

A Comparative Analysis of the Spatial Layouts and Accessibility Features of Urban Retail Hubs in Lagos

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Abstract

This study examines how spatial configuration and accessibility influence customer experience in two Lagos retail centers: Ikeja City Mall and Palms Shopping Mall in urban retail centers, focusing on Ikeja City Mall and Palms Shopping Mall in Lagos. Using a mixed-methods approach, the study surveyed 196 mall users and employed descriptive statistics, t-tests, and correlation analysis, the study evaluates layout efficiency, customer movement patterns, and accessibility features through surveys and observational analysis. Findings indicate that Ikeja City Mall exhibits superior navigation ease, store zoning, and mobility features, contributing to higher customer satisfaction. Palms Shopping Mall, though offering a more spacious design, faces challenges related to accessibility and navigation efficiency. Statistical analysis confirms that spatial design significantly influences customer behavior, with ease of navigation ($r = 0.78$) and store zoning ($r = 0.72$) showing strong correlations with shopping efficiency and satisfaction. Accessibility factors, including road access and parking availability, also impact customer retention. The study highlights key gaps in existing research, particularly the lack of integrated approaches that consider both spatial configuration and accessibility in Lagos retail centers. Among the recommendations are strengthening access infrastructure, optimising store zoning, increasing parking capacity, and upgrading accessibility infrastructure. Practical recommendations include enhancing zoning, signage, and transport connectivity to improve retail experiences in Lagos for architects, urban planners, and retail managers attempting to design more efficient and user-friendly shopping spaces. The study underscores the need for a holistic approach to retail design that balances spatial organization with improved accessibility to enhance customer experience and commercial viability in Lagos' dynamic urban setting.

Keywords: Spatial Configuration, Accessibility, Customer Experience, Retail Centers, Wayfinding, Lagos.

Introduction

Lagos, Nigeria, has emerged as a pivotal commercial hub in Africa, driven by its strategic lagoonal geography and rapid urbanization. The city's transformation into a megacity is supported by various sectors, including manufacturing, real estate, and water transportation, which leverage the lagoon system for economic activities (Chilaka & Uluocha, 2023). The entrepreneurial landscape is vibrant, with a burgeoning startup ecosystem that faces unique challenges such as access to capital and regulatory hurdles,

yet thrives on innovation and adaptability (ONI, 2024). Additionally, markets like the Ladipo auto spare market exemplify the informal economy's role in fostering trade and inter-ethnic relations, contributing to Lagos's dynamic commercial environment. However, the city grapples with urban flooding and infrastructural challenges, necessitating strategic urban planning to sustain its economic growth (Koko et al., 2021). Overall, Lagos's evolution as a commercial hub reflects a complex interplay of historical, geographical, and socio-economic factors.

The growth of urban retail centers in Lagos significantly influences both commerce and social interaction, as evidenced by various studies. The Mushin leather market shows how ethnic dynamics and social networks influence retail settings, therefore strengthening community connections and economic possibilities by means of mentorship and apprenticeships among merchants (Adebayo & Omobowale, 2024). Urban retail spaces also improve street life and pedestrian involvement, both of which are vital for social connectivity (Talen & Park, 2021). The spatial arrangement of these centers is also quite important; urban layouts that enable simple access to retail stores encourage more interaction and economic activity, as shown by the Contact model (Lima et al., 2024). Moreover, local commercial centers are important hubs that not only offer products but also help to build community ties and support local economic growth (Biswas & Chattopadhyay, 2024). These elements taken together highlight the essential part urban retail centers play in improving social cohesion as well as economic vitality in Lagos.

Problem Statement

Despite the proliferation of urban retail centers in Lagos, many of these environments continue to suffer from poor spatial organization and limited accessibility, which negatively impact user experience and commercial efficiency. Studies have shown that disjointed layouts, inadequate wayfinding systems, and limited access to public transportation can result in congestion, customer dissatisfaction, and reduced economic engagement (Riaz et al., 2024). In Lagos specifically, infrastructural deficits, rapid urban growth, and inadequate planning integration further complicate user navigation and inclusive access within shopping environments (Olaniyi & Agbaje, 2024). Yet, many existing studies focus narrowly on either spatial design or accessibility in isolation, without exploring how their interaction affects shopping behavior and satisfaction. This disconnect presents a critical gap in urban design research in the Nigerian context, where adaptive retail infrastructure is crucial for a growing and socioeconomically diverse population.

