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The Evolution of Chinese Shopping Mall

An exploration on socio-spatial changes in Chinese shopping malls over 20 years

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ABSTRACT

The rapid development of China has led to a transformation of its economic culture from traditional production to consumption. As the carrier of consumer behaviour, shopping malls present a rising trend in containing social activities in modern Chinese society, which see a functional evaluation towards mega, complex and clustering. This study focuses on the dynamic changes in the socio-spatial characteristics of Chinese shopping malls with a time-based reference, asking: what are the differences between the spatial layouts and behavioural patterns of shopping malls built in different periods? To what extent do these differences reflect the Chinese cultural and economic transformation? Does the spatial design make a difference to how the malls adapt to the contemporary consumer environment? The aim of this paper is to provide an evidence-based reference for the future spatial design of Chinese shopping malls. Based in Changsha, a Chinese central-south provincial city, this study investigates three shopping malls located in the city's central business district (CBD) that are built in different periods from 1998 to 2016. These are Heiwado Mall, Hisense Plaza and ID Mall. Building on the graph theory in the field of retail research, this study conducts cross-comparison between the chosen malls to systemically examine the spatial/cultural changes over 20 years, including the analysis of spatial layout and on-site observation. The study suggests that understanding the target customer group and accordingly balancing the relationship between space and content are important factors for the successful operation of Chinese shopping malls. The conflict between spatial design and consumer orientation is argued to reduce the commercial value of shopping malls regardless of their advanced spatial design.

KEYWORDS

Spatial Layout, Commercial Culture, Consumer Behaviour, Shopping Mall

1 INTRODUCTION

The economic environment and consumer behaviour have seen significant changes in China with its rapid development and transformation of its central governmental policy. At the time Southdale Centre, the first modern shopping mall, celebrated its opening in 1956, China is still in the period of 'Planned Economy' where the government generally organises the consumption of commodities. That is, despite spending money, people at that time needed to use coupons that were allocated by the government for the purchase. For instance, you will not be able to but a TV if you do not have the 'TV Coupon', no matter how much money you are willing to pay. While the western world saw a rapid growth of shopping malls in the late 20th century, Chinese people during this period went to department stores run by the government, in which types and numbers of goods were pre-planned. The 'Planned Economy' period officially ended in 1992 because of the 'Economic Reform and Open' policy proposed by the second nation leader, President Deng Xiaoping. One of the most representative cases is the shareholding system reform of Wangfujing Department Store. As the first Chinese department store opened in 1954, Wangfujing was owned and operated by Beijing Government following the 'Planned Economy' policy, after which it was reorganised and listed its stocks in Shanghai Stock Exchange. Accordingly, a considerable amount of shopping malls opened in the 1990s, especially in big Chinese cities. The consumption pattern of Chinese customers has experienced another change in the recent ten years, with the rise of online shopping, which is further enhanced because of the outbreak of Covid-19.

The research area of this study is in the central area of Changsha, a provincial capital in south-central China. Following the transformation of Chinese economic policy, the city has also seen an expansion in its business area and increasing numbers of shopping malls and local retail stores. Figure 1.1 shows the research area within Changsha's urban fabric, Wuyi Square, which has a high integration value on the global scale indicating its great spatial potential on the commercial activities. This study selects three shopping malls closely located in Wuyi Square (Figure 1.2), conducting spatial analysis based on the mall's spatial layout on the ground floor and social investigation with the focus on customers' movement behaviour. Built in 1994, two years after the 'Economic Reform and Open' policy, Heiwado is one of the first shopping malls opened in Changsha City. Although defined and operated as a shopping mall, the spatial design of Heiwado still follows the traditional pattern of department store that has a great variety of make-up and jewellery brands evenly distributed in a grid-like network. As mentioned before, Chinese people during the 'Planned Economy' period had limited ability to choose and consume goods. Therefore, government-operated department stores had no need to consider patterns of visitors' flow but simply displayed the goods on shelves. The use of the traditional department store's spatial pattern in Changsha's shopping malls continued until 2012 with the opening of ID Mall, the first modern shopping mall in the city designed by a British architecture company, Callison RTKL. Figure 1.3b shows the L-shaped layout of ID Mall that is interrupted by a city street on its ground floor (Maitland 1985). Unlike Heiwado, big clothes/shoe stores including Uniqlo, H&M and Nike take the majority of ID Mall's ground floor space with some jewellery/make-up stores

