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Impact of Gender-Neutral Retail Design: An Investigation into Spatial Inequalities Prevalent in Fast Fashion Stores

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ABSTRACT

In the contemporary context, Generation Z challenges established norms, notably exemplified by the evolving gender spectrum. As societal attitudes toward identity continue to shift, architecture must adapt to ensure user comfort and safety. Fashion plays a crucial role in shaping personal identity, making retail spaces pivotal in reflecting and promoting these evolving values while fostering security. However, persistent gender segregation in fast fashion contributes to spatial inequalities. This paper employs qualitative methods to explore the impact of gender-neutral retail design, aiming to mitigate these disparities. The study focuses on spatial and visual elements within fast fashion stores, including circulation, spatial planning, display methods, colour, and finishes. Given its resonance with Generation Z, this demographic serves as the primary sample group. Through literature reviews, case studies, and surveys, the research seeks to understand customer perceptions of these design parameters and formulate guidelines for gender-neutral retail design. Ultimately, this endeavour aims to offer practical recommendations aligned with Generation Z preferences, fostering a more inclusive and equitable retail environment.

1. Introduction

The Sustainable Development Goals (SDGs) serve as a collective roadmap for global development, aiming to ensure peace, prosperity, and sustainability for current and future generations [1]. Among the seventeen interconnected goals, Goal 5—Gender Equality—stands as a cornerstone, recognized as central to achieving the broader objectives of the 2030 Agenda. However, progress towards this pivotal goal has been sluggish, with only 15% of countries on track to achieve gender equality by 2030, while 23% are significantly off track, as shown in Fig. 1 [1], [3]. While the current situation appears bleak, India is amongst the top ten countries providing the most research supporting SDGs and their implementation [2].

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Fig. 1. (a) Progress of SDG-5 worldwide (2023). *United Nations.* (b) Indication whether a country is on track to achieve SDG-5 by 2030 (2022). United Nations. [3]

Despite the daunting task of attaining gender equality by the deadline, there remains hope. With more time, concerted initiatives, and an inclusive approach to governance, achieving Goal 5 is plausible, as shown in Fig. 2 [3]. However, the responsibility for advancing gender equality extends beyond governmental efforts alone; it requires active engagement from diverse stakeholders, including architects and designers [4]. In the realm of architecture, gender equality has yet to receive adequate attention despite significant advancements in science and technology, and evolving cultural norms are challenging traditional gender roles [5]. The built environment plays a crucial yet often overlooked role in perpetuating gender disparities. Despite this, architectural considerations for gender equality remain lacking [6]. The existing literature highlights several gaps in addressing gender neutrality within architectural design, particularly in the context of retail spaces. While advancements have been made in understanding the complex intersections of gender relations and the built environment, there remains a dearth of comprehensive strategies for designing gender-neutral retail spaces [7].

Aim – To examine the impact of gender-neutral retail design on customer experiences in fast fashion stores to assess the spatial inequalities arising through spatial configurations and visual design elements

Objective –
• To understand the fundamentals of gender neutrality and retail architecture.
• To examine existing spatial inequality in fast fashion stores caused by gender-based segregation through design parameters.
• To assess how customers perceive various design strategies in fast fashion stores.

The recommendations derived from the study can serve to create gender-neutral retail environments that prioritize the needs of diverse genders equally. By leveraging fundamental architectural and interior design principles effectively, designers can reshape the gender perspective within retail spaces, fostering safer and more accommodating environments for all individuals.

Gender Neutrality: Intersection of Gender and Space - Gender inequality is at the top of the global agenda and has been identified as a "breakthrough strategy" for achieving all the Sustainable Development Goals (SDGs) [1]. The UN needs to tackle gender inequality and promote women's empowerment, which results from a well-established framework within the global development profession of Women in Development (WID) and Gender and Development (GAD). This framework demands that development practitioners pay attention to sex - the biological distinctions between man and woman - and gender - the social relations between man and woman [8].

