian rules among motorists.

Collectively, these suggestions reflect a desire for a combination of administrative action, awareness campaigns, and driver education to strengthen the effectiveness of crosswalk rule enforcement on campus.

Table 4.18g: Driver's Suggestions for Enhancing Crosswalk Rule Enforcement on Campus

Suggestion	Frequency	Percentage	Valid Percentage	Cumulative Percentage
The Authorities of this campus should improve	1	33.3	33.3	33.3
They should create awareness of safety in the campus	1	33.3	33.3	66.7
they should make drivers to be aware of crosswalk safety	1	33.3	33.3	100.0
Total	3	100.0	100.0	

Source: Author's Fieldwork, 2025.

Field observation of Crosswalk usage

Table 4.19 presents a checklist of observations of crosswalk usage across different campus locations on selected dates and times. At the Faculty of Arts/Social Sciences, out of 325 pedestrians observed, only 20 used the crosswalk, while 305 chose not to. A total of 25 pedestrians were noted as being distracted while crossing, and no near misses or incidents occurred. Similarly, at the Faculty of Law/Agriculture, 58 pedestrians were observed, with only 11 using the crosswalk and 47 not using it; seven individuals were distracted, and no incidents were recorded.

At the Faculty of Education, out of 186 pedestrians observed, only 10 used the crosswalk while 176 did not, with nine recorded as distracted and no incidents. In contrast, at the University of Benin Staff School, where both zebra crossings and pedestrian traffic warders were present, there was higher crosswalk compliance of the 70 pedestrians observed 32 used the crosswalk and 38 did not. Traffic signals were obeyed by 27 pedestrians, and seven were distracted but no incidents occurred.

Table 4.19: Field Observation of Crosswalk usage

Date	Time Interval	Crosswalk Location	Signal Types	No of Pedestrians Observed	Traffic Signals Obeyed	Crosswalk Users	Non Crosswalk Users	Distracted while crossing	Near Misses/ Incident
13/06/25	8:00-8;30am	Faculty of Arts/Social Sciences	Zebra Crossing (white and Black Marking)	325	None	20	305	25	0
13/06/25	10:00 – 10:30 am	Faculty of Law/Agriculture	Zebra Crossing (white and Black Marking)	58	None	11	47	7	0
13/06/25	10:40-11:10am	Faculty of Education	Zebra Crossing (white and Black Marking)	186	None	10	176	9	0
13/06/25	1:30 – 2:15pm	University of Benin Staff School	Zebra Crossing and pedestrian traffic warders	70	27	32	38	7	0
13/06/25	3:00 – 3:30pm	University of Benin Central Mosque	Zebra Crossing (white and Black Marking)	62	None	21	41	6	0
14/6/25	7:30 – 8:00am	University of Benin Indoor Sports Complex	Zebra Crossing and pedestrian traffic warders	33	None	6	27	3	0
15/6/25	7:00 – 7:20	All Saints Chapel Church	Zebra Crossing (white and Black Marking)	70	None	25	45	5	0

Source: Authors Observation, 2025

At the University of Benin Central Mosque, out of 62 pedestrians, 21 used the crosswalk and 41 did not, with six observed distractions and no incidents. At the Indoor Sports

Complex, only six out of 33 pedestrians used the crosswalk, while 27 did not; three were distracted, and no incidents were recorded. Finally, at All Saints Chapel Church, 25 out of 70 pedestrians used the crosswalk, and 45 did not; five were distracted, with no incidents reported.

4.6 Chi-Square (X^2) Tests

Analysis of all association of the variables in the study were tested using the Chi-Square(X^2) Tests. All the analysis involves comparing two or more set of variables. In this case, all variables were first presented in contingency tables and then analysed with the aid of SPSS version 27.

Test for Sex of Students on Perception of Crosswalk Safety

Table 4.10a shows the relationship between sex and perception of crosswalk safety among 360 respondents provides meaningful insights into gender-based differences in safety perception. Of the total respondents, 216 were male (60%) and 144 were female (40%). The observed and expected frequencies indicate variations in how males and females perceive crosswalk safety levels.

Table 4.10a; Sex of student on Perception of Crosswalk Safety

Sex

			Perception of Crosswalk Safety					Total
Gender	Male	Count	15	33	75	78	15	216
		Expected Count	10.8	36.0	91.8	68.4	9.0	216.0
	Female	Count	3	27	78	36	0	144
		Expected Count	7.2	24.0	61.2	45.6	6.0	144.0
Total		Count	18	60	153	114	15	360
		Expected Count	18.0	60.0	153.0	114.0	15.0	360.0

Among male respondents, 15 rated crosswalks as very unsafe, 33 as unsafe, 75 as neutral, 78 as safe, and 15 as very safe. When compared with the expected counts, males recorded higher-than-expected responses at both the lower (very unsafe) and upper (safe and very safe) ends of the perception scale. This pattern suggests that males tend to hold more polarized views of crosswalk safety, perceiving crosswalks as either distinctly unsafe or distinctly safe, with fewer adopting a neutral stance.

In contrast, female respondents exhibited a more moderate perception pattern. Of the 144 females, 3 rated crosswalks as very unsafe, 27 as unsafe, 78 as neutral, 36 as safe, and none rated them as very safe. The observed frequencies show that females reported higher-than-expected counts in the neutral category and lower-than-expected counts in the extreme categories, particularly at the highest safety level. This indicates that females tend to express more cautious or balanced perceptions of crosswalk safety compared to males.

Chi-Square Tests on Sex of student on Perception of Crosswalk Safety

Table 4.10b reveal a statistically significant relationship between the sex of students and their perception of crosswalk safety. The test yielded a Pearson Chi-Square value of 25.763, with 4 degrees of freedom (df = 4) and an asymptotic significance (p = 0.000), based on 360 valid cases. Since the p-value is less than 0.05, the result indicates that the differences in perception of crosswalk safety between male and female students are highly significant and not due to random variation. Furthermore, the assumption of the Chi-Square test was satisfied, as all expected cell counts were above 5.

Table 4.10b; Chi-Square Tests on Sex of student on Perception of Crosswalk Safety

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	25.763[a]	4	.000
N of Valid Cases	360		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 6.00.			

This finding suggests that gender plays a crucial role in shaping students' perceptions of crosswalk safety. Male students were found to hold more polarized opinions, perceiving crosswalks as either very safe or very unsafe, while female students exhibited more moderate and cautious evaluations. This aligns with prior research indicating that gender differences significantly influence pedestrian behavior and safety perception. For instance, (Wang et al., 2018) found that boys and girls exhibit distinct patterns of pedestrian behavior, with boys

displaying more risk-taking tendencies and less cautious road-crossing behaviors compared to girls. The authors noted that these behavioral differences contribute to variations in perceived and actual pedestrian safety across genders.

Test for Age of student on Perception of Crosswalk Safety

Table 4.11a shows the relationship between age of students and their perception of crosswalk safety among 360 respondents reveals distinct trends across age groups. The respondents were divided into two categories: those aged 18–25 years and those aged 26–35 years. The findings demonstrate noticeable differences in how each age group perceives crosswalk safety, as shown by the distribution of observed and expected counts.

Table 4.11a; Age of student on Perception of Crosswalk Safety

Age								
			Perception of Crosswalk Safety					Total
Age	18-25 Yeats	Count	18	48	126	102	15	309
		Expected Count	15.5	51.5	131.3	97.9	12.9	309.0
	26-35 Years	Count	0	12	27	12	0	51
		Expected Count	2.6	8.5	21.7	16.2	2.1	51.0
Total		Count	18	60	153	114	15	360
		Expected Count	18.0	60.0	153.0	114.0	15.0	360.0

Among the younger respondents aged 18–25 years, 18 rated crosswalks as very unsafe, 48 as unsafe, 126 as neutral, 102 as safe, and 15 as very safe. When compared with the expected counts, this group recorded slightly higher-than-expected frequencies in the "very unsafe" and "safe" categories, and slightly lower-than-expected responses in the "unsafe" and "neutral" categories. This pattern suggests that younger respondents tend to hold more diverse or polarized opinions about crosswalk safety some perceiving crosswalks as unsafe while others view them as relatively safe.

In contrast, respondents aged 26–35 years showed a different perception pattern. None of the participants in this group rated crosswalks as very unsafe or very safe. Instead, most rated them as either unsafe (12 respondents), neutral (27 respondents), or safe (12 respondents). The observed counts for this group were higher than expected at the "unsafe" and "neutral" levels but lower than expected at the extremes. This indicates that older respondents generally hold more moderate and cautious perceptions of crosswalk safety, tending to avoid extreme judgments.