on the other side. In other words, ID Mall's retail arrangement follows the dumb-bell concept that uses 'anchor' stores as magnets for the organisation of movement flows (Fong 2003). Having a similar L-shaped layout (Figure 1.3c), Hisense Plaza, designed by a local real estate company, opened in 2016, the year when Taobao created its history of selling over 100-billion-yuan worthen goods online within one day. Similar to ID Mall, Hisense Plaza also applies the dumb-bell concept by putting large stores on both ends. However, the mall's public space is sub-divided into squares by make-up and jewellery stores in the middle of the axis, in a way that closes to Heiwado's retail arrangement. It could be summarised that ID Mall and Hisense Plaza have a modern spatial design compared with Heiwado's grid-like pattern, while Hisense Plaza's retail placement is more traditional.

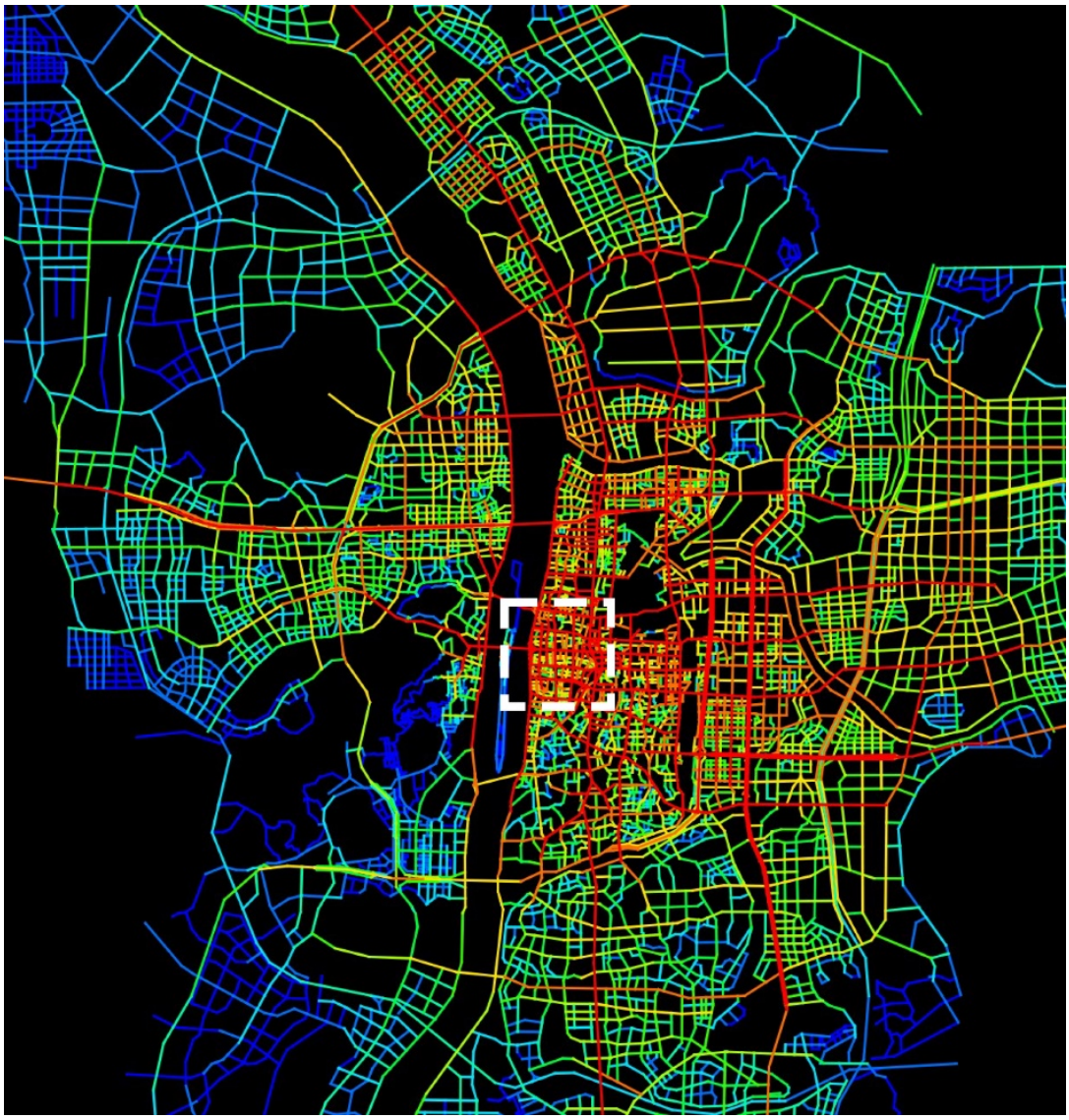