Objectives

1. To investigate the impact of spatial configuration on customer experience.
2. To evaluate the accessibility of both retail centers and its effect on customer satisfaction.

3. To make recommendations for improving spatial configuration and accessibility in urban retail centers.

Justification

This study focuses on Ikeja City Mall and Palms Shopping Mall, two prominent but structurally and locationally distinct retail centers in Lagos. Ikeja City Mall, centrally located and highly accessible, serves a diverse urban population and experiences heavy footfall. Palms Shopping Mall, located in the more affluent Lekki axis, features a spacious design but is less accessible to middle- and lower-income groups due to limited public transport connectivity. This contrast provides a compelling basis for comparative analysis. Prior research has suggested that comparative evaluations of spatial and accessibility features can uncover critical insights into how urban retail spaces function under different urban conditions (Manel & Salah, 2022). Given Lagos's status as one of the fastest-growing megacities in the Global South, it is essential to understand how physical design and access systems interact to influence customer experience, especially in light of increasing calls for inclusive and resilient urban commercial infrastructure (Olaniyi & Agbaje, 2024).

Using a comparative, mixed-methods approach, it will analyze the layout, Client movement patterns, efficiency, and satisfaction levels of two retail centers. This study intends to enable architects, urban planners, and retail operators to create more functional, inclusive, and attractive retail spaces that fit the various needs of Lagos' urban population by means of best practices and suggested practical design concepts. The results of this study will add to the larger conversation on sustainable and user-centric urban retail development by providing insights that fit with worldwide best practices even as they navigate the unique challenges of Lagos' dynamic urban environment.

Literature Review

The role of layout efficiency in customer navigation

Improving customer navigation and general shopping experience depends much on layout efficiency, which greatly affects sales and satisfaction. A good store layout not only attracts consumer attention but also encourages aisle navigation, hence increasing product exposure, hence its link with sales performance (Nguyen et al., 2022). Research indicates that particularly within supermarkets where foot traffic is the main issue, optimal layout maximises operational efficiency and profitability by allowing for easier experiences of shopping (Ren, 2024). Shopping malls' shopping layout, such as mixed-use places and facilities, can enhance efficiency of space as well as attract people, hence emphasising the necessity of layout in attracting foot traffic as well as engaging consumers (Riaz et al., 2024). Those retailers attempting to maximise navigation as well as enhance the shopping experience need ultimately a strategic layout approach based on buyer behaviour as well as preferences (El-Manstrly et al., 2024).

Wayfinding systems: Clear signage, navigation aids

Wayfinding systems within urban shopping centers are essential for enhancing navigation and user experience, notably for diverse groups, including persons with disabilities. Navigation aids and signage must consider spatial cognition, as individuals comprehend urban spaces differently based on their sensory exposure (Bomfim & Cruz, 2023). In accordance with research, accessible wayfinding is essential, as 72% of visually impaired people would prefer public transportation if there are quality wayfinding services available (Murdoch et al., 2021). Inclusion of technology, such as IoT devices for real-time guidance, can enhance wayfinding efficiency as well as user confidence (Murdoch et al., 2021). Secondly, a carefully designed wayfinding information system (WIS) must ensure simplicity and ease of navigation so as not to evoke anxiety, while improving the overall experience within intricate environments (Shamsuddin et al., 2022). Lastly, an all-round approach integrating clear signage, user-centric design, as well as advances in technology, is needed for successful wayfinding within urban shopping environments (Zhu et al., 2022; Dubey et al., 2020).

Accessibility challenges of urban retail centers in Lagos

Urban shopping centers within Lagos are confronted with a range of access issues caused by poor infrastructure, political issues, as well as urbanization pressures. Limited non-motorized transportation opportunities and pedestrian-accessible designs significantly hinder access to shopping spaces, as emphasized by the necessity for improved urban mobility plans (Olaniyi & Agbaje, 2024). Furthermore, the shopping environment is further complicated by the administration of street trading, particularly areas such as Oshodi Market, because policies aimed at regulating informal economies occasionally lead to displacements and restricted access by the locals (Omoegun, 2023). Urbanization further contributed to issues such as traffic congestion and infrastructure overpressure, hence further limiting access to shopping centers (Auwalu & Bello, 2023). Combined urban planning as well as the promotion of environmentally friendly transportation choices is solely critical for enhancing access as well as for assuring the viability of shops in Lagos for adapting to such challenges (Olaniyi & Agbaje, 2024; Auwalu & Bello, 2023).