Overall, the observed differences between the two age groups suggest that age may influence the perception of crosswalk safety. Younger students (18–25 years) appear to exhibit more variability and confidence in their assessments, possibly reflecting a greater sense of risk tolerance or differing daily experiences as pedestrians. Meanwhile, older students (26–35 years) demonstrate a more balanced and cautious outlook, which may

stem from increased awareness of traffic risks and safety considerations.

Chi-Square Tests on Age of student on Perception of Crosswalk Safety

Table 4.11b examine the relationship between the age of students and their perception of crosswalk safety using a Chi-Square test of independence. The analysis yielded a Pearson Chi-Square value of 9.892 with 4 degrees of freedom (df = 4) and an asymptotic significance (p = 0.042), based on 360 valid cases. Although two cells (20%) have expected counts less than 5 with the minimum expected count being 2.13 the test remains valid for interpretation.

Table 4.11b; Chi-Square Tests on Age of student on Perception of Crosswalk Safety

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.892[a]	4	.042
N of Valid Cases	360		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 2.13.

The p-value of 0.042, which is less than 0.05, indicates that there is a statistically Table

4.11b evaluate the relationship between the age of students and their perception of crosswalk safety using a Chi-Square test of independence. The analysis yielded a Pearson Chi-Square value of 9.892, with 4 degrees of freedom (df = 4) and an asymptotic significance (p = 0.042), based on 360 valid cases. Although 20% of the cells had expected counts less than five, the minimum expected count was 2.13, which is still acceptable for interpretation.

Since the p-value (0.042) is less than the 0.05 significance level, the result indicates a statistically significant association between age and perception of crosswalk safety. This means that students' perceptions of crosswalk safety vary significantly with age. The descriptive analysis (Table 4.11a) supports this finding younger respondents aged 18–25 years displayed a wider range of perceptions, from "very unsafe" to "very safe," reflecting a tendency toward more diverse or risk-tolerant views. Meanwhile, respondents aged 26–35 years demonstrated more cautious and moderate evaluations, rarely choosing the extreme categories. This suggests that as age increases, individuals may develop more balanced and safety-conscious perceptions of crosswalk use.

This finding aligns with the work of (Yang et al., 2022), who found that age is a significant factor influencing pedestrian crossing behavior and safety perception. Their study revealed that younger pedestrians are more likely to engage in risky crossing behaviors and possess a higher tolerance for unsafe conditions, while older individuals demonstrate greater compliance with crossing rules and prioritize safety. Similarly, the

current study indicates that younger students may perceive crosswalks as safer due to confidence or inattention to potential risks, whereas older students approach such situations more cautiously.

Test for Students' Education Level on Perception of Crosswalk Safety

Table 4.12a examines the relationship between students' education level and their perception of crosswalk safety among a total of 360 respondents. The education levels were categorized from 100 Level to 500 Level, representing increasing years of academic experience. The observed and expected frequencies reveal distinct patterns in how students at different academic levels perceive the safety of crosswalks. Among 100 Level students, perceptions were concentrated in the middle range of the scale, with most rating crosswalks as "safe" (36) or "neutral" (18), and very few selecting extreme ratings such as "very unsafe" or "very safe." Compared to the expected counts, this group recorded higher-than-expected frequencies at the "safe" level (11) and lower-than-expected counts at the extremes, indicating that first-year students tend to adopt a moderate and optimistic perception of crosswalk safety.

Table 4.12a; Students' Education Level on Perception of Crosswalk Safety

Level								
			Perception of Crosswalk Safety					Total
Level	100 Level	Count	0	6	18	36	0	60
		Expected Count	3.0	10.0	25.5	19.0	2.5	60.0
	200	Count	12	24	63	27	6	132

	Level	Expected Count	6.6	22.0	56.1	41.8	5.5	132.0
	300 Level	Count	6	27	48	21	9	111
		Expected Count	5.6	18.5	47.2	35.2	4.6	111.0
	400 Level	Count	0	3	21	21	0	45
		Expected Count	2.3	7.5	19.1	14.3	1.9	45.0
	500 Level	Count	0	0	3	9	0	12
		Expected Count	.6	2.0	5.1	3.8	.5	12.0
Total		Count	18	60	153	114	15	360
		Expected Count	18.0	60.0	153.0	114.0	15.0	360.0

For 200 Level students, the pattern shows a slightly wider spread. Twelve respondents rated crosswalks as “very unsafe,” 24 as “unsafe,” 63 as “neutral,” 27 as “safe,” and 6 as “very safe.” The observed counts at “very unsafe” and “neutral” levels were higher than expected, suggesting that second-year students have more mixed views, with a notable proportion expressing concern about crosswalk safety while others remain neutral.

300 Level students exhibited a relatively balanced distribution, with responses spread across all categories: 6 rated “very unsafe,” 27 “unsafe,” 48 “neutral,” 21 “safe,” and 9 “very safe.” Compared to the expected counts, there were higher-than-expected responses in the “unsafe” and “very safe” categories, implying a greater diversity of opinion at this educational stage. This may reflect increasing awareness of safety issues combined with growing personal experience navigating campus and urban crosswalks.

Among 400 Level students, the trend shifts toward cautious optimism. None rated

crosswalks as “very unsafe” or “very safe,” while 3 rated them “unsafe,” 21 “neutral,” and 21 “safe.” The observed frequencies show that this group was more likely than expected to select “neutral” and “safe,” suggesting a more moderate and realistic perception of safety consistent with greater maturity and situational awareness. Finally, 500 Level students (final-year) showed a limited but focused pattern, with 3 respondents choosing “neutral” and 9 choosing “safe.” All other categories had zero responses. Although the sample size for this group is small (n=12), the results suggest a consistently cautious but positive perception of crosswalk safety, possibly influenced by experience and familiarity with traffic environments.

Overall, the pattern across education levels reveals that perceptions of crosswalk safety evolve with academic progression. Lower-level students (100 and 200 Levels) show more variability, including some safety concerns, while higher-level students (400 and 500 Levels) display more confidence and balanced views. This progression may be linked to increased maturity, environmental awareness, and familiarity with pedestrian infrastructure as students advance through their studies.

Chi-Square Tests on Students’ Education Level on Perception of Crosswalk Safety

Table 4.12b examine the relationship between students’ education level and their perception of crosswalk safety. The analysis produced a Pearson Chi-Square value of 70.328, with 16 degrees of freedom (df = 16) and an asymptotic significance (p = 0.000), based on 360 valid cases. Although nine cells (36%) have expected counts less than five with a minimum expected count of 0.50 the large sample size ensures that the results

remain statistically meaningful and interpretable. The p-value (0.000), being far below the 0.05 significance threshold, indicates a highly significant relationship between students' education level and their perception of crosswalk safety. This means that students' views on how safe crosswalks are vary significantly depending on their level of study. In other words, educational progression has a measurable influence on how individuals assess pedestrian safety conditions. When interpreted alongside the descriptive data (Table 4.12a), the findings reveal that lower-level students (100 and 200 Levels) tend to express more varied or uncertain perceptions some rating crosswalks as unsafe or neutral while upper-level students (400 and 500 Levels) demonstrate more balanced and positive evaluations of crosswalk safety. This pattern suggests that as students progress academically, they develop greater awareness, confidence, and understanding of pedestrian safety risks and infrastructure. Their experiences navigating campus environments and urban areas likely contribute to these evolving perceptions.

Table 4.12b; Chi-Square Tests on Students' Education Level on Perception of Crosswalk Safety

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	70.328[a]	16	.000
N of Valid Cases	360		

a. 9 cells (36.0%) have expected count less than 5. The minimum expected count is .50.

These findings are consistent with the study by (Ackaah & Larbi, 2024), who investigated pedestrian behavior and safety compliance at signalized crosswalks in Accra, Ghana. Their research found that education level was a significant predictor of pedestrian safety behavior, with more educated individuals demonstrating higher compliance with crossing signals and lower rates of red-light violations. The authors attributed this to greater exposure to road safety education, improved risk perception, and a stronger sense of personal responsibility among more educated pedestrians.

Test for Staff Sex on Perception of Crosswalk Safety

Table 4.13a examines the relationship between staff sex and their perception of crosswalk safety among a total of 34 respondents. The data compares the responses of male staff (n = 18) and female staff (n = 16) across four levels of perceived safety: 8.00 (very unsafe), 9.00 (unsafe), 10.00 (neutral), and 11.00 (safe).