Figure 1.1: NAIN Rn analysis of Changsha highlighting the research area: Wuyi Square

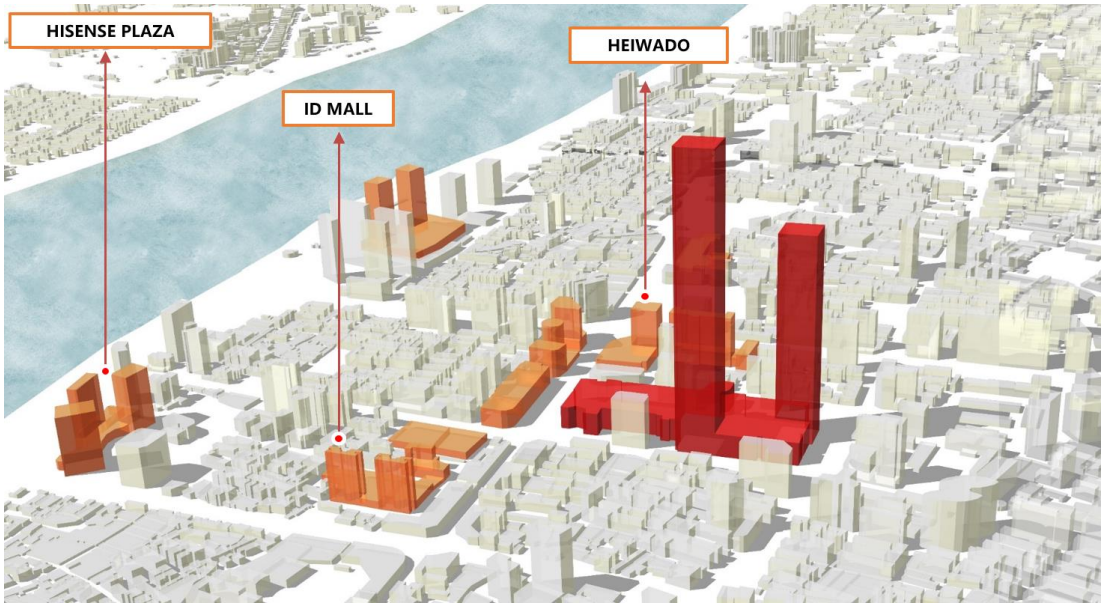

Figure 1.2: Locations of the three selected mall in Wuyi Square

Figure 1.3: Layout of the shopping malls with colours showing retail type: (a) Heiwado; (b) ID Mall; (c) Hisense Plaza

Through the social and spatial analysis conducted in the three malls, this study attempts to find the current behaviour patterns of Changsha's shopping mall customers and to what extent it is influenced by the spatial configuration, thereby proposing evidence-based suggestions for the city's shopping malls with the focus on enhancing rent profit. In the meantime, regarding the different commercial evolution paths of China and the western world, this study questions: can the optimal shopping mall design approaches, proposed and examined in the western world, be well equipped in the Chinese retail environment? What is the future of Chinese shopping malls in the post-Covid time?

