International Journal of Architecture, Arts and Applications
2023; 9(4): 120-132
http://www.sciencepublishinggroup.com/j/ijaaa
doi: 10.11648/j.ijaaa.20230904.11
ISSN: 2472-1107 (Print); ISSN: 2472-1131 (Online)

Consumer Movement Dynamics Within Large Scale, Multi-Level Shopping Mall: An Exploratory Role of Tenant-Mix Strategy

Fahmida Nusrat[1, *], Nasreen Hossain[2]

[1]Department of Architecture, Primeasia University, Dhaka, Bangladesh

[2]Department of Architecture, Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh

Email address:

fahmida.nusrat@primeasia.edu.bd (Fahmida Nusrat), nasreenhossainnupur@gmail.com (Nasreen Hossain)

[*]Corresponding author

To cite this article:

Fahmida Nusrat, Nasreen Hossain. Consumer Movement Dynamics Within Large Scale, Multi-Level Shopping Mall: An Exploratory Role of Tenant-Mix Strategy. *International Journal of Architecture, Arts and Applications*. Vol. 9, No. 4, 2023, pp. 120-132.
doi: 10.11648/j.ijaaa.20230904.11

Received: July 15, 2023; **Accepted**: October 23, 2023; **Published**: November 11, 2023

Abstract: Large-scale multilevel shopping malls are now sprawling phenomena in the urban landscape of the many megalopolises of South-Asian countries. Considered a Westernized influence, such planned, enclosed entities of volumetric building masses with multiple levels often generate excessively deep spaces both horizontally and vertically. Hence, channeling a sufficient flow of shoppers in every space of the mall considering both axes is usually addressed with the planned agglomeration of ample retail variations, mostly known as tenant mix. Taking a case study of such a pioneer modern mall in Dhaka, this paper explores consumers' movement intensity and pattern in light of its present tenant mix to reveal the extent of its impact. The methodology incorporates identifying the tenant mix of all eight levels with first-hand surveys and data collection of consumer movement through the gate method. The results show that tenant strategy has multiple implications on movement both at each level of the mall as an independent system and vertically as a collective mechanism. It also shows gender and event or festivity-specific movements are also crucial factors to think about tenant mix. But a struggle of consumer visitations in many crucial locations of the mall despite the exquisite mix poses an urge for future research in analyzing movement in relation to the spatial and configurational properties of such mall. This finding can provide insights into the future design and sustainable functionality of such buildings.

Keywords: Consumer Movement, Multi-Level Shopping Mall, Tenant Mix, Urban Dhaka

1. Introduction

Large-scale shopping malls are exclusively planned entities expressing the modernization of specialized retail enclaves in the built environment. Envisioned from the standalone enclosed mall of the West, the dense Asian cities have opted voraciously for its multi-leveled or high-rise interpretation due to mostly land scarcity on one hand and as a symbol of flourishing economic boom through the exquisite, volumetric display of urban fabric on the other. The 400-year-old city of Dhaka, one of the densely populated megalopolis in South Asia is no exception to this and since the last decade of the twentieth century, such multilevel retail hubs have been sprawling in the city amongst which few have surfaced even as landmark buildings for its overly grand scale. Ever since the boxy mall design as a replicating Western theory is evident, the success of such buildings in terms of enough consumer agglomeration in every space remains a challenge. But influencing movement is almost all of what mall management aspires towards [1].

Navigating the movement of consumers is considered an effective way to analyze overall consumer behavior within various types of retail setups and shopping malls are explicitly one of a kind amongst those. Enclosed mega retail hubs, like modern malls, are spatially sensitive in ensuring enough consumers inside them for the first and foremost reason of profitability and economic sustainability. Nevertheless, such movement study is equally proven explorative in perceiving urban-level dynamics of retail land use planning. But in Dhaka, despite the booming visibility of multilevel shopping malls in its urban fabric, consumer-end empirical research through

movement study is barely there. Therefore, this study aims to explore consumer movement phenomena within a large-scale, multilevel shopping mall in the country where the expected outcomes portray the significance of understanding place-specific connotations of tenant mix strategy; mostly typologies of tenants along with their placements within the multiple levels as well as in every single floor so that the surge of movement can be dispersed evenly to ensure both spatial and economical sustainability of such places.

The present case study is centered on Bashundhara City Shopping Mall (BCSM), one of the largest planned shopping complexes in Dhaka, which pioneered the concept of enclosed, multilevel, and large-scale shopping (Figure 1. a and Figure 1. b). Since opening its doors in 2004 with a gross floor area of 5,100,000 sq ft. [2], the full functionality of the mall in its retail floors took the span of almost a decade. The mall boasts eight retail floors at podium level, which house a total of 2325 shops of varying sizes and modules. The shop types have ample variations in their spatial distribution and clustering pattern, enabling a gradual formulation of the current tenant mix that attracts a diverse consumer footfall to date. Being the second-largest of its kind in the region, Bashundhara City Shopping Mall is a modern and innovative landmark shopping hub that has set the benchmark for other planned shopping malls. Its well-thought-out design, careful tenant mix, and mature operational framework have made it a prime shopping destination for the city's residents and visitors alike offering a broad range of shopping options.

To justify undertaking any particular research through a case study, the literature revealed, “a case study is not a methodological choice, but rather a choice of what is to be studied – by whatever methods we choose to study the case” [3]. Even opting for a single case seems beneficial when “single case studies richly can describe the existence of phenomenon and it is better to make a single case study than a multiple case study when the writer wants to study, for example, a person or a group of people” [4]. Single case studies can explore intricate insights as “sometimes we simply have to keep our eyes open and look carefully at individual cases – not in the hope of proving anything, but rather in the hope of learning something” [5, 6].

Figure 1. *a: View of the Bashundhara City Shopping Mall from the approach road; b: View of the Main Central Entrance (Source: Author).*

Source:
https://dailyasianage.com/news/39872/the-second-largest-shopping-mall-in-bangladesh

With a specific research aim to analyze the consumer movement pattern and intensity within various places of the mall with reference to the present tenant mix, the literature review excluded theories on the complex buying behavior of consumers’ or shop owners’ profitability in terms of retail agglomeration, which are also relevant for grasping the idea of an effective tenant planning. Moreover, consumer movement dynamics related to any retail destination are influenced by various external (e.g. location, distance, mode and ease of transportation, day and time, and much more macro-level planning and decision-making issues) and internal (e.g. mostly related to the shopping mall design parameters) factors. In this particular study, only the shoppers' or consumers' movement inside the mall is considered for data collection, hence, external factors impacting the movement choice are also not considered for the literature review. Again, to keep the study aligned with its aim, scholarships related to the internal design attributes of the mall that stimulate the consumer movement triggering their psychological perception of space are also excluded. Movement counts only as a physical and visible phenomenon in relation to tenant mix is given prime focus for this research.

The Mall's success is a testament to the importance of thoughtful planning and meticulous execution in creating a successful retail space. This specific case study can be an example of a similar context where tenant mix is perceived as ‘the more, the merrier’ to attract consumers; ergo considered the thematic epicenter of ensuring the economic sustainability of the mall.

2. Consumer Movement within a Mall: An Outcome of Multifaceted Factors

Generally, a ‘Consumer is a person who desires, needs and requires marketing components in their capacity as buyer’ [7] and their ‘Movement or navigation is significant for different categories of building, but in the case of shopping malls it is the determining factor for achieving economic sustenance’[8]. The consumer movement in shopping malls is generally the depiction of shoppers' navigation process of their desired shops within the respective retail enclave by means of physical or mechanical movements; e.g. lifts, and escalators, which is presumably initiated by the elementary urge of their buying necessities even though there are ample factors within a mall that initiate, influence and guide the movement behavior of the consumers. Consumer movement dynamics in a shopping mall is actually a segment of the even more complex concept of ‘Consumer behavior’ in general.