Table 4.13a; Staff Sex on Perception of Crosswalk Safety

Sex							
			Perception of Crosswalk Safety				Total
Gender	1	Count	3	2	7	6	18
		Expected Count	2.6	1.6	7.4	6.4	18.0
	2	Count	2	1	7	6	16
		Expected Count	2.4	1.4	6.6	5.6	16.0
Total		Count	5	3	14	12	34
		Expected Count	5.0	3.0	14.0	12.0	34.0

Among male staff, the distribution shows that 3 respondents rated crosswalks as very

unsafe, 2 as unsafe, 7 as neutral, and 6 as safe. Compared to the expected counts, males recorded slightly higher values at the “very unsafe” level and closely aligned values for the other categories. This pattern suggests that male staff members hold diverse perceptions of crosswalk safety, ranging from unsafe to safe, but with a small tendency toward identifying potential risks or deficiencies in safety features.

For female staff, 2 respondents rated crosswalks as very unsafe, 1 as unsafe, 7 as neutral, and 6 as safe. These responses closely mirror those of their male counterparts and are nearly identical to the expected counts, indicating a similar distribution of perceptions between the two groups. The majority of female staff members rated crosswalks as neutral or safe, reflecting a generally moderate or balanced view of crosswalk safety, without strong leanings toward either extreme.

Overall, both male and female staff share comparable perceptions of crosswalk safety, with most respondents identifying the crossings as moderately safe. The minimal variation between observed and expected counts suggests that sex has little or no influence on staff perceptions of crosswalk safety. Both genders appear to evaluate the safety of crosswalks in a similar way, likely due to shared environmental conditions, workplace infrastructure, and exposure to the same pedestrian facilities.

Chi-Square Tests on Staff Sex on Perception of Crosswalk Safety

Table 4.13b assess the relationship between staff sex and their perception of crosswalk safety using the Chi-Square test of independence. The analysis produced a Pearson

Chi-Square value of 0.417, with 3 degrees of freedom (df = 3) and an asymptotic significance (p = 0.937), based on 34 valid cases. It is noted that four cells (50%) have expected counts less than five, with the minimum expected count being 1.41, indicating that some cells have small frequencies, which may slightly limit the strength of statistical inference.

Table 4.13b; Chi-Square Tests on Staff Sex on Perception of Crosswalk Safety

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	.417[a]	3	.937
N of Valid Cases	34		

a. 4 cells (50.0%) have expected count less than 5. The minimum expected count is 1.41.

However, the p-value (0.937) is much greater than the conventional significance level of 0.05, suggesting that there is no statistically significant relationship between staff sex and their perception of crosswalk safety. This means that male and female staff members do not differ meaningfully in how they perceive the safety of crosswalks. Their responses are largely similar across the categories of safety perception.

This statistical result aligns with the descriptive analysis (Table 4.13a), where both male

and female staff showed comparable distributions of responses. Most participants, regardless of gender, rated crosswalks as either *neutral* or *safe*, indicating a shared understanding and experience of pedestrian safety conditions. These findings imply that gender does not play a determining role in shaping safety perception among staff members within the studied environment.

This outcome is supported by the study of (Ackaah & Larbi, 2024), who investigated pedestrian safety behavior at signalized crosswalks in Accra, Ghana. Their research found that gender differences had minimal influence on pedestrian safety attitudes when compared to factors such as age, experience, and education level. The authors noted that both men and women exhibited similar compliance patterns and perceptions of risk when exposed to the same environmental and infrastructural conditions.

Test for Staff Age on Perception of Crosswalk Safety

Table 4.14a examines the relationship between staff age and their perception of crosswalk safety among 34 respondents. The age distribution is divided into two categories: 36–45 years and 46 years and above. The table presents how respondents in each age group rated crosswalk safety across four levels 8.00 (very unsafe), 9.00 (unsafe), 10.00 (neutral), and 11.00 (safe) along with their corresponding expected counts.

Table 4.14a Staff Age on Perception of Crosswalk Safety

Age							
			Perception of Crosswalk Safety				Total
Age	36-45 Years	Count	3	3	12	8	26
		Expected	3.8	2.3	10.7	9.2	26.0

		Count					
	46 years above	Count	2	0	2	4	8
		Expected Count	1.2	.7	3.3	2.8	8.0
Total		Count	5	3	14	12	34
		Expected Count	5.0	3.0	14.0	12.0	34.0

Among staff aged 36–45 years, 3 respondents rated crosswalks as very unsafe, 3 as unsafe, 12 as neutral, and 8 as safe. Compared with the expected counts, this group recorded slightly higher frequencies in the unsafe and neutral categories and slightly lower frequencies in the safe category. This pattern suggests that most respondents within this age group perceive crosswalks as neither particularly safe nor unsafe, reflecting a moderate and cautious outlook toward pedestrian safety. Their responses may reflect greater exposure to road environments and a balanced understanding of potential risks and safety features.

In contrast, respondents aged 46 years and above demonstrated a slightly different distribution. Two respondents rated crosswalks as very unsafe, none rated them as unsafe, two rated them as neutral, and four rated them as safe. When compared to expected counts, this group showed a higher-than-expected frequency in the “safe” category and a lower frequency in the “neutral” and “unsafe” categories. This suggests that older staff members tend to have a more positive perception of crosswalk safety, possibly due to more experience, familiarity with traffic behavior, or greater confidence in their ability to navigate crosswalks safely.

Overall, the results indicate that staff age influences perception of crosswalk safety to some

extent. While both age groups recognize potential risks, younger staff (36–45 years) appear more cautious and critical of crosswalk conditions, whereas older staff (46 years and above) tend to perceive crosswalks as relatively safer. This difference may stem from variations in personal mobility patterns, experience levels, and exposure to pedestrian environments over time.

Chi-Square Tests On Staff Age on Perception of Crosswalk Safety

Table 4.14b examine the relationship between staff age and their perception of crosswalk safety. The analysis yielded a Pearson Chi-Square value of 2.983, with 3 degrees of freedom (df = 3) and an asymptotic significance (p = 0.394), based on 34 valid cases. It is noted that six cells (75%) have expected counts less than five, with a minimum expected count of 0.71, indicating that the small sample size may limit the robustness of the statistical inference.

Table 4.14b: Chi-Square Tests On Staff Age on Perception of Crosswalk Safety

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.983[a]	3	.394
N of Valid Cases	34		

a. 6 cells (75.0%) have expected count less than 5. The minimum expected count is .71.

Despite this limitation, the p-value of 0.394 is substantially higher than the standard significance level of 0.05. This result indicates that there is no statistically significant association between staff age and their perception of crosswalk safety. In other words, differences in age among staff members do not meaningfully affect how they perceive the safety of crosswalks. Both younger and older staff appear to hold generally similar views about crosswalk safety conditions.

This finding is consistent with the descriptive results in Table 4.14a, where both age groups 36–45 years and 46 years and above showed comparable patterns in their perceptions. Most respondents in both categories rated crosswalks as *neutral* or *safe*, suggesting that they share a relatively balanced and moderately positive outlook toward crosswalk safety. This uniformity in perception may be due to shared experiences within the same institutional and environmental context, where both age groups are exposed to similar infrastructure, pedestrian facilities, and safety conditions. The result aligns with findings from a study by (Ackaah & Larbi, 2024), who examined pedestrian safety behavior at signalized crosswalks in Accra, Ghana. Their research revealed that demographic factors such as age had limited influence on perceptions of pedestrian safety, as road users across different age groups tended to form similar judgments when exposed to the same environmental and infrastructural conditions. The study emphasized that factors like education, traffic control

measures, and infrastructure quality exert a stronger impact on perceived safety than age alone.

Test for Official Designation on Perception of Crosswalk Safety

Table 4.15a examines the relationship between official designation and perception of crosswalk safety among a total of 34 staff members. The respondents were grouped into three categories based on their official roles: academic staff, non-academic staff, and casual workers. Their perceptions were rated across four levels 8.00 (very unsafe), 9.00 (unsafe), 10.00 (neutral), and 11.00 (safe) with both observed and expected counts provided.

Table 4.15a: Official Designation on Perception of Crosswalk Safety

Official Designation							
			Perception of Crosswalk Safety				Total
Official Designation	Academic Staff	Count	3	2	8	7	20
		Expected Count	2.9	1.8	8.2	7.1	20.0
	Non Academic Staff	Count	1	1	4	4	10
		Expected Count	1.5	.9	4.1	3.5	10.0
	Casual Worker	Count	1	0	2	1	4
		Expected Count	.6	.4	1.6	1.4	4.0
Total		Count	5	3	14	12	34
		Expected Count	5.0	3.0	14.0	12.0	34.0

Among the academic staff, 3 respondents rated crosswalks as very unsafe, 2 as unsafe, 8 as neutral, and 7 as safe. These values align closely with the expected counts, suggesting that academic staff responses are proportionately distributed. The pattern indicates that a majority

of academic staff perceive crosswalks as either neutral or safe, reflecting a moderately positive perception of crosswalk safety. Their views may be influenced by greater awareness of safety issues or regular exposure to campus facilities and road use.

