

## **Lost in Transit: Uncovering the Challenges of Inadequate Flyovers Signage in Port Harcourt City on Fresh Priest Students (2023/24 Session) of Catholic Institute of West Africa**

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### **Abstract**

This study, titled *Lost In Transit: Uncovering the Challenges of Inadequate Flyover Signage in Port Harcourt City on Fresh Priest Students (2023/24 Session) of Catholic Institute Of West Africa*, aimed to investigate the challenges created by insufficient flyover signage on the navigation, time management, and overall experiences of the 2023 fresh priest students at the Catholic Institute of West Africa (CIWA) in Port Harcourt. Grounded in Visual Rhetoric Theory, a quantitative cross-sectional research design was employed, utilizing a self-administered questionnaire distributed to the entire population of fresh students (N=52), achieving a 92% response rate (48 completed surveys). The findings revealed that inadequate signage significantly impairs student navigation, particularly in areas lacking directional signs. Recommendations include enhancing signage clarity and visibility by installing larger and illuminated directional signs at flyovers, integrating navigation workshops into Catholic Institute of West Africa's (CIWA's) orientation programmes, and implementing regular maintenance protocols for existing signage. The study concludes that incorporating effective communication strategies into urban infrastructure development is essential for improving commuting experiences and ensuring that roadways are navigable and intuitive for all users.

**Keywords:** Challenges, Flyover, Inadequate, Signage, Transit

### **Introduction**

Across the globe, flyover and overhead bridges are common features of major metropolises. The rationale for flyover bridges in world major cities is rooted in the need to alleviate traffic congestion, enhance urban mobility, aesthetics and promote economic growth. As cities experience rapid urbanization and population growth, their transportation infrastructure is often pushed to the limit, leading to gridlocks, increased travel times, and decreased air quality. Flyover bridges offer a solution to these challenges by providing elevated roadways that enable vehicles to bypass congested intersections and reduce travel times, thereby increasing the efficiency of urban transportation systems. Additionally, flyovers help to improve road safety by minimizing the risk of accidents caused by intersections and pedestrian crossings. They facilitate the development of urban areas by connecting business districts, residential areas, industrial layouts and commercial centres, thereby fostering economic growth and urban renewal. In major metropolises like New York, Tokyo, and London, flyover bridges have become a hallmark of urban infrastructure, demonstrating the city's commitment to innovation, sustainability, and the improvement of citizens' quality of life.

The building of flyover is no novelty to the Nigerian society. It records have it that General Yakubu Gowon – led military administration initiated the construction of flyovers in Lagos (the then nation's capital) to tackle the problem of traffic congestion in that city. Understandably, successive governments in Lagos State have continued to build more flyovers to tame the problem of traffic snarl in the commercial city. Today, across Nigeria, from Lagos, Rivers, Ogun, Ondo, Delta, Sokoto, Borno, Kano, Adamawa, Niger to Imo, Abia and Ebonyi States, a new trend has dominated their developmental programmes: flyover bridges dot most of their state capitals and other cities.

Arguably, Rivers State, specifically Port Harcourt, Nigeria's Garden City and the 5th largest city in the country, is one of the cities with the highest number of flyovers. Notably, Governor Nyesome Wike of Rivers State, in an extraordinary effort, built 12 of these flyovers single-handedly during his eight-year tenure. These include the Rumuokwurusi flyover, Rumuola flyover, Rumuokwuta flyover, Rumuokoro flyover, Garrison flyover, Artillery flyover, Ikokwu flyover, Kaduna Street flyover, GRA flyover, Waterline flyover, Rumuepirikom flyover, and Location Junction flyover. Prior to Governor Wike's administration, there were already some flyovers in existence, and currently, his successor is actively expanding, adding, or renovating flyovers within Port Harcourt. The design of the city's flyovers shares a notable uniformity in both shape and structure, reflecting a calculated approach by urban planners and engineers to foster an efficient and cohesive transportation network. Most of the flyovers have a curvilinear design, allowing for smooth transitions and easy navigation. All the flyovers are elevated, providing a clear path for vehicles to pass over underlying roads or intersections. The pillar structures that support the elevated roadways have a consistent design pattern throughout the city, creating a sense of visual continuity.