‘Studies of customer behavior in retail stores usually deal with (i) identification of customers and (ii) their buying behavior patterns. The aim of such studies is to ascertain who buys where, what, when, and how’ [9]. Again Consumer or customer behavior is a multifaceted outcome within any (physical entity of) retail arena where many other psycho-emotional factors are involved. Generally ‘Consumer behavior is the investigation of people, gatherings, or

associations and every one of the exercises related with the buy, utilize and transfer of products and enterprises, including the consumer's emotional, mental, and behavioral reactions that go before or take after these exercises [10]. In another way 'Consumer behavior is generally a study that explains how individuals make decisions in order to spend their available resources that is their effort, time, and money. It also studies the consumption-related aspects and answers the following important questions: What do the customers buy? When do the customers buy? How do the customers buy? And so on' [11]. Eventually, movement, a physical phenomenon closely knitted with its space-time rendition, lies at the core of understanding consumers' behavior within a planned mall.

Shopping malls in the modern era have evolved to provide consumers with a lot more than just a place for simple purchases. They have become vast spaces that inspire people to wander around and explore. In addition to retail stores, malls now offer infrastructure services such as public restrooms, ATMs, and recreational areas that cater to the needs and expectations of shoppers and by doing so, these amenities are designed to help shoppers complete their tasks comfortably and efficiently [12-14]. Shopping mall visitors visit shopping malls not only for searching for particular products, but they also view these visits as an entertainment activity that provides fun and pleasure from the shopping experience [15]. Another study on gender-based consumer assessment states that in the case of women shoppers, enjoyment is linked to shopping as a kind of leisure activity that provides them with relaxation and freedom [11]. Atmospheric factors such as smells, music, decorations, shopping mall layout, and temperature have a significant impact on how consumers perceive the attractiveness of a shopping center, and when used correctly, these factors also affect their shopping behavior, leading to an enhanced experience, and ultimately extending the time consumers spend at the mall [12-14, 16]. Meanwhile, another work on the overall shopping motivation of Indian shoppers identified three utilitarian (i.e., convenient shopping, economic shopping, and achievement shopping) and six hedonic shopping motivations (i.e. shopping enjoyment, gratification shopping, idea shopping, shopping for aesthetic ambiance, roll shopping, and social shopping) [17].

To gain insight into how consumers perceive shopping, researchers have explored various theories, including the theory of consumer utility maximization, retail agglomeration theory, and the theory of transaction utility maximization. All of the works above intrinsically incorporate the consideration of pedestrian movement within the mall to ensure the optimal functioning of the retail arena. It is evident that ensuring enough movement of consumers is key to success in shopping malls. Yet, in these facilities, it is difficult to predict shoppers' distribution, because the spatial configuration is very complex and every shopper performs a complicated shopping action including not only horizontal movements but also vertical movements [18]. Observing the movement of shoppers is one way to gauge a mall's activity level, but it may not always provide an accurate picture of retailers' profits or the buying patterns of shoppers. Nonetheless, from a design and retail planning perspective, it gives an idea of how well shoppers navigate the mall's physical space, which is vital for ensuring the long-term effective uses of the place. This method provides significant insights that can be used to optimize the overall layout and design of the mall, thereby increasing its overall economic viability.

3. The Perception of 'Tenant-Mix' as the Key Influencer Behind Consumer Movement

Since the mid-20th century, retail planners, and architects have been using the term "Tenant mix" when talking about planned shopping malls. It's been proven to be a key factor in the economic success of these buildings, and a lot of research has demonstrated the importance of the tenant mix as a defining characteristic and most important factor in the development of shopping malls [19-23]. The concept is even influential in the spatial planning of various shop types and their clustering pattern within the complex malls. However, this concept is relatively variable according to the diversity of the socio-cultural identities and economic characteristics of the shoppers in any given geographical region. In general, the tenant mix is all about the variety, size, and relative placement of tenant assemblages within a retail enclave as complex as a multilevel enclosed shopping mall [24]. In determining the success and failure of a commercial facility, it is considered a technique for a facility developer to choose the optimized mix of store type, product category, and tenants and arrange them according to size and location [25]. A shopping mall's tenant mix, or the allocation of retail space, is a key factor in its success [26]. A successful tenant mix can have a significant impact on the internal space utilisation and the level of pedestrian circulation within the planned shopping malls.

Acknowledging 'Shoppers' as the most important factor in determining the success of a mall, scholarly studies have noted that a successful shopping center must maintain high customer patronage [24]. Exploring consumers' movement intent, another work has mentioned a link between the mall's tenant mix and the purpose of shopping and it has been observed that shoppers tend to choose a mall that usually offers unique tenants under a single premise as a one-stop destination. A correlation study on tenant placement and patronage has proposed that variations in the clustering of tenants can have a more synergistic effect on consumer movement [27]. This is further supported by the proposal to tailor the tenant mix to create a distinct impression to shoppers, in order to stand out amongst the other malls to excel in competitiveness [24].

A number of studies have detailed how the type of tenant can have considerable movement disperse capacity, and anchor tenants have been found to be best suited for attracting movement increase within a mall. Based on customers' movement information, a study of the one-week-long flows of 250 shopping groups in a suburban district center and found dense customer flows around anchor stores [28]. It is

suggested that anchor tenants may be able to attract a greater number of customers, while other retailers may be able to take advantage of the increased customer turnover that the anchor tenant can generate [29]. This hypothesis has been corroborated by other researchers, particularly in the case of large shopping centers, where the synergies created by the anchor tenants can be advantageous to other tenants. It's all about having a good mix of both anchor and non-anchor tenants [30]. For other tenant categories, the influencing factors of customer flow distribution is investigated and revealed that flows are spatially concentrated in the retail categories of food, health and body, and fashion, and the pass ratio declines as the distance from the center of the shopping mall increases [31]. According to other research, tenants under the category of 'food and beverage' can be effective in acting as "magnet stores" to draw additional shoppers regardless of age and gender [32]. Emphasizing the location and visibility of tenants, it is stated that flow density is significantly influenced by store location, visibility, and reputation [33]. A systematic study of the factors influencing a customer to visit a store in a shopping mall based on a large survey data set observed the influence of the level of the floor, the type of store and staying time [34].

Recent research has highlighted two fundamental criteria of consumers' overall shopping behavior that eventually influence their movement within the mall: a) the shopping type and b) the shopping trip pattern. These criteria are central to the success of a mall's Tenant mix. Different types of shopping, like convenience, comparison, specialized, and impulse [35-37], can trigger different movement criteria depending on a variety of factors, such as the type of tenant, the profile of the tenant, and the amount of space allocated to them. Furthermore, "shopping trips" are also considered to be a significant factor in influencing consumer movement patterns, as they can be either long-term or short-term, and are ultimately related to the type of shopping done within the premise. Ultimately, the key to success is having a great tenant mix. A study that looks at two different shopping strategies, single-purpose and multipurpose shopping trips [35], identified a preference for multipurpose shopping among consumers for a variety of reasons, one of which is associated with the cost of travel. The study concluded that shoppers can be content with a multipurpose shopping experience in a single shopping trip [24]. However, another study divides shopping into two categories: regular visits and occasional visits [38]. Regardless of the purpose of a shopping visit, the effective routing path within the mall for an explorative movement of the shoppers is essential. Shopping purposes and trip patterns all end up successfully in a mall if interacted with desired tenant mixes having wider variations. Therefore, a mall with a range of tenant mixes offers consumers a wide range of shopping options. This is why tenant mixes remain at the core of mall design and planning, which is also a major focus for many researchers to understand how consumer movement is related to its arrangement and clustering not only within one floor but also multiple levels if the mall has them.

4. Methodology

In order to gain a comprehensive overview of the consumer movement, a widely-used research technique of observation has been conducted using the 'Gate Method'. 'This method usually records only observations on the movement of people and vehicles. Even though it is a common method of application in city contexts, it can also be applied to the interior space of buildings [39]. In this empirical study, to determine efficient gate locations that are representative of all floors, an in-depth field survey is conducted. The current tenant mix for all levels of the shopping mall is then plotted using color codes for different typologies. The gate locations are then distributed in an even manner. Gates' potential for gathering a broad range of data is marked by their locational significance within different types of tenant mix, such as anchor tenants, non-anchor tenants, locations near major exits or critical egress, or very isolated locations within the mall. To better collect and analyze movement data, it was important to break down the time frame into two distinct themes: Regular Season (RS) and Festive Season (FS). Additionally, a gender-specific insight into consumers' overall movement patterns was taken into consideration to further refine the other movement-related observations under the precise category of Total Movement of Male (TMM) and Total Movement of Female (TMF) consumers.