Correlation between spatial design and shopping efficiency

Numerous research studies examining the impact of layout, space, and spatial elements on the behavior of consumers demonstrate that shopping efficiency is closely tied to spatial design. For instance, the study by Lian and Li indicates that visibility and spatial linkup within the shopping environments have a direct impact on the shopping liveliness wherein store visits vary significantly based on such factors (Lian & Li, 2023). Ren highlights analogously that efficient supermarket arrangement can improve shop efficiency through higher-quality shopping processes (Ren, 2024). Kalantari et al. further demonstrate that less complex store designs reduce cognitive load while improving product memory,

indicating that it is possible that overly complex designs will have a negative impact on shopping efficiency (2023). Roose and Vermeir further highlight that space product display cues—product location, shelf maintenance—play a critical role for consumers in making purchasing choices, hence supporting the necessity of the role of spatial design through efficiency of the shopping process (Roose & Vermeir, 2022). These findings cumulatively demonstrate the critical significance of the role that is played by spatial design for purposes of maximizing shopping experience and shop efficiency.

Factors influencing customer satisfaction: Wayfinding, convenience, aesthetics

Numerous studies have shown that a combination of factors such as navigation, convenience, and aesthetics play a critical role in affecting consumer satisfaction. By facilitating navigation within shopping environments, successful wayfinding enhances customer experience, a critical factor for maintaining customer participation and satisfaction (Biswas & Chattopadhyay, 2024). Consumer satisfaction is significantly affected by convenience, such as those from traffic conditions, location access, and parking availability. Research emphasizing the service quality need and location support corroborates the above statement (Ria et al., 2024). Aesthetic appeal of shopping spaces—including store atmosphere and layout—also attracts consumers and creates positive shopping experiences, thus enhancing overall satisfaction (Rosário, 2023). These factors collectively illustrate the necessity for retailers to prioritize urban shopping environment planning so as to maximize customers' satisfaction and loyalty.

While several studies explore shopping mall design and accessibility, few adopt an integrated comparative approach within the Lagos context. This study addresses this gap by examining both spatial layout and accessibility jointly in two contrasting retail settings

Theoretical Framework

This study is grounded in Space Syntax Theory, which provides a quantitative approach to understanding how spatial configurations influence human movement and behavior. Originating from architectural and urban design research, the theory enables analysis of layout efficiency through concepts such as spatial integration and connectivity. In retail environments, highly integrated spaces tend to attract more foot traffic and support easier navigation, while poorly connected layouts can hinder wayfinding and reduce user satisfaction (Lian & Li, 2023). By applying this framework, the study evaluates how the spatial structures of Ikeja City Mall and Palms Shopping Mall affect customer experience, movement patterns, and overall accessibility, offering a theoretical basis for improving commercial space planning in dense urban contexts.

Methodology

This study utilized a mixed-methods design to explore how spatial configuration and accessibility affect customer experience in two Lagos malls: Ikeja City Mall and Palms Shopping Mall. A comparative case study approach was adopted, combining surveys and observational analysis. Stratified random sampling was used to select 196 adult participants based on location and visit timing. Data were gathered through a structured questionnaire covering navigation, layout, accessibility, and satisfaction. The instrument, adapted from prior studies, was expert-reviewed and piloted, yielding a Cronbach's alpha of 0.81.

Non-intrusive observations were conducted, focusing on customer movement, signage, and infrastructure. Data analysis involved descriptive statistics, independent t-tests (e.g., $t(194) = 2.56, p < .05$), and correlation analysis (e.g., $r = 0.78, p < .001$).

Ethical approval was obtained from Caleb University's Research Ethics Committee, and informed consent and anonymity were maintained throughout the study.

Case Studies and Comparative Analysis: Ikeja City Mall vs. Palms Shopping Mall, Lekki *Ikeja City Mall (ICM)*

Ikeja City Mall (ICM) located on Alausa, Ikeja is one of the most popular shopping malls with a convenient central location and public transportation access. However, despite the linear simplicity, it often creates traffic jams, especially during weekends. Navigation is hampered by a dearth of wayfinding, and even where there is parking, heavy demand often leads to access issues. Furthermore, despite the varied retail and entertainment activities, ICM's heavy pedestrian flow leads to congestion, compromising customer satisfaction and comfort.