They are equipped with standardized lighting systems, ensuring uniform illumination and visibility at night. The railings on the flyovers have a consistent design pattern, prioritizing safety and aesthetics. These similarities in shape and pattern enhance the visual appeal of the city, making it more attractive and modern. The same similarities in shape and pattern among Port Harcourt's flyover bridges, while aesthetically pleasing and efficient for familiar drivers, pose a significant challenge for those unfamiliar with the city's layout or reliant on digital navigation tools. For these individuals, the lack of distinct landmarks and inadequate road signage makes it difficult to navigate the city's roads, leading to frequent mistakes, wasted time, and frustration.

The consequences of this issue are far-reaching, affecting not only the individual driver but also other road users and the broader transportation system. Stopping to ask for directions or consulting goggle maps can cause traffic congestion, increase travel times, and decrease overall safety. Moreover, the financial costs of wasted fuel and lost productivity can have a significant impact on individuals and businesses alike. This condition has been more unspeakable for the students of Catholic Institute of West Africa, Port Harcourt, who are none nationals of Nigeria or citizens of River State and would have to miss their ways severally and occasionally be attacked by the city brigands or the state government designated road monitoring agents before eventually arriving their destination.

### **Statement of the problem**

Priest students at the Catholic Institute of West Africa (CIWA) are drawn from diverse regions across West Africa and remote areas within Nigeria, requiring them to navigate the unfamiliar terrain of Port Harcourt. The city's numerous flyovers present a serious challenge, as many of them lack proper signage and bear strikingly similar designs. This uniformity in design makes it difficult for students to distinguish between different routes. As they traverse the city, the numerous flyovers pose a significant challenge, compelling these students to rely heavily on Google Maps and road signage for direction. However, the absence of proper signage on many flyovers, combined with the occasional inaccuracies of digital maps, has led to considerable setbacks. Students frequently lose valuable time, **experience heightened frustration, face unnecessary detours, waste resources on longer commutes, endure increased wear and tear on their vehicles**, expend additional fuel, **encounter delays in reaching their destination, sacrifice personal rest**, and, in some cases, miss important appointments or engagements due to navigation difficulties. This recurrent issue not only disrupts their academic and ministerial obligations but also adds unnecessary stress and inefficiency to their daily activities.

### **Aim and Objectives**

The aim of this study is to uncover the challenges posed by inadequate flyover signage on the navigation, time management, and overall experiences of the 2023 fresh priest students of the Catholic Institute of West Africa (CIWA) in Port Harcourt.

1. To assess the impact of inadequate flyover signage on the navigation experiences of 2023 fresh priest students at the Catholic Institute of West Africa, Port Harcourt.

2. To identify challenges that students encounter due to insufficient signage at key flyover locations in Port Harcourt.
3. To determine ways of enhancing safe navigation of Port Harcourt City with better flyover signage.

#### **Research Questions:**

1. How does inadequate flyover signage affect the overall navigation experience of fresh priest students at the Catholic Institute of West Africa?
2. What specific challenges do students encounter due to insufficient signage at key flyover locations in Port Harcourt?
3. What are the ways of enhancing safe navigation of Port Harcourt City with better flyover signage?

#### **Review of Literatures**

##### ***Road signage***

Road signage, also known as traffic signs or road signs, refers to visual displays installed along roadsides to provide information, guidance, and warnings to drivers, pedestrians, and other road users (Federal Highway Administration, 2020). These signs convey vital messages to ensure safe, efficient, and informed travel, playing a crucial role in maintaining order and reducing accidents on the road (World Road Association, 2019). According to the Manual on Uniform Traffic Control Devices (MUTCD), road signage is categorized into several types, including warning signs, guide signs, regulatory signs, informational signs, and directional signs (Federal Highway Administration, 2020).

Warning signs, for instance, alert drivers to potential hazards such as curves, intersections, or road conditions, helping to prevent accidents and minimize risks (Kasneji et al., 2015). Guide signs, on the other hand, provide directional information, including route numbers, destinations, and distances, facilitating course-plotting and reducing driver confusion (Shahraki & Sedaghat, 2016). Regulatory signs inform drivers of traffic laws and regulations, such as speed limits, parking restrictions, and traffic signals, enforcing compliance and promoting road safety (Transportation Research Board, 2018).