For the movement data to be reliable, every floor with 25 gates had a 3-minute count in each gate. Therefore every floor had a 3.75-hour count on each gate at three significant times; noon, afternoon, and evening for 6 days in a row, that is 2 week days plus 1 weekend in the regular season and the same for the festive season. To collect data more seamlessly, the count was done at one time, simultaneously. As for initiating the 'gate method' for the movement survey from level 1 to level 7, the following figures illustrate two representative plans of the mall with 25 gates selected in the first 6 levels (Figure 2.a) and there are 10 gates on level 7 (Figure 2.b), which has a different spatial configuration for comprising of small number of tenants with bigger shop size for each that are mostly anchor stores. All these tenants are the outlets either of their national or international chains.

The shopping mall consisted of four blocks; e.g. A, B, C, and D. The number of gates is 4 in A (7, 8, 9, 10), 3 in B (11, 12, 14), 5 in C (16, 17, 18, 20, 21), 4 in D (1, 2, 3, 4, 5). Due to the effective shopping area coverage by each respective block, the number is increased or decreased accordingly. Compared to A and B, blocks C and D are the larger ones. Gate locations are pretty much the same on all floors with the same configuration. Gates numbered 6, 13, 15, 19, 22, 23, 24, and 25 are all located on either the central circulation aisle, near the lifts or escalators. On level 1, gates 13, 23, 24 & 25, which are marked around or within the main atrium have been photographed multiple times for collecting movement data instead of numerical count as the shoppers' mobility and congestion in this area are overwhelming (Figure 3. a & Figure 3. b).

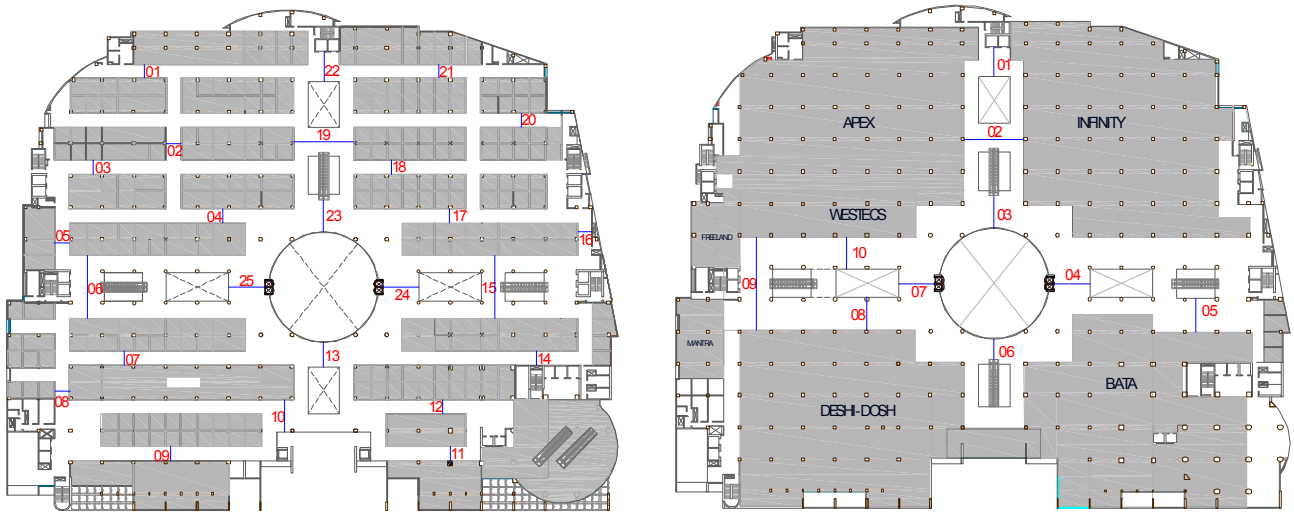


Figure 2. *a: Gate Positions in Plan of Typical Level from L-01 to L-06; b: Gates in Level-07 (Source: [40]).*

Level 8 was observed through the pictorial survey (Figure 4) and video recording as this floor is only designated for recreational and leisure activities, thus excluding regular retail outlets. The study was done to figure out how different types of shops affect people's movement, and since this level is in the service retail category, it is considered like a magnet floor for the total mall as an independent system. Moreover, this level, being largely an open floor plan with a more flexible spatial configuration, lacks a defined circulation like other levels. Henceforth, the individual floor was not examined critically for movement patterns, but rather for a comprehensive vertical understanding of visitors' mobility.

(a) (b)

Figure 3. *a): Images of huge crowd entering near the atrium of level-1 overlooking the main entrance (Source: Author); b): The crowd approaching to the central escalator from the atrium of level-1 (Source: Author).*

Figure 4. *Consumers Movement in Level-8, mostly to enjoy the food court, movie theatre, and kids' game zone (Source: Author).*

5. Results

To have an explicit understanding of the movement variations, intensity, and overall pattern in various gates of all levels, the present tenant mix scenario is taken into account as it is considered a significant issue in assessing shoppers' mobility. The color-coded tenant mix according to their typologies on all the floors (Figures 5-12) thus shows that with eight expansive levels of retail space, Bashundhara City Mall offers a comprehensive shopping experience for the discerning shoppers of Dhaka. The selection of tenants has been carefully thought out, taking both horizontal and vertical placement into consideration to ensure maximum comfort for both shoppers and retailers. Through a process of experimentation and refinement, the current mix of tenants has been tailored to create a personalized approach rather than relying solely on theoretical considerations during the design phase.

The ground floor plan holds immense strategic significance owing to its direct correlation with the encompassing urban terrain acting as an immediate threshold of the multilevel mall. Hence the high volume of foot traffic within the space facilitates a plethora of shop categories to be showcased to prospective customers, resulting in a varied blend of tenants. With a vibrant atmosphere of enhancing the overall shopping experience, this, in turn, creates an impression of a space that caters to a diverse range of users through a heterogeneous display of available options.

Table 1. *The Tenant Mix Scenario in Various Level of the Selected Shopping Mall.*

Levels	Basic Tenant Mix Scenario in Various Levels
Level 1	1. There are 15 types of tenants here comprising the highest no of shops (289) in comparison to all other levels. 2. Maximum shops are selling readymade garments (RMG) for all sorts of visitors regardless of gender and age. Along with electronic accessories, cell phones, and showrooms for watches, the other larger tenant clusters here are jewelry, bags, beauty accessories, and toy shops. 3. With supporting service tenants like; ATMs, beauty salons, and food corners, a local lifestyle brand and a chain of departmental store acts as anchor tenant on this floor
Level 2	1. In comparison to level 1, this floor seems more dominant with male consumers as the tenants mostly consisted of readymade clothing for them having bigger clusters in two larger blocks, even though shops displaying readymade clothes for ladies, and children are there. 2. Other evident tenant types are a few tailoring shops, jewelry, shoe, and bag stores. This level lacks in food and snacks related tenants.
Level 3	1. Due to an intense distribution of shops prioritizing ladies' clothing, mostly readymade garments and accessories, like, bags, jewelry, etc. almost the whole floor, level-3 is more weighed on women shoppers. However, a moderate number of shops having readymade clothes for males and children keeps this floor frequently visited by this group of consumers as well. 2. Unlike the previous two floors, this level also has a visible display of tailoring shops, jewelry, cosmetics shops, and mobile and electronics showrooms.
Level 4 & Level 5	1. These two levels are highly visited by female shoppers as the majority of tenants fall under the category of ladies' clothing of traditional wares, and readymade garments which are on level 04, and a huge number of jewelry stores on level 5. 2. To keep a balanced flow of consumers, these two levels are also exhibiting mobile and electronics showrooms, some service tenants (banks/ money exchanges), and food corners.
Level 6	1. With two major tenant types; e.g. Cell phone brands & electronics shops as one cluster and shoe stores as the other, this floor is visibly characterized as a unisex attraction where a few other tenant types accompany them to keep the movement flow in equilibrium regardless of gender. These are mostly homeware and kitchen appliances, service tenants (bank), and jewelry.
Level 7	1. Displaying all brand stores with larger spaces, this level solely acts as a magnet floor for the whole shopping mall. Since all lifestyle products are here, this floor experience visitors of all groups, age, and gender even without the presence of service and entertainment tenants of any sort.
Level 8	1. This level is fully dedicated to the entertainment facilities of the mall with an immense space dedicated to a vast food court, movie hall, and an elaborate games zone for kids and teenagers.