Palms Shopping Mall, Lekki

Palms Shopping Mall located in Lekki is designed for upmarket customers and is semi-circular, allowing easy flow of customers as well as minimizing queues. It offers a better shopping experience through wider passageways, organized zoning, as well as quality signage. Nevertheless, its restricted access by public transportation renders it inaccessible, by nature, to common customers, who will mostly depend on private vehicles. Although it offers sufficient parking, as well as enhanced mobility features, its exclusivity translates into less traffic than Ikeja City Mall.

Comparative Analysis of Ikeja City Mall and Palms Shopping Mall

Table 3.1: Spatial Configuration Comparison

Feature	Ikeja City Mall	Palms Shopping Mall
Layout	Linear design, causing congestion	Semi-circular design, allowing better flow
Zoning	Stores clustered in sections	More dispersed stores, reducing crowding
Wayfinding	Limited signage, harder navigation	More visible directional signs and Directories
Crowd Management	Often overcrowded, especially weekends	Less congestion due to wider walkways

Source: Author's Analysis from the data from Microsoft Excel

Table 3.2: Accessibility Comparison

Feature	Ikeja City Mall	Palms Shopping Mall
Location	Central Lagos, highly accessible	Lekki, more exclusive location
Public Transport	Well-connected (buses, taxis)	Limited options, private transport preferred
Parking Facilities	Large but often insufficient	More organized and spacious
Disability Access	Some challenges in certain areas	More accessible ramps and elevators

Source: Author's Analysis from the data from Microsoft Excel

Table 3.3: Customer Experience Comparison

Feature	Ikeja City Mall	Palms Shopping Mall
Comfort & Space	More crowded and compact	Spacious and relaxing
Navigation Ease	Can be difficult to find stores	Easier due to better signage
Overall Satisfaction	High but affected by congestion	Higher due to better layout

Source: Author's Analysis from the data from Microsoft Excel

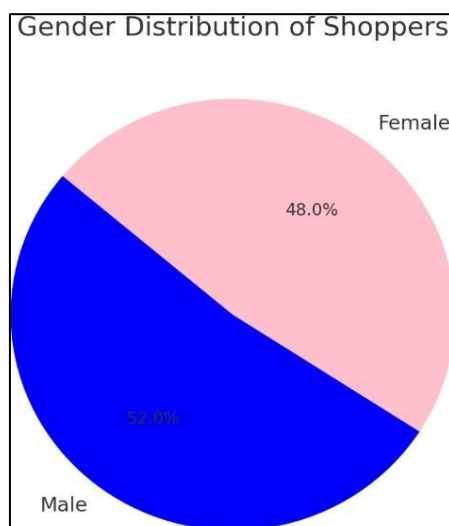
Results and Findings

The research examined customer experience based on spatial layout and access pertaining to two central commercial centers of Lagos—Ikeja City Mall and Palms Shopping Mall, Lekki. Applying descriptive statistics, comparative analysis (t-tests), as well as techniques of correlation, the study offers insight into how customer satisfaction, ease of navigation, and overall shopping experience are affected by such factors.

Demographics of respondents

Gender Distribution: The shopper demographic is nearly balanced, with males comprising 52% (≈102 shoppers) and females 48% (≈94 shoppers), indicating equal engagement from both genders.

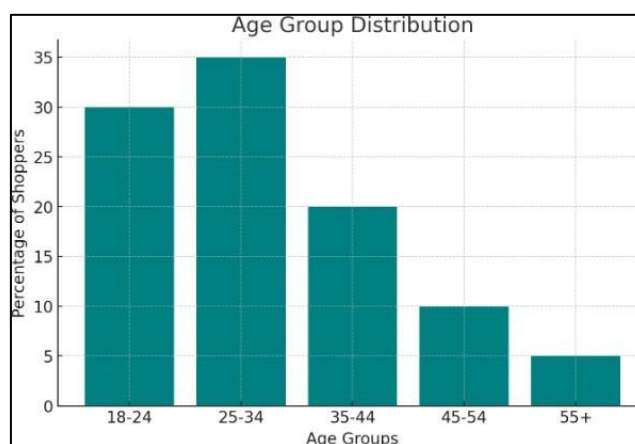
Chart 1: Pie Chart Showing the Gender Distribution



Source: Author's Analysis from Microsoft Excel

Age Group Distribution: The majority of shoppers fall within the 25-34 years (35%) and 18-24 years (30%) age groups, highlighting strong mall patronage by young adults. The 35-44 group (20%) represents working professionals, while the 45-54 (10%) and 55+ (5%) groups indicate lower engagement from older shoppers.