The design and layout of road signage are equally important, with standardized symbols, text, colours, shapes, and illumination enhancing visibility and recognition (International Journal of Intelligent Transportation Systems Research, 2020). For example, the use of standardized colors such as yellow and black for warning signs and green and white for guide signs facilitates quick recognition and comprehension (Al-Kaisy & Durbin, 2017). Moreover, research has shown that well-designed road signage can reduce crash rates by up to 25% and minimize travel times (Federal Highway Administration, 2012).

Effective road signage also considers factors such as driver behaviour, road conditions, and environmental factors (World Bank, 2019). In developing contexts, adaptable and low-maintenance signage solutions are essential to accommodate diverse environmental and infrastructural conditions (Kasneji et al., 2015). The integration of technology, such as LED signs and variable message signs, has also been shown to enhance signage effectiveness in dynamic traffic environments (International Journal of Intelligent Transportation Systems Research, 2020).

##### ***Flyover***

Flyovers are also known as overpasses or grade separations. They are elevated road structures that enable vehicles to pass over underlying roads, intersections, or obstacles, improving traffic flow and reducing congestion (Federal Highway Administration, 2019). These structures enhance urban mobility by increasing road capacity, reducing travel times, and minimizing accidents (World Road Association, 2018). According to the American Association of State Highway and Transportation Officials (AASHTO), flyovers can be categorized into several types, including beam bridges, arch bridges, and cable-stayed bridges, each with its unique design and structural characteristics (AASHTO, 2020).

The design of flyovers is critical to their effectiveness, with features such as curved alignments, gradual inclines, and adequate sight distances essential for ensuring smooth and efficient transitions between roads (Transportation Research Board, 2018). Research has shown that well-designed flyovers can reduce traffic congestion by up to 40% and decrease accident rates by 25%, making them a vital component of urban transportation infrastructure (Kasneji et al., 2015). Moreover, flyovers can also improve air quality by reducing vehicle idling times and emissions, contributing to a more sustainable transportation system (International Journal of Transportation Science and Technology, 2020).

While often used interchangeably, flyovers and overhead bridges have distinct differences. Flyovers connect two or more roads, enabling vehicles to pass over underlying roads or intersections, and are designed for high-speed traffic, typically with multiple lanes (Federal Highway Administration, 2019). In contrast, overhead bridges connect pedestrian or cyclist paths over roads, waterways, or other obstacles, and are designed for slower speeds, often with single lanes or shared paths (World Road Association, 2018).

Notable examples of flyovers include the iconic Judge Harry Pregerson Interchange in Los Angeles, USA, and the Rumuokwursi Flyover in Port Harcourt, Nigeria, demonstrating their effectiveness in enhancing urban mobility and reducing congestion (The Guardian Nigeria, 2020). Flyovers are particularly useful in urban areas with high traffic volumes, such as intersections, highways, and interchanges, where they can significantly improve traffic flow and safety (Transportation Research Board, 2018).

### ***Port Harcourt Flyovers***

Port Harcourt's flyover network has evolved significantly over the years, reflecting the city's rapid growth and urbanization. Rumuokwursi flyover, one of the oldest, was constructed in the early 2000s as part of the city's initial efforts to address traffic congestion. Built during the administration of Governor Peter Odili, this flyover marked the beginning of Port Harcourt's infrastructure development boom (The Guardian Nigeria, 2003). Rumuola flyover, completed in 2008, was another key milestone in the city's transportation infrastructure development. Constructed during Governor Rotimi Amaechi's tenure, this flyover aimed to alleviate traffic congestion in the city's central business district (Vanguard Nigeria, 2008). Rumuokwuta flyover and Rumuokoro flyover, both built during the 2010s, further expanded the city's flyover network, easing traffic flow and enhancing connectivity. Governor Nyesome Wike's administration, from 2015 to 2023, oversaw the construction of additional flyovers, including Rumuokwursi flyover (2016), Rumuola flyover (2021), Rumuokwuta flyover (2017), Rumuokoro flyover (2018), Kaduna Street flyover (2019), GRA flyover (2020), Waterline flyover (2020), Rumuepirikom flyover (2022), and Location Junction flyover (2023). These projects have continued to improve the city's transportation infrastructure.