The non-academic staff group showed a similar pattern, with 1 respondent rating crosswalks as very unsafe, 1 as unsafe, 4 as neutral, and 4 as safe. The distribution is nearly identical to the expected values, indicating that their perception of crosswalk safety is also generally balanced. Most non-academic staff expressed neutral or safe perceptions, which may be linked to their consistent daily use of campus walkways and familiarity with the institution's pedestrian environment.

For the casual workers, the responses were more limited but still followed a comparable trend. One respondent rated crosswalks as very unsafe, none rated them as unsafe, two rated them as neutral, and one rated them as safe. Although this group represents a small portion of the total sample (n=4), the results suggest a moderate perception of crosswalk safety, with no extreme responses indicating either complete safety or danger.

Overall, the findings suggest that official designation has minimal impact on perception of crosswalk safety. Across all three staff categories academic, non-academic, and casual most respondents rated crosswalks as neutral or safe. This uniformity implies that all staff groups share similar experiences with the available pedestrian facilities and traffic conditions within their environment. The consistency in perception likely arises from the fact that all groups use the same crosswalks and are exposed to comparable safety measures and traffic patterns on campus.

Chi-Square Tests on Official Designation on Perception of Crosswalk Safety

Table 4.15b assess the relationship between official designation and perception of crosswalk safety among staff members using the Chi-Square test of independence. The analysis yielded a Pearson Chi-Square value of 1.109, with 6 degrees of freedom (df = 6) and an asymptotic significance (p = 0.981), based on 34 valid cases. It is noted that ten cells (83.3%) have expected counts less than five, with the minimum expected count being 0.35. This indicates that the small sample size and sparse data in some categories may reduce the strength of the statistical inference.

Table 4.15b: Chi-Square Tests on Official Designation on Perception of Crosswalk Safety

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	1.109[a]	6	.981
N of Valid Cases	34		
a. 10 cells (83.3%) have expected count less than 5. The minimum expected count is .35.			

Despite these limitations, the p-value (0.981) is far greater than the conventional significance threshold of 0.05, indicating that there is no statistically significant relationship between staff designation and perception of crosswalk safety. This means that whether a respondent is an academic staff, non-academic staff, or casual worker does not meaningfully influence how they perceive the safety of crosswalks. All groups tend to

hold similar opinions regarding pedestrian safety conditions in their environment.

This result aligns with the descriptive findings in Table 4.15a, where all staff categories exhibited comparable response patterns. Across all groups, the majority of respondents rated crosswalks as *neutral* or *safe*, suggesting a shared perception of the pedestrian environment. This uniformity implies that the institutional setting provides similar safety experiences for all staff, regardless of their job role or professional status.

The finding corresponds with the research of Ackaah and Corneille (2014) in *Accra, Ghana* and supports the Nigerian study by Ogunmodede, Adio, and Akinola (2018) titled *"Pedestrian Crossing Behaviour and Safety at Road Intersections in Ibadan, Nigeria."* Their study found that occupational status had little or no significant influence on pedestrian safety perception and behavior, as individuals working within the same physical and infrastructural environments shared similar experiences and attitudes toward road safety. The authors concluded that environmental and infrastructural factors such as crosswalk design, signage visibility, and driver compliance play a more decisive role in shaping safety perceptions than occupational or demographic characteristics.

Discussion of Results

This section presents a discussion of the results obtained from the data analysis in relation to crosswalk safety on the Ugbowo campus. The findings are categorized into several key themes, which include their perceptions and experiences regarding crosswalk safety, and the effectiveness of current crosswalk infrastructure. Specifically, the analysis covers the

varying perspectives of students, staff, and drivers on issues such as crosswalk usage, visibility, adherence to safety measures, and enforcement of crosswalk rules.

Perception of Pedestrians and Drivers on Crosswalk Safety in the University Campus

The study conducted at the University of Benin, Ugbowo campus, revealed a strongly negative perception of crosswalk safety across all respondent categories students, staff, and drivers. A significant concern shared by all groups was the vulnerability of pedestrians, largely attributed to unsafe driver behavior and inadequate infrastructure. Specifically, pedestrians (students and staff) expressed their apprehension about using the crosswalks, citing issues such as drivers failing to yield, speeding, aggressive behavior, and distractions like mobile phone usage while driving. These perceptions of safety were further reinforced by the low level of crosswalk usage, with a significant portion of pedestrians admitting they either rarely or never used designated crosswalks. The discrepancy between pedestrian and driver perspectives was particularly noticeable. While drivers claimed to always yield to pedestrians, the pedestrians' reports suggested frequent instances of non-compliance by drivers, revealing a significant gap in perception between the two groups. This gap, along with the concerns regarding pedestrian safety, is not an isolated issue but part of a broader, global challenge that has been widely discussed in literature on pedestrian safety.

One study that sheds light on perception of crosswalk safety is Schwebel et al. (2022), which explored pedestrian distraction and risky crossing behaviors in various settings, including urban campuses. Schwebel et al. found that distraction was a major factor contributing to unsafe pedestrian behavior, with higher distraction rates in campus environments. On these campuses, distractions were not just confined to pedestrians but extended to driver behaviors as well. The study observed that on college campuses, distractions such as texting or mobile phone use were more prevalent, leading to higher rates of unsafe crossing behaviors. This aligns closely with the findings of this study, where respondents indicated that driver distractions, particularly from mobile phones, were a major safety concern. The pedestrians at Ugbowo campus, much like those in Schwebel et al.'s study, felt unsafe due to the combination of driver distraction, failure to yield, and speeding. In urban campus settings, such as Ugbowo, these distractions can significantly increase the risk of accidents, as pedestrians are often faced with an environment where both driver and pedestrian behaviors are compromised. Schwebel et al. (2022) emphasize that the environment itself (the campus) serves as a high-risk area for such behaviors, making it particularly important to address these concerns through both improved infrastructure and educational interventions.

Sisiopiku and Akin (2003) also provide valuable insights into pedestrian behavior in relation to crosswalk safety. Their research focused on pedestrian behaviors and their perceptions toward different pedestrian facilities, particularly in Michigan, USA. Their

study revealed that pedestrians were more likely to use crosswalks and follow safety protocols when clear, well-marked pedestrian facilities were present. This highlights the crucial role of signage and visibility in ensuring pedestrian safety. The findings of Sisiopiku and Akin (2003) are highly relevant to the Ugbowo campus context, where the low usage of crosswalks reported by students and staff is likely linked to the inadequate visibility of crosswalk signs and markings. The study by Sisiopiku and Akin supports the idea that the presence of well-marked crosswalks and visible signage can significantly influence pedestrian behavior and improve safety. Given that only a small Percentage age of pedestrians at Ugbowo campus reported using crosswalks regularly, it is evident that the current infrastructure is failing to encourage proper pedestrian behavior. Sisiopiku and Akin (2003) argue that when signage is not visible or when crosswalks are not well-marked, pedestrians tend to feel less compelled to use them, leading to dangerous behavior such as jaywalking. This is consistent with the findings on the Ugbowo campus, where many pedestrians opted to cross roads outside of designated crosswalks, further highlighting the need for improved infrastructure to guide pedestrian behavior and enhance safety.

Another study by Piazza et al. (2022) provides further evidence supporting the link between crosswalk visibility and pedestrian safety. Piazza et al. focused on the impact of high-visibility crosswalks on driver yielding behavior in North Carolina, USA. Their field experiment demonstrated that high-visibility crosswalks significantly improved

driver yielding rates, with an increase of approximately 22% in compliance when these crosswalks were present. This result is particularly relevant to the Ugbowo campus, where pedestrian respondents expressed concerns over drivers not yielding at crosswalks, despite drivers' claims to the contrary. The findings from Piazza et al. (2022) suggest that the visibility of crosswalks plays a crucial role in improving driver compliance with pedestrian right-of-way. On the Ugbowo campus, where crosswalks are perceived as unsafe and underused, improving the visibility of these crosswalks could potentially lead to better driver yielding behavior and, consequently, improved pedestrian safety. However, it is important to note that the study by Piazza et al. (2022) did not investigate pedestrian perceptions of safety directly. This gap is filled in the current study, where the perceived safety of crosswalks is just as important as the actual behaviors of drivers. Therefore, enhancing crosswalk visibility on the Ugbowo campus, along with addressing pedestrian concerns about driver behavior, could lead to a safer and more effective pedestrian infrastructure.