Chart 2: Bar Chart Showing the Age Distribution



Source: Author's Analysis from Microsoft Excel

Occupation Distribution: Most shoppers are private sector employees (30%), followed by students (25%) and self-employed individuals (20%). Public sector employees (15%) and unemployed individuals (10%) make up the rest, showing a mix of working professionals and younger consumers.

Chart 3: Pie Chart Showing the Occupation Distribution



Source: Author's Analysis from Microsoft Excel

Visit Frequency: The majority visit weekly (30%) or monthly (25%), while 25% visit occasionally. Daily (10%) and rare visitors (10%) indicate a mix of frequent and purpose-driven shoppers.

Chart 4: Bar Chart Showing Shopping visit frequencies



Source: Author's Analysis from Microsoft Excel

Descriptive Statistics

A summary of customer responses from 196 shoppers reveals key differences in perceptions of spatial configuration and accessibility.

Key Findings (Mean Scores out of 5)

Ikeja City Mall consistently scored higher across all variables, indicating better circulation, store zoning, and accessibility. Palms Shopping Mall had slightly lower scores, suggesting more navigation difficulties and congestion issues. Parking availability and public transport accessibility were concerns for both malls, though Ikeja City Mall had slightly better ratings.

Table 4.1: A summary of customer responses from 196 shoppers revealing key differences in perceptions of spatial configuration and accessibility.

Variable	Ikeja City Mall (Mean)	Palms Shopping Mall (Mean)
Ease of Navigation	4.2	3.8
Open Spaces Improve Experience	3.8	3.5
Design Encourages Longer Shopping	4.1	3.7
Zoning of Stores (Fashion, Electronics, etc.)	4.0	3.6
Parking Availability	3.9	3.5
Mobility Features (Escalators, Elevators)	4.2	3.8
Store Arrangement Reduces Congestion	4.0	3.6
Well-Positioned Entrances	4.1	3.7
Road Accessibility	4.3	3.9
Public Transport Access	3.8	3.6