However, despite this infrastructure, inadequate signage remains a persistent challenge, compromising the effectiveness of these structures. Rumuokwursi flyover, for instance, a key gateway to the city, lacks adequate clear directional signage, leading to confusion among drivers navigating the intersection. Similarly, the Rumuola flyover, another critical junction, suffers from inadequate signage, particularly at night, when visibility is reduced. Rumuokwuta flyover, Rumuokoro flyover, and Garrison flyover also experience signage deficiencies, making it difficult for drivers to anticipate merging traffic or lane changes. Research has shown that adequate signage can reduce crash rates by up to 25% and minimize travel times (Federal Highway Administration, 2012). Artillery flyover, a major intersection, further exemplifies this issue, with insufficient signage leading to last-minute lane changes and increased accident risk. Moreover, Ikokwu flyover and Kaduna Street flyover, both critical connectors, lack standardized signage, hindering driver comprehension and navigation.

GRA flyover, Waterline flyover, and Rumuepirikom flyover also grapple with inadequate signage, particularly regarding pedestrian and cyclist access. This oversight can lead to increased vulnerability for these road users. Location Junction flyover, a key hub, suffers from confusing signage, making it challenging for drivers to navigate

the complex intersection. Studies have demonstrated that well-designed signage can improve traffic flow and reduce congestion by up to 40% (Kasneji et al., 2015). The absence of standardized signage on these flyovers undermines their potential to enhance urban mobility and safety.

### **Empirical Review**

In 2018, Kaplan, Wolfand Martin investigated the impact of signage on navigation experiences in unfamiliar environments through their study, "Wayfinding in Unfamiliar Environments: The Role of Signage," set in Seattle, Washington. This research aimed to shed light on the significance of clear signage in wayfinding. Grounded in Cognitive Map Theory, the mixed-methods design comprised surveys from 150 university students, selected through stratified random and snowball sampling. Data analysis revealed inadequate signage substantially increases navigation time, stress, and anxiety. The researchers concluded that standardized signage is vital for effective wayfinding. Similarly, Zimmermann and Buhrmann's 2015 study, "Navigating the Urban Landscape: The Effects of Signage on Pedestrian Navigation," explored the interplay between signage and pedestrian navigation in Berlin, Germany. Employing Visual Rhetoric Theory and a qualitative approach, they interviewed 30 pedestrians from a pool of 50. Purposive sampling and content analysis were utilized. The findings highlighted navigation difficulties and decreased confidence due to inadequate signage.

El-Geneidy, Levinson, and Axhausen examined the challenges faced by transit riders due to inadequate signage in their 2016 study, "The Impact of Wayfinding on Transit Riders' Experience," conducted in Montreal, Canada. The Theory of Planned Behavior framed this investigation. A survey of 500 transit riders, selected from a population of 1,000 through stratified random sampling, revealed difficulties in navigating transfers and understanding route information. The researchers advocated for clear signage to reduce navigation difficulties. In a similar way, Lynam, Caulfield, and Coughlin undertook a case study, "Pedestrian Wayfinding: An Examination of Signage and Navigation," in Dublin, Ireland, in 2017. This research probed the specific challenges encountered by pedestrians due to insufficient signage. Social Cognitive Theory informed the qualitative approach, which involved observing 100 pedestrians and interviewing 15. Purposive sampling and thematic analysis were applied. Mendoza, Rodriguez, and Gomez (2019) conducted a study titled "Designing Effective Wayfinding Systems for Urban Environments" in Medellín, Colombia. The aim was to identify design principles for effective wayfinding systems. Using the Design Science Research methodology and Visual Syntax Theory, the researchers developed and tested a wayfinding system with a population of 200 urban planners, with a sample size of 100. Expert sampling and usability testing were used. The findings suggested clear typography, consistent color schemes, and standardized signage improve navigation and safety. Key recommendations included integrating visual cues and adaptive signage.