While these studies provide valuable insights, they also highlight some gaps in the existing literature. For instance, although Schwebel et al. (2022) and Sisiopiku and Akin (2003) discuss the importance of signage and driver behavior in pedestrian safety, they do not focus on the unique campus environment where pedestrian and vehicular traffic intersect frequently, nor do they assess the effectiveness of enforcement measures. Additionally, the studies by Piazza et al. (2022) and Sisiopiku and Akin (2003) focus

primarily on driver behavior, without thoroughly investigating the influence of pedestrian perceptions on their behavior, particularly in environments where crosswalks are perceived as unsafe.

Adequacy of Crosswalk Signs and Markings in the Ugbowo Campus of the University of Benin

The examination of crossing signage and markings at the Ugbowo Campus of the University of Benin indicates a significant and systemic deficiency in pedestrian safety infrastructure. A notable unanimity appeared across all examined groups (students, staff, and drivers) each separately determining that the current traffic management methods are very inadequate. Participants consistently assessed crosswalk markers as either inadequately apparent or completely nonexistent in regions with substantial pedestrian traffic. This opinion was strongly supported by drivers, who verified that signage was incorrectly positioned or unreadable, making it ineffective for directing safe vehicle operation. This consensus indicates more than a mere infrastructural shortcoming; it highlights a total failure of the intended regulating role of these safety devices, creating an atmosphere of uncertainty and increased danger for all road users. The significant and pervasive need for prompt action via enhanced signage and the repainting of crosswalks highlights the community's sense of urgency and the concrete effects of this oversight on their daily safety.

The apprehensions expressed by the campus community are strongly corroborated by substantial transportation safety research that demonstrates a clear connection between

crosswalk visibility and the behaviour of road users. Sisiopiku and Akin (2003) shown that pedestrians like well-marked crosswalks and that their adherence to safe crossing techniques is strongly linked to the visibility of relevant signage. This principle has been corroborated by recent experimental studies examining driver reactions to infrastructural improvements. A study by Piazza et al. (2022) demonstrated quantitatively that the introduction of high-visibility crosswalks significantly enhances the frequency with which automobiles yield to pedestrians. This conclusion was further corroborated by a comparable before-after study conducted by O'Brien et al. (2022), which likewise determined that high-visibility markers substantially enhance driver yielding compliance. This research collectively affirms that the concerns found on the Ugbowo campus are not simply questions of subjective perception; instead, they signify a failure to apply engineering solutions which shown effectiveness in regulating driving behaviour and improving pedestrian safety. The widespread desire for improved marking is, thus, an appeal for the implementation of evidence-based safety standards.

Nevertheless, a notable study by Schwebel et al. (2022) found that distracted pedestrian behaviour, frequently associated with mobile device usage, significantly contributes to hazardous road crossings, particularly on university campuses where such distractions are common. This presents a crucial variable that enhanced marks alone cannot address. Ning et al. (2024) revealed that the duration of a pedestrian's distraction significantly predicts risky crossing behaviour, thereby changing the emphasis from passive

environmental cues to the individual's active cognitive state. Mandal et al. (2023) employed the theory of planned behaviour to demonstrate that walking behaviours are substantially associated with an individual's perceived control and their cognitive evaluation of the surroundings. This indicates that a pedestrian's decision-making process is a complicated interaction of internal convictions and external influences. Thus, a flawlessly designated crossing may remain ineffectual if the pedestrian is cognitively disengaged or perceives a deficiency of control.

With these viewpoints, it is evident that the circumstances of the Ugbowo campus necessitate a dualistic strategy. The evident infrastructural deficiencies must be prioritised, as the existing literature overwhelmingly demonstrates that clear, high-visibility crosswalks are essential for a safe pedestrian environment. A genuinely successful and durable safety action plan must transcend mere paint and signage to address the intricate realities of human behaviour.

Crosswalk Signs and Markings in the University Campus and Enhancement of Pedestrian Safety

The study indicates a notable disparity between the intended purpose of crosswalks on the Ugbowo campus and their perceived efficacy by the community. A prevailing feeling among students and teachers is that the current crosswalks do not improve pedestrian safety. This perspective is especially prevalent among students, the majority of whom feel that the markings exert minimal impact on altering pedestrian behaviour. A minority of workers acknowledged that the markings could provide some directional

advice, although they refrained from associating this with a guarantee of safety. This nuanced differentiation between instruction and safety is essential, since it underscores a key shortcoming: the infrastructure is perceived just as a recommendation rather than an obligatory safety measure. The seriousness of this predicament is underscored by the discovery that every student respondent felt uncomfortable while utilising a crosswalk. This vulnerability is attributed not to the lack of markings itself, but to the widespread problems of reckless driving and a noticeable deficiency in enforcement.

The acknowledged disparity between infrastructure availability and safety perception is well recorded in scholarly literature. Kweon et al. (2021) illustrate through simulated environments that the impression of safety is significantly affected by particular physical characteristics, like the existence of pavements and buffers separating pedestrians from traffic. Likewise, Worth et al. (2022) discovered that perceived safety is markedly enhanced by establishing lateral separation from motor traffic. The sensation of insecurity on the Ugbowo campus can be attributed to an environment devoid of essential architectural aspects that promote safety. Moreover, the students' focus on dangerous driving and the lack of enforcement indicate a broader, systemic problem that mere marks cannot rectify. This is in complete accordance with the recommendations of Zegeer et al. (2008), who endorse comprehensive pedestrian safety action plans. Their research asserts that effective safety is not attained solely through engineering but necessitates a comprehensive approach that amalgamates infrastructure with thorough education and, importantly, constant enforcement. The campus findings thus exemplify this paradigm,

wherein the engineering aspect is failing specifically due to the apparent absence of the other two pillars namely; education and enforcement.

A thorough analysis must also take into account elements beyond the direct interaction of infrastructure, driver conduct, and enforcement. The overarching context of the constructed environment and the interior psychology of the pedestrian are both critical factors. Research conducted by Fang et al. (2022) on urban functional regions indicates that characteristics of the built environment, including population density and land use design are significant determinants of pedestrian volume. This indicates that the safety issues at Ugbowo Campus may be exacerbated by design elements that aggregate a significant number of people in inadequately equipped space, resulting in intrinsic conflict sites that even optimally built crosswalks would find difficult to regulate. Furthermore, the psychological aspect of pedestrian behaviour introduces an additional element of complication. Ultimately, the study by Schwebel et al. (2017) presents a cautionary perspective, revealing that treatments may modify an individual's perceived vulnerability without effectively altering their actual risk-taking behaviour. This suggests that although physical improvements may enhance students' sense of safety, their fundamental crossing behaviours may remain unchanged. This underscores the ingrained character of pedestrian behaviour and indicates that sustained safety enhancements would necessitate interventions that target both the physical environment and the cognitive patterns of the campus population.

Adherence of Drivers and Pedestrians to Crosswalk Signs and Markings

The study of road users at the University of Benin's Ugbowo Campus uncovers a significant and perilous failure to comply with crossing safety regulations. The efficacy of traffic infrastructure relies on user adherence; yet, the results reveal a near-complete neglect of the marked pedestrian crossings. The disturbingly low utilisation rate among students, with most deliberately circumventing crosswalks indicates that these markings are regarded not as safe zones but as areas of increased, unrestrained danger. This perspective is unambiguously corroborated by the collective accounts of respondents who have experienced feelings of insecurity due to aggressive and reckless driving behaviours, such as speeding and a persistent disregard for yielding to the right-of-way. This is not simply a matter of sporadic non-compliance; it highlights a deeply entrenched campus road culture in which the essential regulations governing pedestrian-vehicle interaction have become almost obsolete.

The disparity between drivers' self-reported behaviour and pedestrians' actual experiences is particularly revealing. Although the polled drivers asserted flawless compliance, the collective perspective of pedestrians indicates that this self-evaluation is, at best, indicative of inadequate self-awareness or, more probably, a quintessential example of cognitive bias, such as illusory superiority. This perception gap is significant as it suggests that drivers may fail to acknowledge their behaviour as harmful,

complicating instructional approaches. The problem is exacerbated by the inadequate condition of the infrastructure. According to Sisiopiku and Akin (2003), compliance among pedestrians and drivers is intrinsically connected to the visibility and clarity of signage. The faded markings and unclear signage on campus fail to offer the definitive, authoritative guidance required to elicit respect and alter behaviour, therefore perpetuating the cycle of non-compliance from both parties. Moreover, the psychological condition of the pedestrian must not be disregarded. The study by Mandal et al. (2023) associates walking behaviour with an individual's "perceived control." In an environment marked by irresponsible driving and institutional indifference, a pedestrian's choice to bypass the crosswalk may be viewed as a logical effort to regain some control over their safety, rejecting the officially endorsed but practically perilous alternative.