The gendering of architecture is not overtly apparent, as the inherent values and ideologies it encompasses are often perceived as impartial to gender. Nevertheless, architecture functions as a complex system of symbolization, rich in connotations and values that shape our self-perception and culturally constructed identities. A clandestine operation exists within the realm of architectural

practice, aiming to obscure the active construction of gender distinctions that permeate the diverse frameworks of architectural discourse. Institutions involved in architectural production subtly mask the discussions and ideas concerning gender. [9]

According to Ceylan (2022), space determines the people in space since their presence further establishes the nature of the space. Therefore, the built environment's relationship with its users is interdependent, requiring it to highlight the changing gender roles. As women's role in society changed, so did the building functions and hence, the built environment. Understanding the role of different genders allows the same evolution to occur again. [7]

While shopping has traditionally been seen as a feminine activity, non-binary individuals are likely sensitive to traditional gender roles, behaviours, and clothing. For the non-binary individual who wishes to explore a more gender-neutral look to the confident female looking for something fun, the same store may trigger contrasting reactions to the same atmospheric cues [10]. Like gender, lived experiences in retail settings are subjectively felt. Everyone's identity may shape their views on how masculinity, femininity, and unisex themes are manifested and interpreted in retail settings [6].

Although technology becomes progressively relevant within architecture's design and construction, gender-biased architecture perseveres due to gender being built into the typology we use daily [6]. Designers are often called upon to serve in developing countries, but they may not be well-prepared to comprehend the problems caused by gender inequalities. If these needs are not addressed, existing barriers, discrimination, and built environment effects can persist and be amplified, making planned interventions less effective. Language is the first element that needs to be changed to deal with problems like gender bias in architectural design [11].

Impact of Gender on Retail Architecture - Retail architecture is often tailored to attract specific demographics of shoppers, resulting in curated spaces that frequently adhere to traditional gender norms. However, these gendered designs reflect societal expectations and influence consumers' perceptions of themselves and their identities [7]. Despite retailers aiming to cater to both male and female shoppers, the binary approach adopted by many stores can have adverse effects on individuals who do not conform to traditional gender norms or sexual orientations. Introducing changes to the layout and customer service personnel within retail spaces may assist in accommodating diverse groups of shoppers who struggle with societal expectations regarding gender [12].

In the field of design, one of the factors contributing to the incorporation of contrasting features in products is the longstanding hierarchical structure between genders, perpetuated by patriarchal systems. The societal perception historically placed women as delicate, emotional beings lacking suitability for intellectual tasks and in need of physical assistance, while men were viewed as active, robust individuals adept at emotional regulation and rational decision-making. Such gender stereotypes are often reflected in product design through the incorporation of ornate, delicate, and curved elements reserved for products targeting a female audience, or conversely omitted in designs intended to convey power, magnificence, and reverence. Conversely, designs considered "masculine" exhibit characteristics such as strength, grandeur, angular precision, straight lines, and minimal ornamentation. [13]

The organization of retail environments serves dual purposes: to make a visual impact and to optimize sales performance. This involves aligning design with the intended message and goods offered, creating a harmonious experience for shoppers [14]. The retail design process is deeply connected with the end-user emotions and the construction of an emotional relationship between the brand and the customer [8]. A retail store's layout directly impacts the path followed by the shopper to purchase items per their planned purchase list. Strategically placing departments in the store can affect the density of shoppers travelling along the shopping aisles and impact the visibility of departments. Higher visibility of products often leads to higher impulse revenue generation for the retailer [15]. Colour, finishes, and efficient visual merchandising have all been demonstrated as crucial factors for customers' favourable responses regarding overall store aesthetics and prestige. Beyond

colour schemes and decorative elements, in-store displays, and product placement can be essential in customer evaluations [7].

Despite increased democratization of consumption patterns, it can be noted that women are already disregarding gender-specific cues in retail environments and venturing into the men's section for their shopping requirements. Conversely, a large proportion of men are not yet experiencing the same level of comfort. To facilitate and normalize this transition for both genders, particularly in situations where retailers lack autonomy in curating their offerings, such as in multi-brand establishments, establishing a cohesive relationship between gender-specific items serves as an effective strategy to challenge consumers' perceptions regarding the categorization of products as either masculine or feminine, thereby allowing for subjective interpretation. [13]

In a diverse and developing country like India, the concept of gender may not be universally accepted as in more developed nations. As young architects, it is incumbent upon us to understand and respond to the evolving needs of our society, ensuring that retail spaces are inclusive and comfortable for all individuals [16].

Spatial Inequality in Retail Architecture - From the introduction of retail stores in the 1850s to supermarkets and malls in the last century, inequality has persisted despite advancements in retail design over the years. From the inception of retail stores in the 1850s to the emergence of modern supermarkets and malls, efforts have been made to cater to the diverse socioeconomic backgrounds of consumers. However, disparities in spatial distribution, particularly concerning product displays and gender segregation, have led to unequal access to goods and services, ultimately undermining human well-being. A higher degree of spatial matching could foster equal access to retail offerings and promote a more equitable shopping experience. [17].