Figure 5. *Tenant Mix on Level-01 (Source: [40]).*

Figure 6. *Tenant Mix on Level-02. (Source: [40]).*

Figure 7. *Tenant Mix on Level-03 (Source: [40]).*

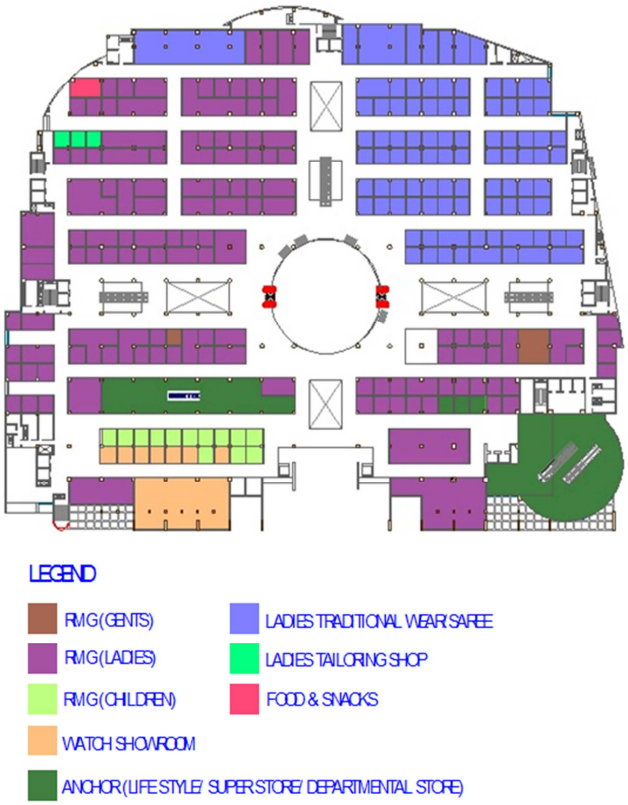


Figure 8. *Tenant Mix on Level-04 (Source: [40]).*

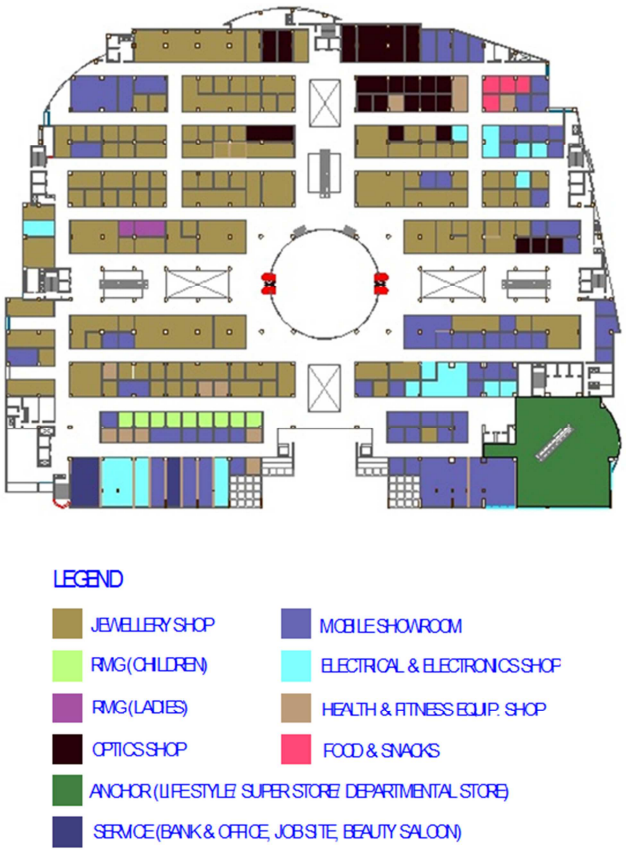


Figure 9. *Tenant Mix on Level-05 (Source: [40]).*

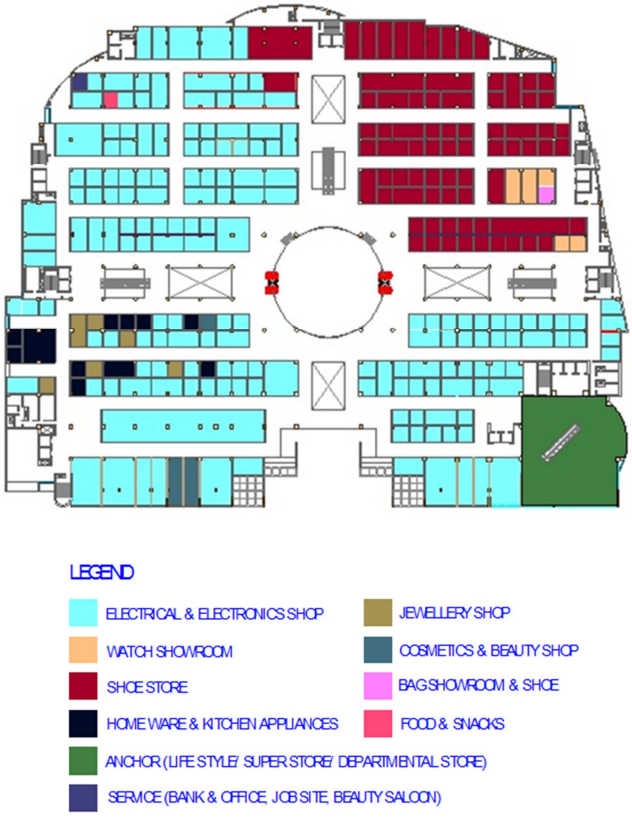


Figure 10. *Tenant Mix on Level-06 (Source: [40]).*

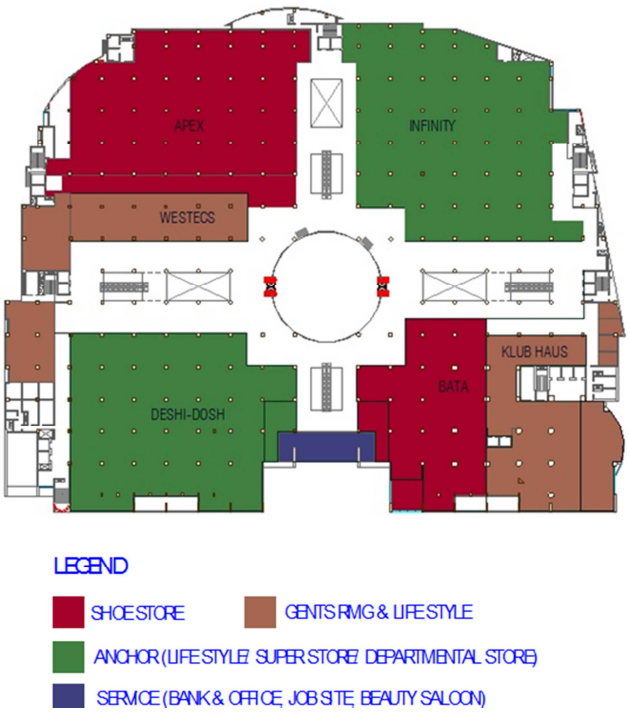


Figure 11. *Tenant Mix on Level-07 (Source: [40]).*

A statistical representation of total movement, both for the regular and festive seasons (Figure 13 & Figure 14), in various levels (except for level-7 & 8 for their deviation in gate locations due to different configurations of those floors) indicates that there might be several tenant placement strategies that are affecting the movement intensities in different levels. The movement variations are also happening on a few critical gates on every level that denote the circulation hierarchy of primary corridors, the location of the atrium, and means of vertical movement through lifts, escalators, and stairs.