2 LITTERATURE REVIEW

Previous Space Syntax studies have examined the role of spatial configuration as a good predictor of movement flow patterns in shopping malls. Building on the natural movement theory (Hillier et al. 1993), Deb and Mitra (2020) propose a dual-layered framework, using the integration value and metric distance as the two factors indicating gate counts of retail shops in shopping malls. Accordingly, the spatial quality of shop locations is sub-divided into four tiers with spaces having high integration value and low distance from centre defined as Tier one, potentially seeing the highest number of customers. In contrast, Tier four spaces that are less integrated and far from centre supposed to have the lowest retail profit due to the minimum customer footfall (Deb and Mitra 2020). In their study of two shopping malls in Israel, Omer and Goldblatt (2017) introduce Q-analysis to quantitatively structure the movement patterns with a global view of individual paths in shopping malls as a circulation system. In addition to the movement rate that is regularly discussed in retail studies, their study examines the continuity of movement flows throughout the layout based on the quantitative analysis of investigation outcomes. While high visual integration contributes to enhancing movement volume, malls with higher space intelligibility are argued to see a more coherent spread of movement flows with a less fragmented circulation system (Omer and Goldblatt 2017).

The allocation of retail shops in shopping malls is also argued to have considerable influence on predicting movement flows. Fong (2003) compares the dumb-bell concept that is widely applied in shopping malls' retail arrangement by comparing seven British samples with different spatial patterns. Compared with natural movement influenced by the spatial configuration, Fong presents the way to generate artificial movement flow, using anchor stores as magnets to draw customers' narrative through small shops. Her study suggests that malls with successful retail arrangements can better predict movement distributions through variables of attraction instead of variables of spatial configuration. The relationship between the influence of space and content on movement flows is further discussed by Aydogan and Salgamcioglu (2017), in which they argue that customers are more easily to be influenced by the configuration in spaces that have high syntactic value like visual integration while content such as attractors and retail brands becomes the dominant factor in places with poor syntactic value. The space-content relationship, suggested by Kong and Kim (2013), also varies regarding the different tenant types. Their study finds that spatial characteristics such as integration and connectivity have a greater influence on stores selling shoes and clothes rather than food and beverages (F&B). In contrast, the movement rates of F&B stores are more determined by the store size (Kong and Kim 2013).

Building on the evidence-based predictions of movement flows in shopping malls, a wide range of practical approaches to enhance the malls' commercial value have been proposed by scholars in the field of syntax theory. Based on their dual-layered framework, Deb and Mitra suggest that stores with high visual integration value but also high metric distance from the mall centre should consider additional entry points, while it is helpful to put signages for stores that are close to the

centre but not well visually integrated (ibid.). Andi et al. (2021) systematically review space syntax studies conducted for optimizing shopping malls' rental profit and propose six indicators for the optimal shopping mall. Three of the indicators are related to spatial arrangement, including visual integration, layout shape and connectors between floors. The other three are about the retail arrangement: tenant type, retail and anchor placement. While the spatial variables are based on architectural design, retail arrangements heavily rely on the decision of mall managers. Andi et al. argue that the understanding of the six predictors will serve as a practical guide for directions to enhancing profit (Andi et al. 2021).

3 DATASETS AND METHODS

As China sees a different pattern of commercial development and potentially different shopping behaviours compared with western countries, this study looks to explore the characteristics of shopping environment in China, namely the Changsha City, regarding the spatial influence of shopping mall layout in predicting movement flows and retail allocation strategies. The study uses the Depthmap software for the analysis of selected malls' spatial configuration, including visual integration and spatial intelligibility. The spatial analysis outcomes will help describe potential movement patterns, with VGA highlighting a hierarchy of spaces with different potential footfalls and intelligibility presenting continuity of movement distribution through the layout.

On-site investigations in the three malls are mainly conducted by student volunteers from two local universities based in Changsha, Hunan University and Changsha University of Science and Technology. The authors of this study delivered 8-week Space Syntax workshops in the two universities in 2020 and 2021, teaching basic syntax theory, application of Depthmap software and investigation approaches. Around fifty architecture and urban design students have participated in the workshops, in which they are asked to conduct fieldwork and social data collection as practice while the outcomes are also used in this study. Investigations are conducted on a weekday and a weekend, including movement traces, gate count and snapshot. The actual movement data collection will contribute to presenting Changsha customers' current shopping behaviour, while it also illustrates the commercial situation of the three malls.