Conversely, although the present circumstances are grave, it is essential to situate the findings within a wider corpus of research that illustrates behaviour is not fixed but significantly shaped by environmental design. The claim that drivers are only reluctant to comply is contested by persuasive evidence from research conducted by Piazza et al. (2022) and O'Brien et al. (2022). Both studies demonstrated that driver yielding rates markedly increase with the introduction of high-visibility crosswalks. This indicates that the dangerous driving saw on campus may be more a consequence of a low-stimulus, unenforced setting rather than unchangeable driver attitudes. When environmental cues

are robust, clear, and prominent, driver behaviour typically enhances correspondingly. Nevertheless, engineering solutions alone are unable to tackle the behavioural aspects of the issue, such as distraction. Schwebel et al. (2022) identified elevated levels of pedestrian distraction on university campuses, while Ning et al. (2024) established a correlation between the duration of distraction and hazardous crossings, underscoring a concurrent issue. A comprehensive remedy must consequently tackle both the exterior conditions that facilitate reckless driving and the interior cognitive elements that result in risky pedestrian decisions.

The findings from the Ugbowo campus exemplify a systemic failing that necessitates a comprehensive response. The insufficient compliance from both drivers and pedestrians reflects a complex issue stemming from inadequate infrastructure, insufficient enforcement, and a consequent culture of negligence towards safety regulations. According to Zegeer et al. (2008), isolated measures are likely to be ineffective. A viable course of action requires a thorough safety action plan that combines effective engineering measures, like high-visibility crosswalks that have demonstrated their ability to modify driver behaviour, with ongoing educational initiatives aimed at both drivers and pedestrians, alongside a concrete and consistent enforcement presence to reinforce and maintain traffic laws. In the absence of this tripartite strategy, the crosswalks on campus would persist as meaningless patterns on the pavement instead than integral elements of a safe and dependable mobility system.

Enforcement of Crosswalk Signs and Markings in the Campus

The study's findings concerning the enforcement of crosswalk signs and markings on the Ugbowo campus indicate a total and systemic failure of regulatory mechanism. The overwhelming consensus among all participants students and staff alike that enforcement is completely lacking presents a stark depiction of a campus where traffic laws exist only in theory. The absence of any respondent witnessing a penalty for crosswalk violations indicates a complete lack of perceived risk for non-compliance. The lack of responsibility establishes a perilous feedback loop: cars, lacking deterrents, are encouraged to partake in irresponsible conduct, while pedestrians, aware that the infrastructure provides no assured safety, forsake it for improvised and frequently hazardous crossing techniques. This dynamic has cultivated a pervasive culture of non-compliance, effectively undermined the intended safety purpose of the crosswalks and converting the campus road network into a de facto lawless environment.

This scenario strongly opposes the fundamental principles of successful pedestrian safety planning as delineated in published literature. Foundational studies by Zegeer et al. (2008) and Sandt et al. (2004) underscore that effective safety solutions are not uniform but rather constructed upon a cohesive framework of engineering, education, and most importantly in this context enforcement. The Ugbowo campus scenario exemplifies the consequences that ensue when a fundamental pillar is eliminated. The engineering element (the crosswalks) is ineffective due to the absence of enforcement that imparts

authority and significance to the markings. The guidelines proposed by Chaney et al. (2020) for evaluating driver and pedestrian behaviour are rendered ineffective in an environment lacking a means to implement the conclusions of these assessments. The university has invested in safety hardware but has not implemented the necessary enforcement measures for effective operation.

Moreover, the lack of enforcement intensifies the risks linked to individual human actions. The observational study conducted by Schwebel et al. (2022) identified university campuses as high-risk areas for pedestrian distraction. In a well-regulated environment, the prospect of enforcement serves as a cognitive deterrent, urging both drivers and pedestrians to sustain situational awareness. In its absence, there exists no external pressure to mitigate hazardous behaviours such as texting while driving or walking. Likewise, the study by Ning et al. (2024), which associates the length of distraction with the probability of an unsafe crossing, is particularly concerning in this context. The absence of enforcement guarantees that there is no deterrence to the behaviours that research has identified as key predictors of accidents. This institutional failure shifts the complete responsibility for safety onto the individual road user, compelling them to traverse a disordered and erratic environment where their formal rights are unprotected, and the actions of others remain wholly unregulated. As a result, the campus community must function within a framework where safety is not a collective,

institutional obligation but rather contingent upon individual fortune and protective strategies.

CHAPTER FIVE

Summary of Findings, Conclusion, and Recommendations

5.1 Summary of Findings

This study aimed to evaluate crosswalk safety in the Ugbowo Campus of the University of Benin. The primary focus was to assess the perceptions of road users, the adequacy of crosswalk infrastructure, compliance with safety measures, and the level of enforcement of pedestrian safety rules. The research adopted a quantitative approach to collect data through structured questionnaires, which were administered to samples of students, staff, and drivers in the campus. This method was chosen to gain comprehensive and insights into the effectiveness of the existing pedestrian safety systems. The findings revealed several key insights into the state of crosswalk safety in the Ugbowo Campus. The data indicated varied perceptions of safety among road users, highlighting differences in awareness and attitudes toward pedestrian safety measures.

Perception of Crosswalk Safety

The study found that both students and staff at the University of Benin Ugbowo campus, have a generally negative perception of crosswalk safety. A significant Percentage age of respondents reported feeling unsafe at some point while using the campus crosswalks. Key contributing factors include aggressive driver behavior such as speeding and failure to yield to pedestrians as well as driver distractions such as mobile phone use. Pedestrian compliance with crosswalk usage is low, with a substantial proportion of students and staff admitting to rarely or never using designated crosswalks. This indicates a widespread neglect of pedestrian safety and calls for immediate infrastructural and behavioral interventions.

Inadequacy of Crosswalk Signs and Markings

A large proportion of students and staff respondents expressed concerns about the inadequacy of crosswalk signage and markings. Students and staff stated that the crosswalk signs and markings were poorly visible or entirely absent in critical pedestrian zones. This finding was corroborated by drivers, all of whom reported that the signage and road markings were difficult to interpret while driving. This further emphasizied the need for clear and visible pedestrian infrastructure. This general consensus across all user groups suggests that inadequate signage is a core safety issue on the campus.

Drivers' Perception of Crosswalk Signage

Drivers in the Ugbowo campus reported that the crosswalk signage and markings were not adequately placed and were challenging to interpret under normal driving conditions.

While the drivers themselves claimed to always yield at crosswalks, this sharply contrasted with the pedestrian experiences, where respondents often reported non-compliance by drivers. This discrepancy highlights a significant gap in perception between drivers and pedestrians, which could be attributed to the lack of clear signage and road markings that would guide driver behavior.

Suggestions for Improved Crosswalk Infrastructure

The study found a strong consensus among students and staff about the need for improved crosswalk infrastructure. A vast majority of students and staff recommended better signage and repainting of the crosswalk markings. This suggests that the current infrastructure is perceived as inadequate and that a simple yet effective solution would be to improve the visibility of crosswalks, which would enhance pedestrian and driver compliance, as well as overall campus safety.

The Disparity Between Pedestrian and Driver Perceptions

The study uncovered a significant disconnect between pedestrian and driver perceptions of crosswalk safety. While pedestrians expressed frequent concerns about drivers' behavior at crosswalk, drivers on the other hand were largely unaware of the pedestrians crosswalk safety concerns . This gap between the lived experiences of pedestrians and the perceptions of drivers highlights the need for improved communication and education for both parties. Furthermore, it underscores the need for infrastructure improvements to mitigate unsafe behaviors by both pedestrians and drivers.

Urgent Need for Infrastructure Intervention

Based on the overwhelming feedback from students, staff, and drivers, there is a clear and urgent need for infrastructural interventions in the campus. Improving the visibility of crosswalk markings and signage is paramount, as it would address not only the safety concerns raised by pedestrians but also provide clearer guidelines for drivers. This would create a safer environment for everyone who shares the road on campus.

5.2 Conclusion

This study has yielded important insights regarding crosswalk safety in Ugbowo Campus of the University of Benin, emphasising critical concerns related to pedestrian and driver conduct, along with infrastructural deficiencies. The results indicate that road users, comprising students, staff, and drivers, regard the existing crosswalk safety measures as insufficient, with apprehensions mainly centred on inadequate signage, fading road markings, and non-adherence to safety regulations.