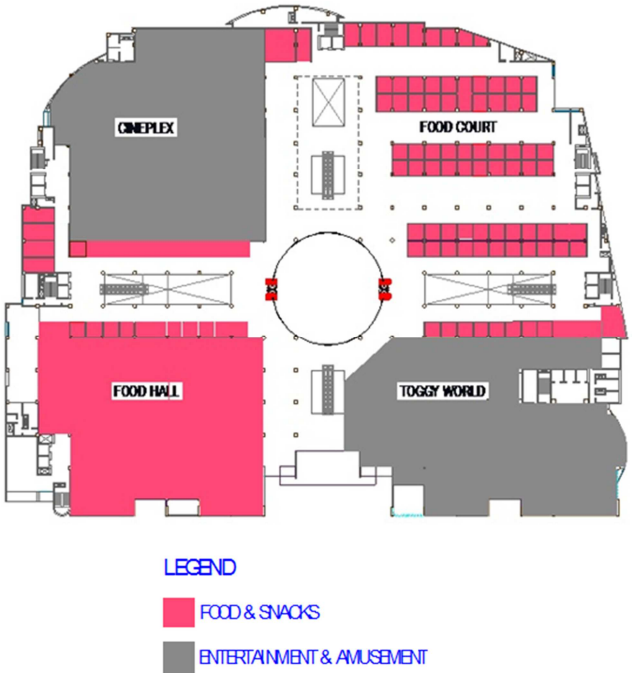


Figure 12. *Tenant Mix on Level-08 (Source: [40]).*

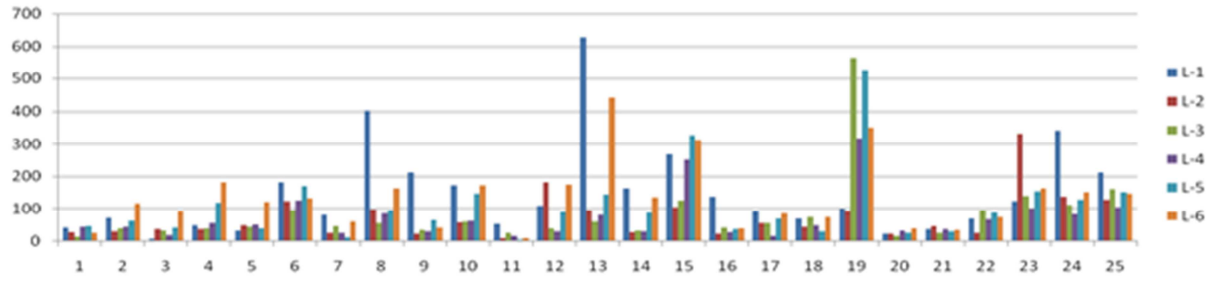


Figure 13. *Total Movement of Male and Female consumers in Regular season in all levels (Source: [40]).*

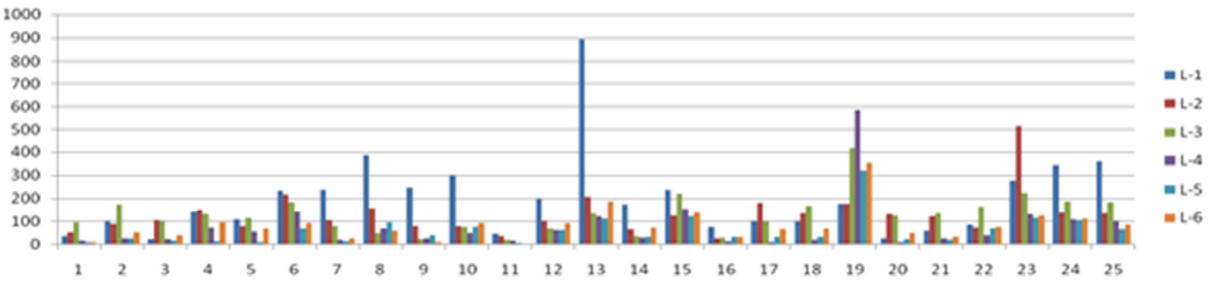
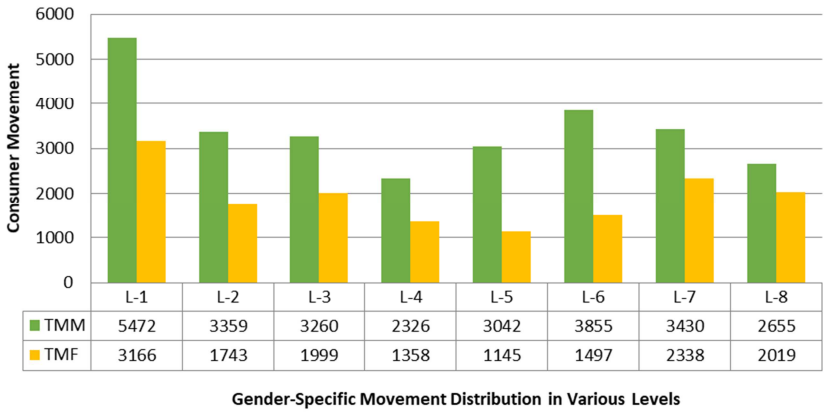


Figure 14. *Total Movement of Male and Female consumers in Festival season in all levels (Source: [40]).*

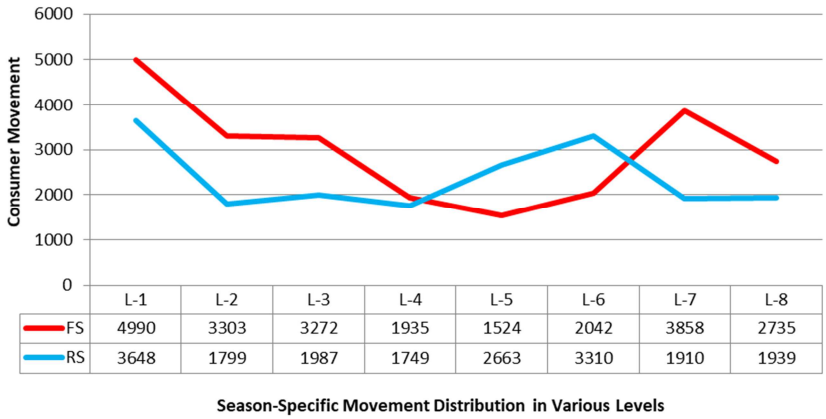
The extensive movement data obtained from the survey shows season-specific movement intensity of the shoppers in different levels of the mall as well as gender-based variations in accordance with tenant typologies and their locations. Few tenants forming clusters; e.g. clothing, dressing accessories like jewelry, cosmetics, etc. attract gender-based users; hence based on that articulate visible movement dynamics in those spaces. For every 8 levels, a separate gender-based movement analysis (Figure 15) is done which shows regardless of season-specific purchase due to festivities, the mall

experience more male consumers in comparison to female one. Again (Figure 16) shows a few levels with specific tenant concentrations experiencing a lesser amount of total movement in the festive season compared to the other floors.