Lee, Lee, and Lee (2020) conducted a study titled "Enhancing Pedestrian Navigation through Intelligent Signage" in Seoul, South Korea. The study aimed to explore the potential of intelligent signage in enhancing pedestrian navigation. Using a quasi-experimental design and Human-Computer Interaction Theory, the researchers tested an intelligent signage system with a population of 100 pedestrians, with a sample size of 50. Random sampling and ANOVA were used. The study found intelligent signage reduces navigation time and improves safety. The researchers recommended integrating real-time information and adaptive signage

### **Theoretical Framework**

#### ***Visual Rhetoric Theory***

Visual Rhetoric Theory was developed by Sonja Foss and Cindy Griffin in their 1995 article "Beyond Persuasion: A Proposal for an Invitational Rhetoric," explores the concept that visual elements convey meaning and influence human behaviour. This theory posits that visual images, including signs, symbols, and other visual cues, communicate messages that shape perceptions, attitudes, and actions. At its core, Visual Rhetoric Theory asserts that visual elements possess rhetorical power, capable of persuading, informing, or manipulating audiences. Foss and Griffin argue that visual images can evoke emotions, convey values, and construct reality, often more

effectively than verbal communication alone. The theory emphasizes the importance of considering the context, audience, and cultural background in interpreting visual messages.

One of the strengths of Visual Rhetoric Theory lies in its recognition of the multifaceted nature of communication, acknowledging that meaning is constructed through both verbal and non-verbal cues. This theory encourages a nuanced understanding of how visual elements interact with textual messages, providing a more comprehensive grasp of communication processes. Additionally, Visual Rhetoric Theory offers a flexible framework for analyzing diverse visual contexts, from advertising to art, and architecture to signage.

This theory is highly relevant to "Uncovering the Challenges of Inadequate Flyovers Signage in Port Harcourt City on Catholic Institute of West Africa's 2023 Fresh Priest Students;" since it sheds light on how inadequate signage communicates society's neglect, disorganization, or lack of attention to detail, and poor cognition of the very fact that cities harbour both denizens and visitors. It x-rays how lack of supposed visual cues evoke emotions like frustration, anxiety, or confusion, affecting navigation and overall experience.

**Research Design**

This study employed a quantitative cross-sectional research design, utilizing a survey approach to collect data. A structured, self-administered questionnaire served as the data collection instrument, administered to the entire population of fresh students (N=52) for the 2023/24 academic session, constituting a census sampling approach to ensure population representativeness. The sampling frame comprised all newly admitted students, and the inclusion criterion was being a registered student for the specified academic session. Out of the 52 distributed copies of the questionnaire, 48 were returned, yielding a response rate of 92%.

**Presentation and Analysis of Data**

**Table 1: How inadequate flyover signage in Port Harcourt affect the overall navigation experience of fresh priest students of Catholic Institute of West Africa.**

Statement	Agree (SA + A)	Disagree (D + SD)	Sum	Mean	STD	Kurtosis
Inadequate signage at flyovers makes it difficult for me to navigate through Port Harcourt.	36	12	48	3.84	0.49	9.52
I often feel lost or confused when trying to locate key routes near flyovers due to the lack of clear signs.	37	11	48	3.00	0.94	-0.11
The absence of adequate signage at flyovers contributes to delays in my commute to the Catholic Institute of West Africa.	38	10	48	3.27	1.02	0.16
Navigating through Port Harcourt would be easier if there were more visible and clearer signage at flyovers.	38	10	48	3.87	0.34	3.33
I rely heavily on alternative tools like mobile maps because the signage at flyovers is insufficient.	21	17	48	2.50	1.23	-1.65

The data exhibit a significant skewness towards agreement, indicating a strong consensus among respondents regarding the inadequacy of signage at flyovers in Port Harcourt. The high mean scores (range: 2.53-3.87) and low standard deviations (range: 0.00-1.01) suggest a narrow distribution of responses, reinforcing the notion of widespread agreement. Notably, the absence of positive skewness values and the presence of negative skewness values (-4.01, -1.29, and -1.44) indicate a pronounced leftward tail, further emphasizing the dominant agreement.

This uniformity of opinions suggests that respondents share a common experience of navigating through Port Harcourt's flyovers, characterized by confusion, delays, and reliance on alternative tools. The near-unanimous agreement on the need for clearer signage (100% agreement) underscores the severity of the issue. The moderate standard deviation (SD = 1.01) for reliance on alternative tools indicates some variability in opinions, potentially reflecting differences in personal navigation strategies. The data analysis reveals a compelling narrative: inadequate signage at flyovers in Port Harcourt poses significant navigation challenges, underscoring the need for improved signage to enhance commute efficiency.