Spatial inequality is defined as the unequal distribution of resources across different locations. The distribution of such characteristics over space can be described with terms like proximity, distance, clustering and concentration. Thus, various shopping spaces are planned within densely populated urban areas connected by various transportation modes with the user groups in mind. These spatial differences result in unequal access to goods and services for people within retail environments. [17]

As mentioned (Pignataro, 2020), the various types of spatial inequality that arise are Unfair Outcome Distribution (resources and opportunities being unevenly allocated), Opportunity Pattern (factors through which individuals have control, like social or parental background, inherited wealth, etc.), and Policy Implications (zoning rules, tax policies, and subsidies can all impact where retail establishments are located, favoring some neighborhoods over others). [18]

Despite growing awareness of the importance of gender equality in architectural design, there remains a lack of comprehensive strategies for creating gender-neutral retail spaces. Existing literature highlights the persistent challenges and inequalities within retail architecture, emphasizing the need for innovative approaches to address spatial disparities and gender norms. Therefore, this research aims to fill this gap by developing actionable recommendations for architects and designers to create inclusive and equitable retail environments.

Problem Statement - In fast fashion retail, spatial design and visual elements shape customer experiences. However, the issue of gender neutrality within these environments remains relatively unexplored.

Concerning reducing spatial inequalities in retail stores, the concept refers to the uneven distribution of goods and resources, often influenced by gender segregation. While past research has emphasized women's shopping preferences, recent studies challenge this notion, emphasizing the importance of creating equal spaces for all genders. Addressing these spatial inequalities is crucial to preventing negative customer perceptions and creating more inclusive retail environments. Furthermore, sustainability practices within the retail sector have gained prominence, aligning with

global efforts to achieve the Sustainable Development Goals (SDGs). Despite these insights, gaps persist in our understanding of the complex dynamics within the retail landscape. Further research is necessary to explore practical interventions and policy initiatives to promote gender equality, cultural diversity, and inclusivity within retail environments.

2. Methodology

The method employed in this study aims to comprehensively investigate the impact of gender-neutral retail design on spatial inequalities prevalent in fast fashion stores. This approach involves a systematic process encompassing various stages designed to gather, analyze, and interpret data related to the research objectives. By meticulously following this methodological framework as tabulated below in Table 1, the study endeavors to shed light on key factors shaping the retail environment.
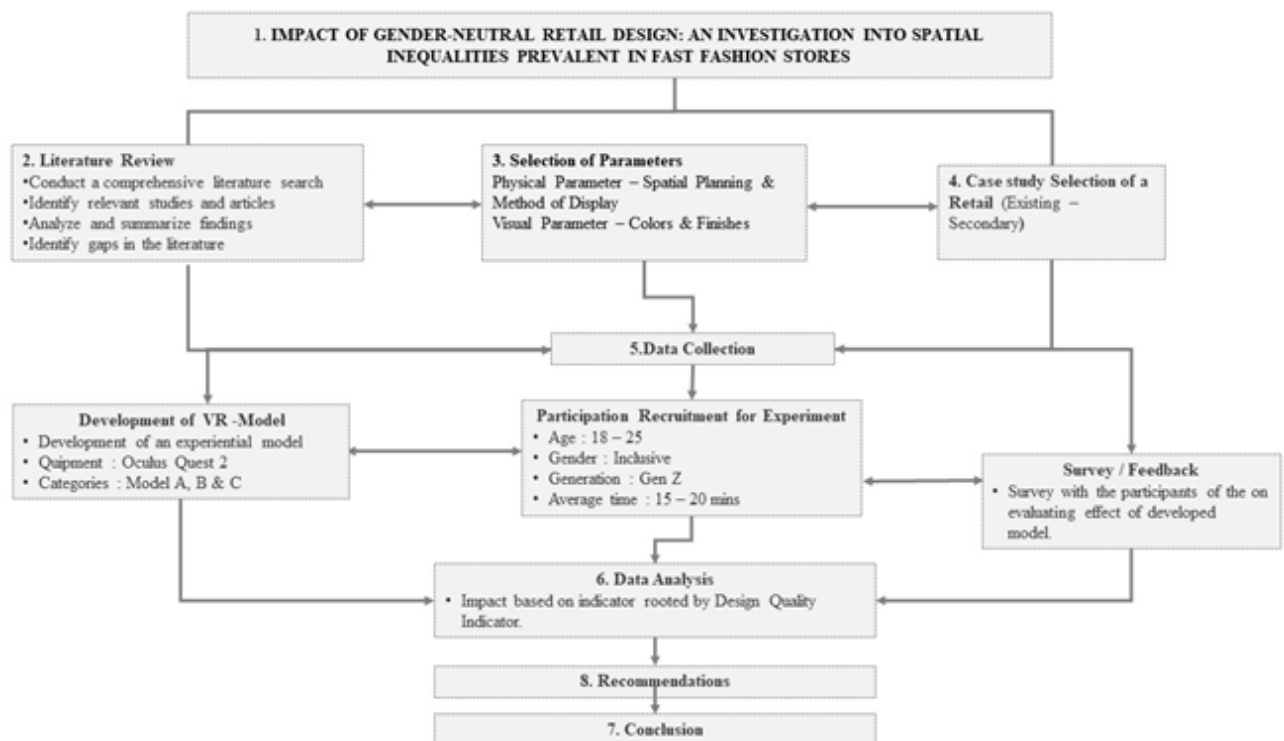