	L-1	L-2	L-3	L-4	L-5	L-6	L-7	L-8
TMM	5472	3359	3260	2326	3042	3855	3430	2655
TMF	3166	1743	1999	1358	1145	1497	2338	2019

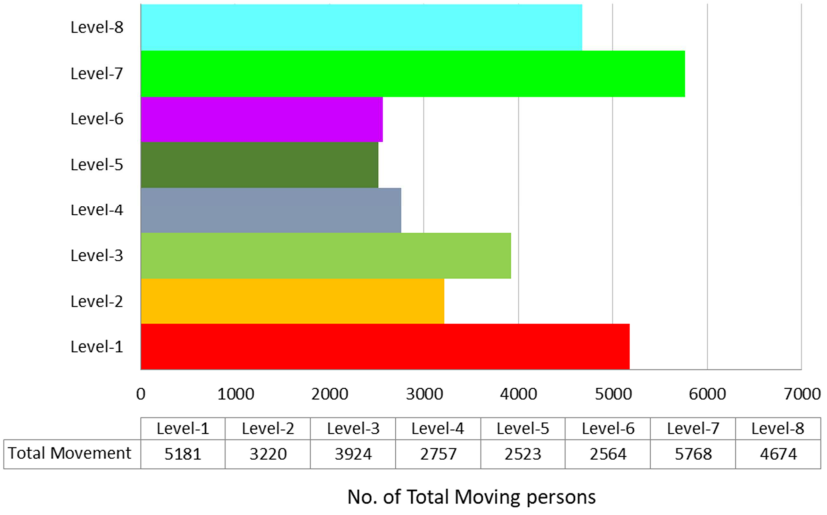
Figure 15. *Distribution of Total Male (Green) and Female (Yellow) consumers in all levels regardless of various seasons (Source: Author).*



	L-1	L-2	L-3	L-4	L-5	L-6	L-7	L-8
FS	4990	3303	3272	1935	1524	2042	3858	2735
RS	3648	1799	1987	1749	2663	3310	1910	1939

Figure 16. *Distribution of total consumers in all levels both in Festive season (Red) and Regular season (Blue) (Source: Author).*

The graph (Figure 17) illustrates the total movement in various levels during the entire survey phase for both seasons and all gender groups. It can be inferred that Level-07 has the highest movement, followed by Level-01 and Level-08. The strategy of placing a wide variety of shops on Level-01 to attract customers from diverse demographic backgrounds and then directing them to the top floors, which serve as a hub for all, has resulted in a noticeable increase in foot traffic towards the apex. As such, it is crucial to design the floors in a way that caters to the different needs of various types of consumers by offering categorical products.



	Level-1	Level-2	Level-3	Level-4	Level-5	Level-6	Level-7	Level-8
Total Movement	5181	3220	3924	2757	2523	2564	5768	4674

Figure 17. *Total Movement (for both Males and Females) in various levels combined for all seasons (Source: Modified by author from [40]).*

6. Discussions

The overall numerical data of consumers' footfall may seem satisfactory, yet their even distribution in every floor and every space of each floor is not effective. The research findings indicate that the composition of tenants in the selected case has a discernible influence on the mobility patterns and density of mall-goers regardless of gender. The impact of this phenomenon is conspicuous even across both the horizontal and vertical dimensions of the mall's tenant mix. However, it also reveals that there are noticeable discrepancies in the intensity of movement in different sections of the same floor, despite the presence of similar tenant types.

Movement intensity in the first three and the top two levels is comparatively higher. Gates, located near the primary circulation spine and associated nearby aisles, experience more movement count in comparison to gates that are located in distant locations from them. The phenomenon of collective movement is visually prominent within Block C and its corresponding circulation areas throughout all customary levels, with the exception of the first floor. However, a block-specific movement deficiency is evident in blocks- A & B for almost all levels even with prospective tenant mix, except level 1 which experiences an entrance, and level 8 which has a high-end dedicated game zone in similar locations. These aspects may imply further scope for investigations emphasizing the spatial configuration of the floor plans.

As for overall movement intensity in accordance with level-specific tenant variations prioritizing gender-specific products, the dominant Tenant group of RMG and traditional Clothing with an ample no. of shops under this category, e.g. RMG ware for men, women, and children and traditional attire of women; e. g. saree, acts as an attractor for targeted consumers. But the gender-specific movement is not as distinctive in those areas as the tenant clusters appear in the plan, however, compared to other tenants' typology, it has still the highest drag of total movement on whichever floors they are. Tenants of jewelry and electronic stores experience significant customer influx, with gender-specific differences in each cluster; more female consumers in the former category and male in the latter ones.

There is a noticeable surge of movement in certain less frequented areas of the mall during the festive season, as indicated by the mobility dynamics of consumers specific to the festive and regular seasons. This influx of footfall is observable among the shops that are associated with RMG products. Although the tenant mix is diversified in this mall, this particular tenant-enhanced movement in festive seasons portrays a certain range of products' association with the socio-cultural contexts of festivity in Bangladesh. Since the overall number of shoppers increases in the festive season, the less privileged tenants also enjoy consumer footfall as this festive shopping is also about roaming around the products which they are not always intended to buy but an inclination towards the comparison of products through exploring similar tenants makes the chances higher. Nevertheless, the amplitude of the movement increases due to the locations of magnet stores in various spaces of individual levels not producing the desired outcomes. The speculative practice of deploying magnet tenants in visually unobtrusive locations of the mall with the aim of compensating for the spatial disadvantage of its placement by occupying proportionally larger size stores and product mix is failing to attract enough consumers.

Instead, the clustered blocks of various shops under a single tenant category in multiple levels channel more movement and act as attractors. Movement in this case is more associated with contextual consumer psychology. The shopping culture for the mass consumer of the city is characterized by a high level of product comparison and a desire for bargains [41], resulting in shoppers spending more time in malls and engaging in more movement. However, to attract shoppers in all areas, clustering is deemed essential. Level-7 and 8, which consist of two different types of tenants, serve as the main attraction with clusters of primary anchor tenants. Level-01, being the most integrated floor in terms of its proximity to the immediate urban surroundings and ease of access, has capitalized on the high influx of movement on that floor with all three major frontal entrances of the building. As far as internal movement dynamics for this level are concerned, foot traffic is more intense in the central areas adjacent to the atrium despite the abundance of shop variations. Even service tenants' induced movement is not prominently visible.

The current tenant mix of the shopping mall, while studying vertical zoning, has been found to be successful in terms of the total movement of customers in the various levels, with fewer deviations. The priority of 'Vertical Tenant Planning' to ensure the upward flow of consumers at different levels has been used as a sustainable strategy for such a Multi-level Mega Shopping Mall. The 'Mix' method of tenant placement has been developed to create a comprehensive understanding of the tenant category in various levels, allowing customers to define each level in accordance with its tenant typology.

The overall movement intensity of consumers on different levels regardless of the spatial configurations, of the Bashundhara City Shopping Mall has been explored (Figure 18) the vertical tenant strategy that is implemented here to optimize consumer movement in vertically segregated floors. Level 1 (the ground floor) has the highest movement intensity (16.92 percent), mainly because it serves as the mall's main entrance and a conduit for traffic to other floors as well as quick reachability to the desired shops arranged there targeting children and females. However, a significant portion of the mall's patronage at this level may be attributed to the food and entertainment tenants. Keeping level 8's movement intensity (15.26 percent) as the second highest, the credit goes to its open food court, children's games zone, and presence of a multiplex for entertainment purposes. This demonstrates the success of the mall's strategic functional staggering of tenants on its multiple levels. The success of level 7 (18.84%) can be attributed to its relatively simpler spatial layout and the presence of larger-sized tenants offering both local and international brands. These tenants serve as magnet stores,

attracting a higher number of visitors to this floor. However, it is worth noting that the clustering of several anchor tenants on one floor deviates from the conventional theory of individual floor tenant planning.