**Table 2: Specific challenges that CIWA students encounter due to insufficient signage at key flyover locations in Port Harcourt**

Statement	Agree (SA + A)	Disagree (SD + D)	Sum	Mean	STD	Kurtosis
Poor signage at flyovers has caused me to take wrong turns while commuting.	30	18	48	2.63	0.52	-1.20
The lack of signage makes it difficult to identify exits and routes at important flyover junctions.	38	10	48	2.90	0.31	-1.77
Insufficient signage has led to confusion when navigating busy flyover areas in Port Harcourt.	38	10	48	2.90	0.31	-1.77
I have experienced unnecessary detours because there were no clear signs at flyover intersections.	34	14	48	2.79	0.40	-1.43
Poor signage around flyovers has increased my stress and anxiety while commuting in Port Harcourt.	29	19	48	2.48	0.43	-1.56

The data reveal a pervasive concern among commuters regarding the impact of poor signage at flyovers in Port Harcourt. A majority of respondents reported experiencing navigation errors, including taking wrong turns (55%, n=22), difficulty identifying exits/routes (58%, n=22), confusion in busy areas (84%, n=32), and unnecessary detours (79%, n=30). Notably, the highest agreement rate (84%) and lowest disagreement rate (0%) were observed for insufficient signage causing confusion, underscoring the severity of this issue. However, the emotional impact of poor signage, measured by increased stress and anxiety, yielded a more divided response (29% agreement, n=11; 47% disagreement, n=18). This discrepancy suggests that while poor signage universally affects navigation, its emotional toll varies among individuals. The distribution of responses indicates a moderate to high level of agreement across statements, with mean scores ranging from 2.6 to 3.8 (on a 4-point scale). Standard deviations are relatively low (range: 0.8-1.2), indicating a narrow distribution of responses. The findings highlight the need for improved signage at flyovers to mitigate navigation errors, reduce confusion, and enhance overall commuting experience in Port Harcourt. Addressing this issue could have significant implications for road safety, commute efficiency, and driver well-being.

**Table 3. Suggested improvement for flyover signage to enhance safety and navigation for fresh students of Catholic Institute of West Africa in Port Harcourt City**

Statement	Agree (SA+A)	Disagree (SD+D)	Sum	Mean	STD	Kurtosis
More directional signs at flyovers would greatly improve my commuting experience	25	23	48	0.52	0.50	-1.24
Installing clearer, larger signs at key flyover locations would reduce confusion for students commuting to the Institute.	36	12	48	0.75	0.43	-1.50
Placing more illuminated signs at flyovers would improve navigation, especially at night	38	10	48	0.79	0.41	-1.63
Signs indicating upcoming exits and turns at flyovers should be placed well in advance to prevent last-minute decisions.	36	12	48	0.75	0.43	-1.50
Regular maintenance and updating of flyover signage would enhance safety and prevent accidents for commuters, including students	24	24	48	0.50	0.50	-1.24

The data reveals a strong consensus among respondents that improving directional signage at flyovers would significantly enhance their commuting experience. The overall weighted means, ranging from 2.66 to 3.82, suggest a predominantly positive attitude toward the need for better signage. Notably, statements about clearer and larger signs ( $M = 3.82$ ) and illuminated signs at night ( $M = 3.82$ ) display the highest agreement, reflected by low standard deviations (0.45 and 0.00, respectively), indicating minimal variability and near-unanimous support for these improvements. The skewness values for these statements (-4.01) further affirm that respondents overwhelmingly favor more visible signage, with very few dissenting opinions. Conversely, the item on regular maintenance of signage shows a more moderate mean ( $M = 2.66$ ) and a higher standard deviation (0.98), pointing to greater variability in opinion, although the skewness (-0.55) still suggests a slight lean toward agreement. Overall, the negative skewness across most items highlights that respondents generally agree on the necessity of improved signage, with the greatest support for clearer, larger, and illuminated signs to reduce confusion and enhance navigation in Port Harcourt.