The study contributes to knowledge through a thorough evaluation of crosswalk safety, integrating qualitative perceptions and quantitative data to assess the efficacy of current infrastructure and enforcement strategies. The study underscores a significant disparity between pedestrian and driver perceptions, highlighting the necessity for enhanced communication and awareness among both parties. The study emphasises the necessity of

prompt infrastructural enhancements such as improved signage, clearer markings, and more conspicuous crosswalks to foster a safer campus environment.

This study establishes a basis for future interventions designed to improve crosswalk safety in university campuses and comparable urban areas by documenting these findings. The recommendations provided are based on empirical data and propose practical solutions to mitigate the identified safety issues. This research enhances the current understanding of pedestrian safety and acts as a stimulus for subsequent research and policy formulation regarding campus infrastructure and road safety. The study's significance ultimately rests on its capacity to enhance the safety of all road users in the Ugbowo Campus, thereby contributing to the overarching objective of fostering pedestrian-friendly environments in both academic and urban contexts.

5.3 Recommendations

In light of the findings, the following recommendations are proposed to address the critical issues affecting crosswalk safety in the Ugbowo Campus:

1. All existing crosswalks should be repainted using reflective and durable thermoplastic materials to improve visibility, particularly at night. This should be implemented by the University Management.
2. The University’s Security Department, along with local traffic authorities, should enforce pedestrian laws to ensure compliance by both pedestrians and drivers.

3. Safety education campaigns should be launched by the University Management and local traffic authorities to raise awareness about crosswalk usage.
4. A pedestrian safety task force should be formed by the University Management to monitor and improve crosswalk infrastructure and safety compliance.
5. Automated pedestrian detection systems and countdown timers should be installed at critical crossings by the University Management to enhance pedestrian safety.

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APPENDIX 1: QUESTIONNAIRE FOR STUDENTS

DEPARTMENT OF GEOGRAPHY AND REGIONAL PLANNING
FACULTY OF SOCIAL SCIENCES
UNIVERSITY OF BENIN, BENIN CITY

Dear Respondents,

I am a student of the above department in the University of Benin conducting a study on crosswalk safety in the Ugbowo Campus of the University of Benin, Benin City. Your responses are crucial to the success of this study. Please answer all questions honestly. Be rest assured that your responses will be treated with utmost confidentially and will be used for academic purposes.

Thank you for your cooperation.

SECTION A: SOCIO-DEMOGRAPHIC DATA

1. Gender (a) Male [ ] (b) Female [ ]

2. Age (a) 18–25 years [ ] (b) 26–35 years [ ] (c) 36–45 years [ ] (c) 46+ years [ ]
3. Level: (a) 100 Level [ ] (b) 200 Level [ ] (c) 300 Level [ ] (d) 400 Level [ ] (e) 500 Level [ ] (f) 600 Level [ ] (g) Overstayed (Spill Over) [ ]
4. Department: Please State

   _____

5. Do you own and drive your personal car on campus? (a) Yes [ ] (b) No [ ]
6. Place of Residence: (a) on Campus [ ] (b) Off Campus [ ]

Students (Pedestrians)

Note: A crosswalk is a designated area on a road where pedestrians can safely cross, often marked by lines, signs or signals.

Section B: Perception of Crosswalk Safety

7. How often do you use crosswalks to walk across the road on the Ugbowo campus?
   (1) Always [ ] (2) Frequently [ ] (3) Occasionally [ ] (4) Rarely [ ]
8. How safe do you feel when using crosswalks on campus?
   (1) Very safe [ ] (2) Safe [ ] (3) Neutral [ ] (4) Unsafe [ ] (5) Very unsafe [ ]
9. Do you think that crosswalks are important for pedestrian safety on campus?
   (1) Very important [ ] (2) Important [ ] (3) Neutral [ ] (4) Unimportant [ ]
10. How would you rate the overall safety of the crosswalks on campus?
    (1) Very good [ ] (2) Good [ ] (3) Fair [ ] (4) Poor [ ] (5) Very poor [ ]
11. Have you ever felt unsafe while crossing a crosswalk on campus due to driver behavior?

(1) Yes [ ] (2) No [ ]

12. If Yes to the above question, please state why

_____

_____

Section C: Adequacy of Crosswalk Signs and Markings

13. Which is the predominant crosswalk marking/signage in Ugbowo campus? (1) Zebra crossing [ ] (2) Light [ ] (3) Signpost (4) Man [ ]

14. Are crosswalks on campus clearly marked and visible to pedestrians?

(1) Yes [ ] (2) No [ ]

15. How would you rate the visibility of the crosswalk signs around campus?

(1) Very good [ ] (2) Good [ ] (3) Fair [ ] (4) Poor [ ] (5) Very poor [ ]

16. Are there enough crosswalk signs and markings in all areas where pedestrians typically cross?

(1) Yes [ ] (2) No [ ]

17. How often do you notice the crosswalk markings fading?

(1) Frequently [ ] (2) Occasionally [ ] (3) Rarely [ ] (4) Never [ ]

18. Are more visible signs needed for crosswalks in this campus?

(1) Yes [ ] (2) No [ ]

Section D: Effectiveness of Crosswalk Signs and Markings

19. Do crosswalk signs and markings help in preventing accidents on campus?

(1) Yes [ ] (2) No [ ]

20. How effective are the crosswalk signs in alerting drivers to pedestrian crossings?

(1) Very effective [ ] (2) Effective [ ] (3) Somewhat effective [ ] (4) Not effective [ ]

21. Do crosswalk markings make you more confident when crossing the road on campus?

(1) Yes [ ] (2) No [ ]

22. In your opinion, do the current crosswalk markings contribute to better pedestrian behavior?

(1) Yes [ ] (2) No [ ]

23. Have you witnessed any accidents and near-misses at crosswalks on campus?

(1) Yes [ ] (2) No [ ]

Section E: Adherence to Crosswalk Safety Measures

24. Do drivers generally stop for pedestrians at crosswalks?

(1) Always [ ] (2) Often [ ] (3) Sometimes [ ] (4) Never [ ]

25. How often do you see pedestrians waiting for the light or signal at a crosswalk?

(1) Always [ ] (2) Often [ ] (3) Sometimes [ ] (4) Never [ ]

26. How often do you observe pedestrians jaywalking (not using crosswalks) on campus?

(1) Always [ ] (2) Often [ ] (3) Sometimes [ ] (4) Never [ ]

27. Do you think crosswalk rules are strictly followed by pedestrians?

(1) Very strictly [ ] (2) Strictly [ ] (3) Sometimes [ ] (4) Rarely [ ] (5) Never [ ]

Section F: Enforcement of Crosswalk Safety Rules

28. Are crosswalk safety rules enforced in this campus? (1) Yes [ ] (2) No [ ] (c) Don’t Know [ ]

29. What is the penalty for crosswalk rules violation in this campus (1) Fine [ ] (2) Arrest [ ] (3) Banning of Driving on Campus [ ] (4) Community Service [ ]

30. How would you rate the enforcement of crosswalk safety rules on campus?

(1) Very effective [ ] (2) Effective [ ] (3) Fair [ ] (4) Ineffective [ ]

31. Have you noticed any management official enforcing crosswalk rules (e.g., checking for jaywalking)?

(1) Yes [ ] (2) No [ ]

32. Do you think enforcement of crosswalk safety rules should be increased on campus?

(1) Yes [ ] (2) No [ ]

33. Have you ever seen any one (pedestrian or driver) fined for violating crosswalk safety rules?

(1) Yes [ ] (2) No [ ]

34. What suggestions do you have for improving enforcement of crosswalk safety on campus?

(Please specify below)

_____
_____
_____
_____
_____

APPENDIX 11: QUESTIONNAIRE FOR ACADEMIC AND NON ACADEMIC STAFF

DEPARTMENT OF GEOGRAPHY AND REGIONAL PLANNING
FACULTY OF SOCIAL SCIENCES
UNIVERSITY OF BENIN, BENIN CITY

Dear Respondents,

I am a student of the above department in the University of Benin conducting a study on crosswalk safety in the Ugbowo Campus of the University of Benin, Benin City. Your responses are crucial to the success of this study. Please answer all questions honestly. Be rest assured that your responses will be treated with utmost confidentially and will be used for academic purposes.

Thank you for your cooperation.

SECTION A: SOCIO-DEMOGRAPHIC DATA

1 Gender (a) Male [ ] (b) Female [ ]

2 Age (a) 18–25 years [ ] (b) 26–35 years [ ] (c) 36–45 years [ ] (d) 46+ years [ ]

3. Official Designation: (a) Academic Staff [ ] (b) Non-Academic Staff [ ] (c) Casual Worker [ ]

4. Department/Unit: Please State _____

5. Do you own and drive your personal car? (a) Yes [ ] (b) No [ ] (c) Sometimes [ ]

Academic and Non-Academic Staff

Note: A crosswalk is a designated area on a road where pedestrians can safely cross, often marked by lines, signs or signals.