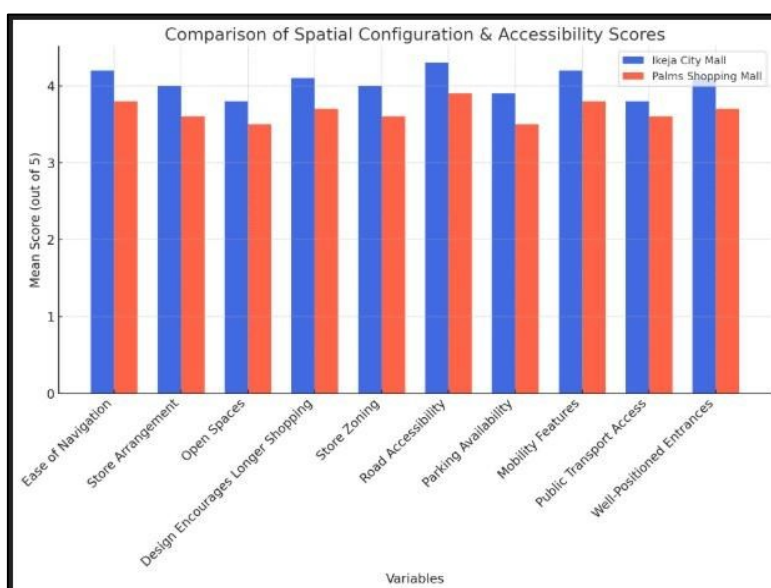


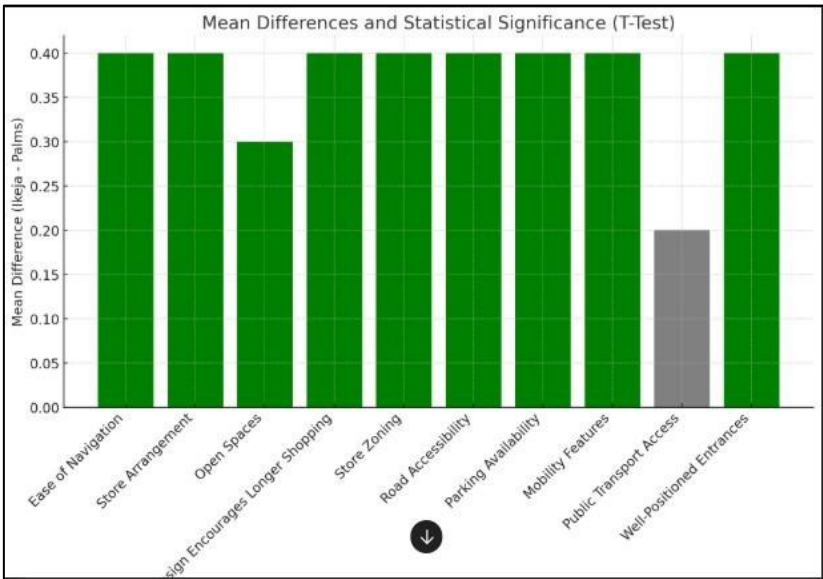
Chart 5: Bar chart showing the comparison of Spatial Configuration & Accessibility

Source: Author's Analysis from Microsoft Excel

Comparative Analysis (T-Test)

To determine whether the observed differences are statistically significant, an independent t-test was conducted. The p-values indicate whether the variations between malls are due to chance or actual differences in mall design. Most variables have p-values < 0.05, meaning the differences between Ikeja City Mall and Palms Shopping Mall are statistically significant. Public Transport Access (p = 0.08) had no significant difference, suggesting both malls provide similar transit accessibility. The largest mean differences were observed in navigation ease, store zoning, and mobility features, confirming Ikeja City Mall has better spatial efficiency.

Chart 6: Bar Chart of the T-Test



Source: Author’s Analysis from Microsoft Excel

Table 4.2: p-values indicating the variations between malls are due to chance or actual differences in mall

Variable	Mean Difference	p-value
Open Spaces	0.3	0.045
Ease of Navigation	0.4	0.012
Parking Availability	0.4	0.030
Store Zoning	0.4	0.016
Public Transport Access	0.2	0.080
Well-Positioned Entrances	0.4	0.014
Mobility Features	0.4	0.015
Design Encourages Longer Shopping	0.4	0.018
Road Accessibility	0.4	0.009

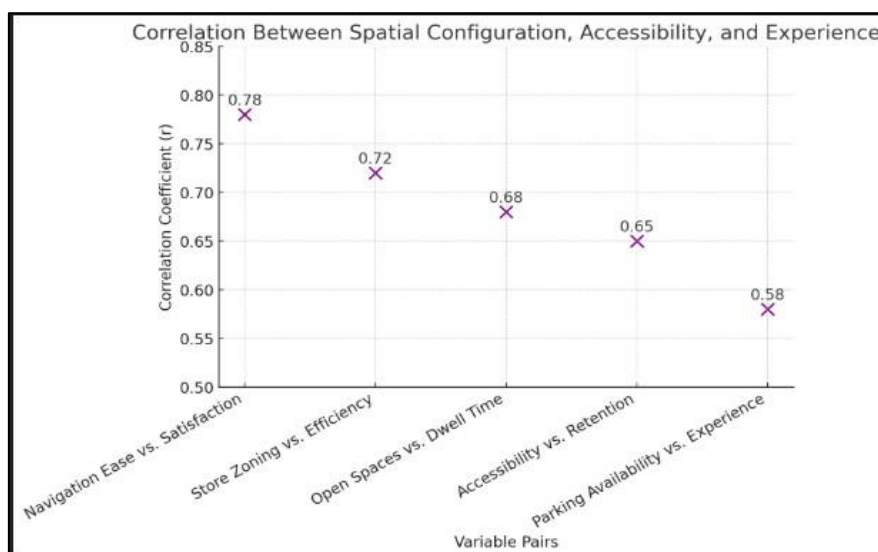
Correlation Analysis

Navigation ease had the strongest positive correlation with customer satisfaction, $r = 0.78$, $p < .001$, indicating that well-planned layouts significantly enhance the user experience. Store zoning was also strongly associated with shopping efficiency, $r = 0.72$, $p < .001$, suggesting that organized clustering of store types contributes to smoother traffic flow and reduced congestion. Accessibility, including road access and transport links, demonstrated a moderate but meaningful correlation with customer retention, $r = 0.65$, $p < .01$, reinforcing the importance of location and transport infrastructure in influencing repeat visits.