**Discussion of Findings**

The first finding of this study aligns closely with findings from earlier studies by Kaplan, Wolf, and Martin (2018) and Zimmermann and Buhrmann (2015), reinforcing the critical role of signage in navigation. The significant skewness towards agreement in this study, where respondents unanimously recognized inadequate signage as a major issue, mirrors Kaplan et al.'s conclusion that poor signage increases navigation time and stress. Both studies, along with the current data, emphasize the necessity for clear and standardized signage to facilitate effective wayfinding. However, a notable distinction arises in the variability shown in Port Harcourt's reliance on alternative navigation tools, indicated by a moderate standard deviation ( $SD = 1.01$ ). This suggests individual differences in navigation strategies among respondents, a nuance not deeply explored in the earlier studies, which predominantly focused on collective navigation experiences and their emotional impacts. Largely, while the consensus on the need for improved signage is strong, the variability in navigation strategies in Port Harcourt introduces an important layer to the discussion on wayfinding, warranting further exploration within the framework of Visual Rhetoric Theory.

The second finding of this study is strongly in tandem with the insights gained from earlier studies by Mendoza, Rodriguez, and Gomez (2019) and Lee, Lee, and Lee (2020), both of which underscore the critical importance of effective signage in urban navigation. In Port Harcourt, a significant percentage of respondents reported navigation errors due to poor signage, with confusion being the most prevalent issue (84% agreement). This aligns with Mendoza et al.'s assertion that clear typography and standardized signage are essential for improving



navigation and safety. However, a notable divergence arises in the emotional responses to poor signage; while navigation errors were universally acknowledged, only 29% of respondents agreed that poor signage significantly impacted their stress and anxiety levels, indicating variability in personal experiences. This contrasts with Lee et al.'s findings, which suggest that intelligent signage can enhance navigation efficiency and safety, potentially alleviating emotional stress associated with navigation challenges. The mixed responses regarding emotional impact in Port Harcourt highlight a complexity that warrants further exploration, particularly in how visual rhetoric can be employed to design better signage systems that not only guide commuters effectively but also consider the emotional dimensions of wayfinding.

The final finding of this study provides support for Visual Rhetoric Theory, which emphasizes the importance of visual elements in conveying information effectively. Respondents overwhelmingly agreed on the need for clearer and larger signs ( $M = 3.82$ ) and illuminated signage at night, reflecting that well-designed visual cues can significantly enhance navigation. This aligns with El-Geneidy, Levinson, and Axhausen's (2016) findings, which advocate for clear signage to improve transit riders' experiences, suggesting that effective visual communication is critical in reducing confusion. Conversely, the more moderate mean for the item on the regular maintenance of signage ( $M = 2.66$ ) introduces a peculiar challenge to the theory. The higher standard deviation ( $SD = 0.98$ ) indicates variability in opinions about maintenance, suggesting that while visual clarity is universally appreciated, the perceived importance of upkeep may not be as universally recognized. This could puncture the theory's assumption that all visual elements are equally prioritized; rather, it indicates that the effectiveness of visual rhetoric may depend not only on design but also on maintenance practices, which can affect the overall navigation experience.

### **Conclusion**

As urbanization accelerates in major cities and towns across Nigeria, the demand on highways and byways will inevitably intensify. This growing pressure will necessitate not only additional road construction and urban planning but also the strategic development of flyovers and connecting bridges. While these infrastructural improvements are essential, their design must be accompanied by communication experts to ensure they effectively serve not just the permanent residents but also visitors and occasional users. By incorporating specialists in communication, they can transcend mere aesthetics and functionality; these roads can become powerful tools for conveying direction and facilitating smoother traffic flow. Ultimately, the integration of expert communication strategies into urban infrastructure development will enhance the overall commuting experience, ensuring that our roadways are both navigable and intuitive for all users.

### **Recommendations**

1. Port Harcourt Urban Development Authority should improve signage clarity and visibility by installing larger directional signs at flyovers, including illuminated options for enhanced nighttime visibility.
2. The Student Affairs Unit of the Catholic Institute of West Africa should incorporate navigation workshops into its orientation programs for new students to help them familiarize themselves with Port Harcourt.
3. The Port Harcourt Road Maintenance Agency, in collaboration with community organizations, should implement regular maintenance protocols for existing signage to ensure ongoing clarity, functionality, and safety for all road users.

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