4 RESULTS

This study focused on the ground floors of the shopping malls, which directly connect with the urban fabric and are argued to have the highest rent value compared with other floors (Omer and Goldblatt 2017, Kong and Kim 2013, Andi et al. 2021). Figure 2 presents the visual integration analysis of the three malls ground floor layout. The distribution of integration in Heiwado highlights the intersections of the axes, concentrating on the west and east side of the layout. The large area of open space in the central atrium is poorly integrated, which in reality is mainly used as the space for occasional activities. The spatial configuration of Heiwado (Figure 2a), building

on the outcome of VGA, sees a locally concentrated pattern instead of having an organisational space with high integration value on the global scale. This study suggests that the characteristic of Heiwado's spatial configuration reflects the supply-demand relationship of China in the period of planned economy, as the organisation of the mall has no need to attract consumer behaviour but simply present available goods. In comparison, the ID Mall which was built two decades after Chinese economic reform, follows the dumb-bell concept in its retail allocation and has a highly integrated central atrium (Figure 2b). The mall arranges large-sized retail stores as flow magnets, namely H&M and Uniqlo, on its northern part and the west entrance that have low integration value while small jewellery&make-up stores are put in the middle of the narrative with higher visual value (Figure 1.3b). In other words, the design of ID Mall follows the classic model of western shopping malls (Fong 2003). Similar to ID Mall, the Hisense Plaza also puts anchor stores in the two ends and has an integrated atrium next to the southwest entrance (Figure 2c). However, the arrangement of mini-stores, mainly for jewellery and make-up (Figure 1.3c), makes the mall's public space discontinuous and creates two parallel axes. The integration value of sub-divided public spaces in between the two axes sees a hierarchical drop from the atrium to the north entrance, while it remains much lower than the value of axes.

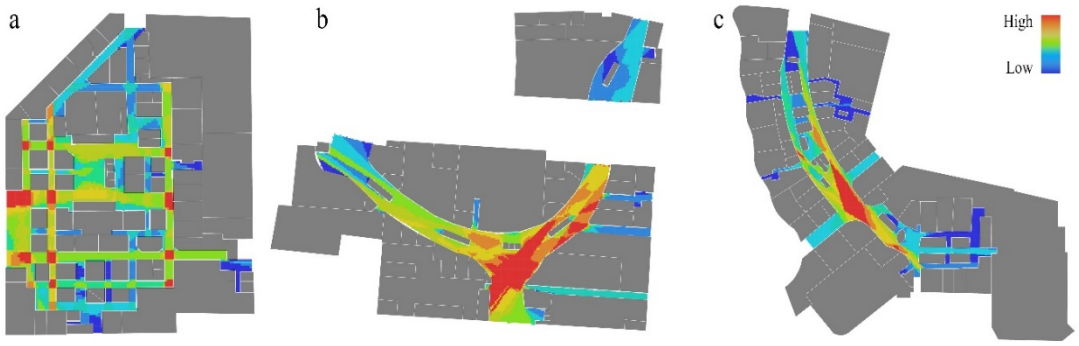

Figure 2: VGA of the shopping malls: (a) Heiwado; (b) ID Mall; (c) Hisense Plaza

As Omer and Goldblatt suggest that intelligibility serves as a good indicator of the coherency of the circulation system (ibid.), this study calculates the intelligibility of the selected malls' ground floor layout (Table 1, Table 2). Hisense Plaza has the highest intelligibility at 0.8602 (R^2) (Table 2a), suggesting that excluding other factors, this mall is expected to have the most evenly distributed movement flows. As a traditional Chinese mall, Heiwado has intelligibility at 0.7292 (R^2) (Table 2b), lower than Hisense Plaza but still at a high level. Surprisingly, ID Mall has the lowest figure at 0.2915 (R^2) (Table 2c). Even if we exclude the mall's northern part from the calculation, the figure, rising to 0.4498 (R^2) (Table 2d), is still considerably lower than the other two malls. Theatrically, the spatial configuration of ID Mall will lead to a fragmented movement pattern, thereby having a negative influence on the mall's retail profit.

By contrast, the outcome of gate count shows that the ID Mall, in turn, has the highest daily visit number both on the Weekday and Weekend. Heiwado has a similar number of Weekend visitors

with Hisense Plaza while the figure for Weekday is much lower (Table 1). It should be noted that the size of Heiwado is less than half of the other two shopping malls. This study also compares the proportion of males and females based on the gate count data. Heiwado, the oldest shopping mall, has a high percentage of female customers, over twice the figure for male customers. On the other hand, Hisense Plaza has a similar number of female and male customers.