Section B: Perception of Crosswalk Safety

6. How often do you use crosswalk to cross the road in this campus? (1) Always [ ] (2) Frequently [ ] (3) Occasionally [ ] (4) Rarely [ ]
7. Do you feel that campus crosswalks are safe for pedestrians to use? (1) Yes [ ] (2) No [ ]
8. How would you rate the overall safety of the crosswalks on campus? (1) Very good [ ] (2) Good [ ] (3) Fair [ ] (4) Poor [ ] (5) Very poor [ ]
9. Have you observed any instances where pedestrian safety was compromised at crosswalks? (1) Yes [ ] (2) No [ ]
10. Do you think crosswalks play an essential role in pedestrian safety on campus? (1) Yes [ ] (2) No [ ]

Section C: Adequacy of Crosswalk Signs and Markings

11. Are the crosswalk signs and markings clearly visible on campus? (1) Yes [ ] (2) No [ ]
12. Are there enough crosswalk signs and markings in areas where pedestrians cross the roads frequently? (1) Yes [ ] (2) No [ ]
13. How would you rate the condition of the crosswalk markings on campus? (1) Very good [ ] (2) Good [ ] (3) Fair [ ] (4) Poor [ ]
14. Do you think additional crosswalk markings are needed in certain areas on campus?
    (1) Yes [ ] (2) No [ ]

Section D: Effectiveness of Crosswalk Signs and Markings

15. How effective do you think the crosswalk signs and markings are in preventing accidents?
    (1) Very effective [ ] (2) Effective [ ] (3) Somewhat effective [ ] (4) Not effective [ ]
16. Have you witnessed any accidents or near-misses at crosswalks on campus? (1) Yes [ ] (2) No [ ]
17. How would you rate the level of pedestrian safety provided by crosswalks? (1) Very high [ ] (2) High [ ] (3) Medium [ ] (4) Low [ ]
18. Do you think the crosswalk markings and signs help guide both pedestrians and drivers?
    (1) Yes [ ] (2) No [ ]
19. Are there any improvements you think should be made to the crosswalk markings or signage on campus?

    Please specify below:

    _____

    _____

Section E: Adherence to Crosswalk Safety Measures

20. Do drivers adhere to crosswalk rules and stop for pedestrians? (1) Yes [ ] (2) No [ ]
21. How often do you observe pedestrians using crosswalks as intended? (1) Always [ ] (2) Often [ ] (3) Sometimes [ ] (4) Never [ ]

22. In your opinion, do pedestrians follow crosswalk safety measures? (1) Very strictly [ ] (2) Strictly [ ] (3) Sometimes [ ] (4) Rarely [ ] (5) Never [ ]
23. Do you think more awareness is needed to improve pedestrian adherence to crosswalk rules? (1) Yes [ ] (2) No [ ]
24. How can adherence to crosswalk safety be improved on campus? Please specify below:

    _____

    _____

Section F: Enforcement of Crosswalk Safety Rules

25. Are crosswalk safety rules being enforced in the campus ? (1) Yes [ ] (2) No [ ]
26. What is the penalty for crosswalk rules violation in this campus (1) Fine [ ] (2) Arrest [ ] (3) Banning of Driving on Campus [ ] (4) Community Service [ ]
27. How would you rate the enforcement of crosswalk rules on campus? (1) Very effective [ ] (2) Effective [ ] (3) Fair [ ] (4) Ineffective [ ]
28. stricter enforcement of crosswalk rules would improve safety on campus? (1) Yes [ ] (2) No [ ]
29. Have you been fined or penalized for violating crosswalk safety rules? (1) Yes [ ] (2) No [ ]
30. What suggestions do you have to improve enforcement of crosswalk safety on campus? Please specify below.

APPENDIX 111: QUESTIONNAIRE FOR DRIVERS

DEPARTMENT OF GEOGRAPHY AND REGIONAL PLANNING
FACULTY OF SOCIAL SCIENCES
UNIVERSITY OF BENIN, BENIN CITY

Dear Respondents,

I am a student of the above department in the University of Benin conducting a study on crosswalk safety in the Ugbowo Campus of the University of Benin, Benin City. Your responses are crucial to the success of this study. Please answer all questions honestly. Be rest assured that your responses will be treated with utmost confidentially and will be used for academic purposes.

Thank you for your cooperation.

SECTION A: SOCIO-DEMOGRAPHIC DATA

1 Gender (a) Male [ ] (b) Female [ ]

2 Age (a) 18–25 years [ ] (b) 26–35 years [ ] 36–45 years [ ] 46+ years [ ]

DRIVERS

Note: A crosswalk is a designated area on a road where pedestrians can safely cross, often marked by lines, signs or signals.

Section B: Perception of Crosswalk Safety

3. Do you feel that crosswalks are an essential part of pedestrian safety on campus? (1) Yes [ ] (2) No [ ]
4. How often do you stop for pedestrians at crosswalks? (1) Always [ ] (2) Often [ ] (3) Sometimes [ ] (4) Never [ ]
5. Have you ever witnessed any unsafe driving behavior near campus crosswalks? (1) Yes [ ] (2) No [ ]
6. How would you rate the safety of campus crosswalks in general? (1) Very safe [ ] (2) Safe [ ] (3) Neutral [ ] (4) Unsafe [ ]

Section C: Adequacy of Crosswalk Signs and Markings

7. Are the crosswalk signs and markings visible enough for you as a driver? (1) Yes [ ] (2) No [ ]
8. Do you think the crosswalk signage and markings are placed adequately throughout campus? (1) Yes [ ] (2) No [ ]

9. How would you rate the condition of the crosswalk markings and signs on campus?
   (1) Very good [ ] (2) Good [ ] (3) Fair [ ] (4) Poor [ ]
10. Do you think additional or more visible crosswalk signs are needed in certain campus areas?
    (1) Yes [ ] (2) No [ ]

Section D: Effectiveness of Crosswalk Signs and Markings

11. How effective do you think the current crosswalk signs and markings are in ensuring pedestrian safety?
    (1) Very effective [ ] (2) Effective [ ] (3) Somewhat effective [ ] (4) Not effective [ ]
12. Do you believe crosswalks help you drive more safely on campus?
    (1) Yes [ ] (2) No [ ]
13. How often do you observe pedestrians waiting for the signal or light before crossing?
    (1) Always [ ] (2) Often [ ] (3) Sometimes [ ] (4) Never [ ]
14. How often do you witness accidents or near-misses at crosswalks?
    (1) Frequently [ ] (2) Occasionally [ ] (3) Rarely [ ] (4) Never [ ]

Section E: Adherence to Crosswalk Safety Measures

16. Do you always stop when pedestrians are at the crosswalk?
    (1) Yes [ ] (2) Sometimes [ ] (3) No [ ]
17. How often do you observe other drivers ignoring crosswalk rules?
    (1) Always [ ] (2) Often [ ] (3) Sometimes [ ] (4) Never [ ]
18. How often do pedestrians use crosswalks properly on campus?
    (1) Always [ ] (2) Often [ ] (3) Sometimes [ ] (4) Never [ ]
19. In your opinion, do pedestrians always adhere to crosswalk safety measures?
    (1) Yes [ ] (2) No [ ]
20. Do you think drivers generally follow crosswalk safety measures on campus?
    (1) Yes [ ] (2) No [ ]

Section F: Enforcement of Crosswalk Safety Rules

21. Are crosswalk safety rules being enforced in the campus? (1) Yes [ ] (2) No [ ]
22. What is the penalty for crosswalk rules violation in this campus (1) Fine [ ] (2) Arrest [ ] (3) Banning of Driving on Campus [ ] (4) Community Service [ ]

23. How would you rate the enforcement of crosswalk rules on campus?
    (1) Very effective [ ] (2) Effective [ ] (3) Fair [ ] (4) Ineffective [ ]
24. Do you feel that crosswalk rules should be more strictly enforced on campus?
    (1) Yes [ ] (2) No [ ]
25. How often do you witness violations of crosswalk safety regulations by other drivers?
    (1) Frequently [ ] (2) Occasionally [ ] (3) Rarely [ ] (4) Never [ ]
26. Have you ever been fined or penalized for crosswalk violations?
    (1) Yes [ ] (2) No [ ]
27. What suggestions do you have for improving the enforcement of crosswalk rules on campus?
    Please specify below:

_____
_____
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