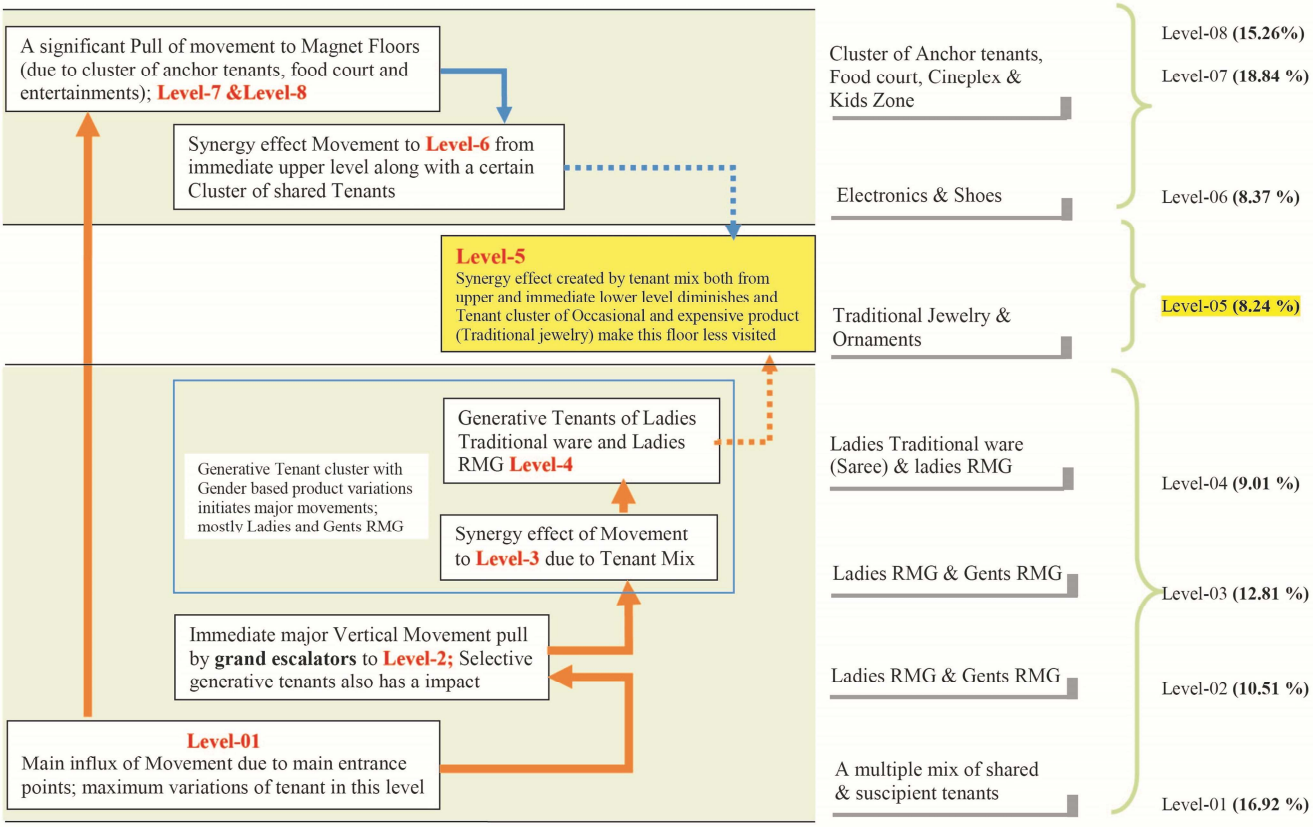


Figure 18. *A summary of Vertical tenant planning of the selected case and corresponding consumer movement percentage in each level (Source: [40]).*

The BCSM operates as a compact shopping hub, with eight levels. Its vertical composition highlights an elevated degree of stratification in the uppermost floors, whereas the lower floors exhibit greater integration. The topmost levels house flagship stores, creating a magnetic pull that has significantly bolstered foot traffic and overall visitor participation within the mall. The resulting shopping experience with such tenant planning has garnered compelling movement attention throughout the year.

7. Conclusion

When embarking on the construction of commercial buildings, it is essential to take into account the economic viability of the endeavor. For shopping malls, a key consideration in attracting shoppers is to have a diverse tenant mix, which pertains to the assortment of stores within the building. The mix eventually links other parameters ranging from the internal spatial planning of the shops in a more meticulous fashion, including the locational hierarchy of the shops, their dimensions, the manner in which they are grouped, and their placement within the building. And along with the marketing and advertising strategy of various other attractiveness of the mall, tenant mix, as a whole targets increasing consumer footfall within the retail premise over time.

Considering all these as the bright sides of the modern shopping mall, an unavoidable limitation lies within the configurational properties of such huge spaces within a box-like mass. The design grammar for an effective & regulatory spatial operation of such a planned retail entity, both in a horizontal and vertical manner, restricts playful interventions of circulation spines regardless of plot size and configuration. This eventually generates quite a few critical spots within the deep plan of the mall which try to overcome their spatial limitations with the help of tenant mix. This study also denotes these assertions in an evidentiary format. With an overall significant no of shoppers at almost all levels, an assessment of place-specific consumer intensity displays that the movement pattern has a drastic fall in many places even after being provided with tenant variations.

Therefore it is an utmost urgency to further investigate the role of configurational properties of such over-scaled malls while planning tenants beforehand. This will minimize the time period of actualizing the economic benefit of the mall, which instead turns out to take a trial-error process over a significant amount of time for appearing as an effective mix. A further study focusing on the present tenant mix should also be explored emphasizing its clustering pattern to understand whether there is a coherent relationship within their modus-Operandi that is impacting the movement drag as certain blocks of the mall showed higher footfall of consumers

compared to the others within the similar levels. This later can be assessed to understand how such clusters work within a big boxy mall as this might act as a tailor-made solution for certain similar criteria to enhance consumer movement.

ORCID

Fahmida Nusrat: 0000-0002-8649-5037

Acknowledgments

This research is adapted from the corresponding author's master's thesis titled "A Study on the Impact of Tenant Mix on Consumer Movement Behaviour in a Shopping Mall at Dhaka" supervised by Prof. Dr. Nasreen Hossain and submitted to the Department of Architecture, Bangladesh University of Engineering and Technology (BUET) in 2019. Along with the researchers, the survey was accompanied voluntarily by a group of architecture students of Primeasia University, Bangladesh; hence, this work acknowledges their contribution with utmost gratitude.

References

[1] Deb, S., & Mitra, K. (2017). Spatial Logic of Tenant-mix of Shopping Malls. *Amity Journal of Operations Management*, 2 (2), 44-59. https://amity.edu/UserFiles/admaa/74b3aPaper%204.pdf

[2] www.bashundhara-city.com

[3] Stake, R. E. (2005). Qualitative case studies. In: N. K. Denzin and Y. S. Lincoln (eds.). *The SAGE handbook of qualitative research* (3rd ed.). Thousand Oaks, CA: Sage, pp. 443–466.

[4] Gustafsson, J. (2017). Single case studies vs. multiple case studies: A comparative study. http://www.diva-portal.org/smash/get/diva2:1064378/FULLTEXT01.pdf.

[5] Eysenck, H. J. (1976). Introduction. In H. J. Eysenck (Ed.), *Case studies in behaviour therapy.* London: Routledge and Kegan Paul.

[6] Flyvbjerg, B. (2011). Case study. In: N. K. Denzin and Y. S. Lincoln (eds.). *The Sage Handbook of Qualitative Research*, 4th ed. Thousand Oaks, CA: Sage, pp. 301–316.

[7] Durmaz, Y. (2014). The Influence of Cultural Factors on Consumer Buying Behaviour and an Application in Turkey. *Global Journal of Management and Business Research (E)*, 14 (1), 37-44. https://journalofbusiness.org/index.php/GJMBR/article/view/1223

[8] Deb, S., & Mitra, K. (2018). Visibility, Shopper Characteristics and Navigation: An Integrated Approach in Tenanting Decision Making. *International Journal of Architecture, Engineering and Construction*, 7 (2), 20-27. http://dx.doi.org/http://dx.doi.org/10.7492/IJAEC.2018.009

[9] Applebaum, W. (1951). Studying Customer Behavior in Retail Stores. Journal of Marketing, 16, 172 - 178. https://doi.org/10.1177/002224295101600204

[10] Nasim, S., & Shamshir, M. (2018). Consumer Behavior Towards Shopping Malls: A Systematic Narrative Review. *IBT Journal of Business Studies (JBS)*, Ilma University, Faculty of Management Science, 14 (1), 81-94. http://dx.doi.org/10.46745/ilma.jbs.2018.14.01.07

[11] Saini, N., & Sharma, K. (2022). Changing Consumer Behavior Towards Emerging Shopping Malls: A Sociological Analysis. *International Journal for Multidisciplinary Research (IJFMR)*, 4 (6), 1-7. https://doi.org/10.36948/ijfmr.2022.v04i06.1297

[12] Baker, J., Parasuraman, A., Grewal, D., & Voss, G. B. (2002). The Influence of Multiple Store Environment Cues on Perceived Merchandise Value and Patronage Intentions. *Journal of Marketing,* 66 (2), 120–141. https://doi.org/10.1509/jmkg.66.2.120.18470

[13] Bellenger, D. N., Robertson, D. H., & Greenberg, B. A. (1977). Shopping Center Patronage Motives. *Journal of Retailing*, 53 (2), 29-38.