Table 1: Data collection of the three malls

	Heiwado	ID Mall	Hisense Plaza
Gross Floor Area(sqm)	51800	120000	130000
Intelligibility	0.7292	0.2915	0.8602
Weekday Gate Count	12954	29286	20214
Weekend Gate Count	28056	45372	28350
Weekday Gender Ratio (F/M)	2.379	1.812	1.209
Weekend Gender Ratio (F/M)	2.219	1.725	1.261

Table 2: Intelligibility of the malls: (a) Heiwado; (b) Hisense Plaza; (c) ID Mall; (d) ID Mall (main)

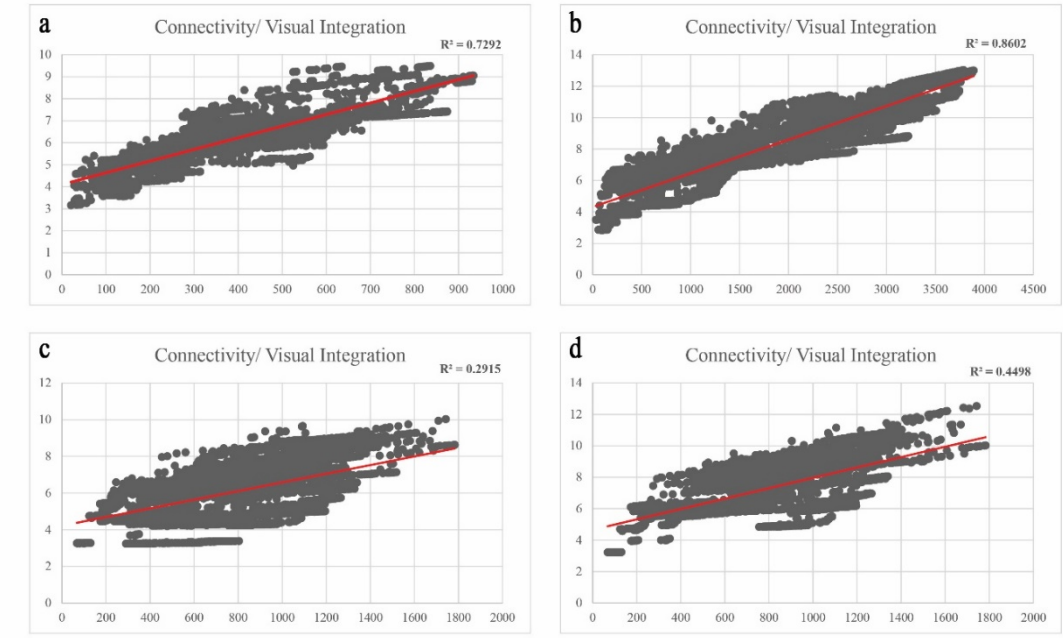

Figure 3 presents the movement traces of the three malls. Movement traces were conducted on the same days when students did the gate count. Each graph has a combination of over two hundred traces from one weekday and one weekend. The dumb-bell concept applied in ID Mall works as expected that the circulation paths on the ground floor are evenly distributed and continuous (Figure 3b). Although separated by the city road, the mall sees a high proportion of customers moving between the northern and the main building, indicating the power of anchor stores as movement attractors. Distribution of movement in Heiwado is also well allocated in the layout, despite the weaker movement volume on the southern edge (Figure 3a). There is a high similarity between the potential movement patterns of Heiwado suggested by VGA and the real

traces. The central atrium of Heiwado, which has a low integration value (Figure 2a), is barely visited by the customers. Different from Heiwado and ID Mall, Hisense Plaza presents a strong pattern of through movement that there are very few interactions between the two axes (Figure 3c). The majority of people entering the ground floor of Hisense Plaza do not visit the stores but are more likely to use the ground floor as a shortcut of the surrounded urban streets or an entrance to the mall's other floors. The balanced gender ratio of Hisense Plaza (Table 1) also illustrates the mall's ground floor as an urban shortcut rather than a shopping area.