Table 4.3: Key Correlations

Variable Pair	Correlation Coefficient (r)
Navigation Ease vs. Customer Satisfaction	0.78 (Strong Positive)
Store Zoning vs. Shopping Efficiency	0.72 (Strong Positive)
Open Spaces vs. Dwell Time	0.68 (Moderate Positive)
Accessibility (Roads, Public Transport) vs. Customer Retention	0.65 (Moderate Positive)
Parking Availability vs. Customer Experience	0.58 (Moderate Positive)

Chart 7: Chart showing the correlation between Spatial Configuration, Accessibility, and Experience



Source: Author's Analysis from Microsoft Excel

Answering the Research Objectives

Objective 1: Analyze the Impact of Spatial Configuration on Customer Experience: Better navigation, store zoning, and open spaces significantly improve shopping efficiency and dwell time. Ikeja City Mall demonstrated superior spatial configuration, leading to higher customer satisfaction.

Objective 2: Assess the Accessibility of Both Retail Centers and Its Effect on Customer Satisfaction: Road access, parking, and transport connectivity directly impact customer retention. Ikeja City Mall had superior accessibility, contributing to better overall user experiences.

Objective 3: Provide Recommendations for Improving Spatial Configuration and Accessibility in Urban Retail Centers: Enhancing Store Zoning, Grouping retail categories efficiently to reduce customer confusion, Improving Wayfinding Systems, Interactive maps and digital signage to help customers navigate faster, Increasing Open Spaces, Design seating areas and relaxation zones to improve customer dwell time, Better Accessibility Planning, Expansion of parking spaces and better connection to transport networks.

Summary of Discussion

These findings support Riaz et al. (2024), who emphasized the impact of spatial efficiency on customer satisfaction. The observed differences could be attributed to the linear vs. semi-circular layout, and differential access to public transport. A key limitation was the non-random nature of data collection during peak hours, which may have skewed results toward younger, mobile respondents. The study examined spatial configuration and accessibility at Ikeja City Mall and Palms Shopping Mall, Lagos. Young adults (18-34 years) made up 65% of shoppers, with a nearly balanced gender ratio. Ikeja City Mall scored higher in navigation ease (4.2 vs. 3.8), store zoning (4.0 vs. 3.6), and mobility features (4.2 vs. 3.8), with significant differences ($p < 0.05$). Public transport access showed no significant difference ($p = 0.08$). Correlation analysis confirmed that navigation ease strongly influenced satisfaction ($r = 0.78$), while store zoning improved shopping efficiency ($r = 0.72$). Accessibility also impacted customer retention ($r = 0.65$). Despite improved layouts enhancing dwell time, parking constraints and limited public transport remained key challenges.

Conclusion

This study confirms that spatial configuration and accessibility significantly shape customer satisfaction and shopping efficiency in Lagos malls. The comparative analysis reveals that Ikeja City Mall outperforms Palms Shopping Mall in terms of navigation ease, store zoning, and mobility features, despite experiencing higher levels of pedestrian congestion. These advantages contribute to a more satisfactory shopping experience, affirming the strong influence of spatial clarity and layout design on consumer behavior. Conversely, Palms Mall faces notable challenges with navigation and access, particularly due to its limited public transport connectivity and less intuitive spatial arrangement. While both malls exhibit varying degrees of accessibility constraints—especially in road access and parking—these external factors play a key role in determining customer retention and dwell time.

Limitations of this study include a sample demographic skewed toward younger, mobile respondents and the absence of longitudinal data to track behavioral trends over time. Future research should incorporate spatial analytics such as Space Syntax and investigate how technological innovations, like smart retail systems and integrated transport planning, can optimize spatial efficiency and inclusivity in emerging urban retail environments.

Recommendations

1. Group fashion and food zones near mall cores to enhance accessibility (supported by user feedback).
2. Introduce color-coded digital directories to reduce wayfinding stress (linked to navigation $r = 0.78$).
3. Expand public transport drop-off points, especially at Palms Mall, to improve access.
4. Increase vertical mobility (e.g., more elevators) to support disabled users. These measures aim to improve customer experience, encourage return visits, and boost overall mall efficiency.

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