[14] Teller, C., & Reutterer, T. (2008). The evolving concept of retail attractiveness: what makes retail agglomerations attractive when customers shop at them? *Journal of Retailing and Consumer Services, 15* (3), 127–143. https://doi.org/10.1016/j.jretconser.2007.03.003

[15] Kim, Y. H., Lee, M. Y., and Kim, Y. K. (2011). A new shopper typology: Utilitarian and hedonic perspectives. *Journal of Global Academy of Marketing*, 21 (2), 102-113. https://doi.org/10.1080/12297119.2011.9711017

[16] Michon, R., Chebat, J., & Turley, L. W. (2005). Mall atmospherics: the interaction effects of the mall environment on shopping behaviour. *Journal of Business Research*, 58, 576 – 583. https://doi.org/10.1016/J.JBUSRES.2003.07.004

[17] Patel, V., & Sharma, M. (2009). Consumers' Motivations to Shop in Shopping Malls: a Study of Indian Shoppers. In Sridhar Samu, Rajiv Vaidyanathan, and Dipankar Chakravarti, Duluth, MN (Eds.), *AP - Asia-Pacific Advances in Consumer Research*, (Vo. 8, pp. 285-290). Association for Consumer Research. http://www.acrwebsite.org/volumes/14915/volumes/ap08/AP-08

[18] Saruyama, N., & Kishimoto, T. (2015). Distribution of shoppers in multi-layered shopping complex: Estimation of shopper density considering escalators, elevators, stairs. In: Karimi, K., Vaughan, L., Sailer, K., Palaiologou, G., & Bolton, T. (eds), *10th International Space Syntax Symposium* (pp. 35: 1-35. 11). Space Syntax Laboratory, The Bartlett School of Architecture, University College London.

[19] Abratt, R., Fourie, J. L., & Pitt, L. F. (1985). Tenant mix: The Key to a Successful Shopping Centre. *Quarterly Review of Marketing,* 20 (1), 19-26.

[20] Brown, S. (1993). Mirco-scale retail location: Cinderella or ugly sister? *International Journal of Retail and Distribution Management*, 21 (7), 10-19. https://doi.org/10.1108/09590559310046013

[21] Greenspan, J. (1987). Solving the Tenant Mix Puzzle in Your Shopping Center. *Journal of Property Management*, Vol. 52, July/August, pp. 27-31.

[22] Kirkup, M., & Rafiq, M. (1994). Managing tenant mix in new shopping centers. *International Journal of Retail & Distribution Management*, 22 (6), 29–37. https://doi.org/10.1108/09590559410070303

[23] Wittig, S. B. (2010, June 23-26). *Modeling the tenant mix of a shopping center* [Working Paper for Presentation in Doctoral Session]. 17th ERES Conference, Milan, Italy. https://eres.org/eres2010/contents/papers/id282.pdf

[24] Yan, C. L. (2013). *Tenant Mix Planning in Hong Kong Shopping Centres* [Postgraduate thesis, The University of Hong Kong]. The University of Hong Kong (Pokfulam, Hong Kong). https://hub.hku.hk/handle/10722/194919.

[25] Kim, Y., & Lee, S. (2007). A Case Study on the characteristics of the tenant mix in the retail and entertainment mixed-use facilities, Journal of The Korean Regional Development Association, 19 (3), 193-211.

[26] Fong, P. (2005). A study of store location patterns inside enclosed shopping environments. In Akkelies van Nes (ed.), *Space Syntax 5th International Symposium* (Vol. 2, pp. 103-116). Techne Press.

[27] Sim, L. L., & Way, C. R. (1989). Tenant Placement in a Singapore Shopping Centre. *International Journal of Retailing,* 4 (3), 4–16.

[28] Brown, S. (1992). Tenant mix, Tenant Placement and Shopper Behaviour in a Planned Shopping Centre. *The Services Industries Journal*, 12 (3), 384-403. https://doi.org/10.1080/02642069200000046

[29] Nevin, J. R., & Houston, M. J. (1980). Image as a Component of Attraction to Intraurban Shopping Areas. *Journal of Retailing*, 56 (1), 77-93.

[30] Eppli, M. J., & Benjamin, J. D. (1994). The Evolution of Shopping Center Research: A Review and Analysis. *The Journal of Real Estate Research*, 9 (1), 5-32.

[31] Hirsch, J., Segerer, M., Klein, K. & Wiegelmann, T. (2016). The analysis of customer density, tenant placement and coupling inside a shopping centre with GIS. *Journal of Property Research*, 33 (1), 37–63. https://doi.org/10.1080/09599916.2015.1135977

[32] Tay, S. R., Lau, K. C., & Leung, S. M. (1999). The Determination of Rent in Shopping Centres: Some Evidence from Hong Kong. *Journal of Real Estate Literature*, 7 (2), pp. 183-196. https://doi.org/10.1080/10835547.1999.12090080

[33] Pei, T., Liu, Y., Shu, H., Ou, Y., Wang, M., & Xu, L. (2020). What Influences Customer Flows in Shopping Malls: Perspective from Indoor Positioning Data. *ISPRS International Journal of Geo-Information*, *9* (11), 629. MDPI AG. https://doi.org/10.3390/ijgi9110629

[34] Widiyani, W. (2018). Shopping behavior in malls. [Unpublished Phd Thesis 1 (Research TU/e / Graduation TU/e), Built Environment]. Technische Universiteit Eindhoven. https://pure.tue.nl/ws/portalfiles/portal/90204727/20180122_Widiyani.pdf

[35] Reikli, M. (2012). *The Key of Success in Shopping Centers: Composing Elements of Shopping Centers and their Strategic Fit* [Unpublished Ph. D. dissertation. Corvinus University of Budapest]. https://phd.lib.uni-corvinus.hu/742/6/Reikli_Melinda_den.pdf

[36] Levy, M., & Weitz, B. A. (2008). *Retailing Management* (7th ed.) McGraw-Hill Education.

[37] Kramer, A. (2008). Retail Development. (4th ed.) ULI Development Handbook Series. Urban Land Institute.

[38] Northen, R. I. (1984). Shopping Centre Development. (1st ed.) Reading: Centre for Advanced Land Use Studies, College of Estate Management.

[39] Space Syntax Observation Procedures Manual, www.jiscmail.ac.uk.

[40] Nusrat, F. (2019). *Study on the impact of tenant mix on consumer movement behaviour in a shopping mall at Dhaka.* [M. Arch. Dissertation. Department of Architecture, Bangladesh University of Engineering and Technology]. URL: http://lib.buet.ac.bd:8080/xmlui/handle/123456789/5365

[41] Hossain, N. (2001). *The Socio-Spatial Structure of 'Spontaneous' Retail Development in Dhaka City* [Unpublished Ph. D. Dissertation]. Faculty of the Built Environment, Bartlett School of Graduate Studies, University College London, UK.

Biography

Fahmida Nusrat is an Assistant Professor at the Department of Architecture, Primeasia University of Bangladesh. She obtained the B.Arch. (2006) and M. Arch. (2019) both from the Bangladesh University of Engineering and Technology (BUET). She has research interests in urban morphology, the spirit of place in historic urban forms, and behavioral psychology of the users in the built environment emphasizing the retail and commercial building typologies. She also possesses a strong interest in literary architecture and architectural narratives of spaces.

Nasreen Hossain is a Professor and former Head of the Department of Architecture of Bangladesh University of Engineering and Technology. She obtained her PhD from Bartlett School of Graduate Studies, UCL, UK. Her research interests lie in Urban morphology, Informal Urbanism, Economics of space mechanism in the retail environment of developing countries, and Disaster Management and Urban Resilience at the city scale with specific reference to Earthquake and Fire safety.