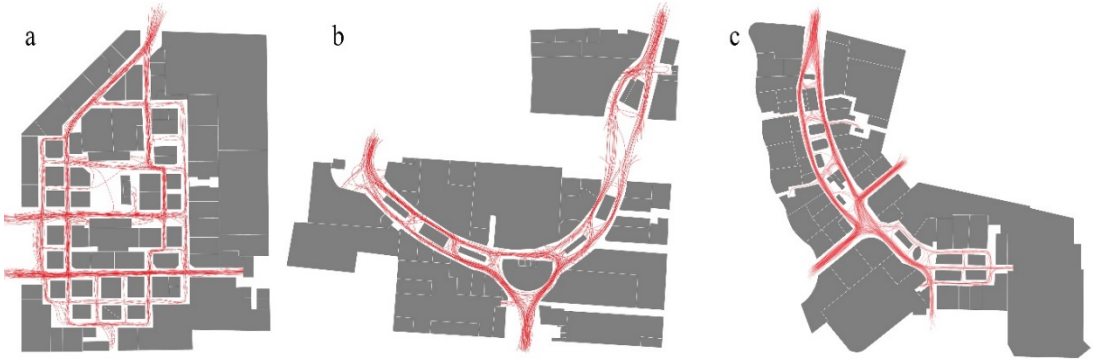

Figure 3: Movement traces of the shopping malls: (a) Heiwado; (b) ID Mall; (c) Hisense Plaza

This paper argues that under the view of commercial operation, Heiwado and ID Mall are successful in two different retail approaches while Hisense Plaza is a case of failure. Compared with stores selling clothes and shoes, customers have been argued to have more brand loyalty to jewellery and make-up stores (Yi and Jeon 2003, Knox and Walker 2010, Chaudhuri and Holbrook 2001). Therefore, as the retail arrangement of Heiwado mainly focuses on jewellery&make-up, its grid-like structure which has high intelligibility provides experienced customers with more freedom on self-exploration. As a consequence, the spatial configuration of Heiwado plays the dominant role in predicting movement patterns. The high number of female customers, as the main consumer group of make-up, also illustrates the success of this traditional shopping mall. On the other hand, ID Mall presents a way to manage artificial movement paths through the arrangement of retail contents. Through the less intelligible spatial configuration and accordingly arranged anchor and small stores, ID Mall successfully achieves a well-distributed circulation system in a way that natural movement obeys manual management. Having an intelligible spatial configuration while arranging anchor to draw movement from the entrance to exit, Hisense Plaza's selection of retail type, store size and location follows the traditional pattern like Heiwado. However, the fragmented public space reduces the rate of interactions, after which the magnet effect of anchor stores on the entrances accelerates the through movements. This finding also points out a weak point of current studies in shopping malls that not all the movement rates could be transformed to profit. Customers in Hisense Plaza move from one point to another with no interactions, providing no benefit to the stores they have passed through.

5 CONCLUSIONS

Using spatial configuration and retail layout as two indicators of movement patterns, this study compares three Chinese shopping centres and then correlates them with commercial profits. Through spatial analysis and field surveys, the study compares the application of the dumbbell concept in Chinese shopping malls to traditional models influenced by China's unique "planned economy" period. The author believes that both the Western model and the traditional model have their own commercial markets in the current Chinese cities, provided that the retail layout follows the underlying movement pattern of spatial influence, and vice versa. Unlike the organic growth of most Western cities, Chinese cities have changed dramatically. Consumer behaviour at different stages and the architectural design of shopping malls present a multi-dimensional symbiosis. Therefore, understanding the target customer group and accordingly balancing the relationship between space and content are important factors for the successful operation of Chinese shopping malls. The authors argue that there is no global pattern for the optimal of Chinese shopping malls as even different cities in China have different stages of multi-dimensional symbiosis.

There are two limitations of this study. First is the limited number of samples. Further study should select more samples that have similar spatial patterns or retail allocation to the three studied malls. Second is the lack of detailed rent and profit information of the stores inside the shopping malls. A more convincing analytical proposal would be based on the corporation with managers of the malls to adjust the current design based on the research findings and investigate the modification outcomes.

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