Fig. 2. Methodology (Source: Author)

Pre-Experimental Studies - In the methodological section of the study, pre-experimental studies were conducted to investigate the existing spatial disparities within the retail sector. A conceptual framework was employed as a guiding tool based on the literature review to achieve this. As illustrated in Figure 3, this framework aimed to provide a structured approach to understanding various aspects of retail environments that may cause spatial disparities. Safety, cleanliness, and comfort are fundamental considerations for all genders in every space they inhabit [7]. Physical design factors are crucial in enhancing these parameters within the shopping experience. Spatial planning and display methods influence retail spaces' perception of safety, cleanliness, and comfort.

Additionally, visual parameters such as colors and finishes significantly shape perceptions of safety, cleanliness, and comfort within retail spaces. The choice of colors and finishes can influence the ambience and atmosphere of the store, impacting customers' overall sense of well-being.
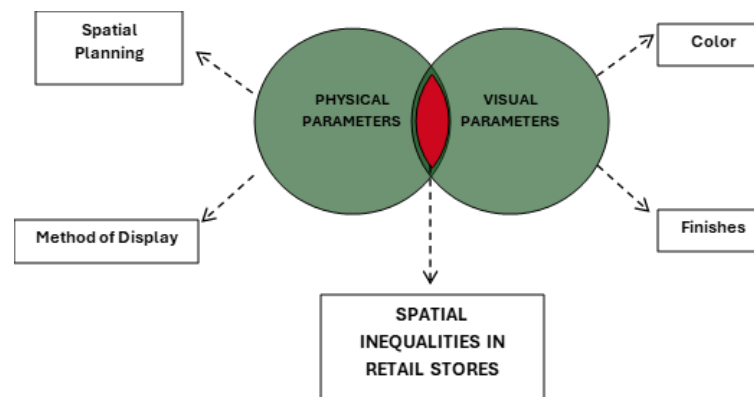
Fig. 3. Conceptual Framework (Source: Author)

The study utilized four case studies to gain insights into spatial dynamics and design elements pertinent to gender-neutral retail environments. These case studies were carefully selected based on specific parameters, as tabulated in Table 1, focusing on fast fashion brands and gender-neutral designs. The chosen stores included H&M in Delhi NCR, India; UNIQLO in Shanghai, China; Phluid Project in New York, United States; and Selfridges Agender in London, United Kingdom. These case studies served as crucial sources of information for identifying design elements and trends relevant to gender-neutral retail environments.
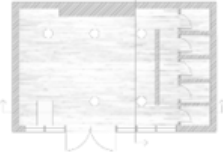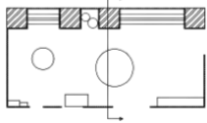
Table 1
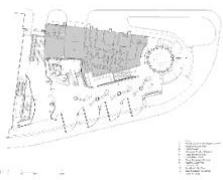Case Study Selection Parameters

Store Name	Fast Fashion	Gender-Neutral
H&M, Gurgaon, India (Flagship store)	√	X
Uniqlo, Shanghai (Flagship store)	√	X
The Phluid Project, New York	X	√
Selfridges, London	X	√

(Source: Author)

Each case study offered valuable information and observations regarding spatial planning, display methods, color schemes, and finishes implemented within the retail spaces. By examining these real-world examples, we identified common trends, innovative design strategies, and potential areas for improvement in promoting gender neutrality and inclusivity within retail environments. Table 3 below compares different design parameters across the four stores.

Table 2
Case Study Comparative Analysis

Parameters	H&M, India	Uniqlo, China	The Phluid Project, USA	Selfridges, UK
Spatial Planning	Minimal aisle width adopted Adequate space left in front of entrances and escalators Loop layout,	Freeform layout that allows uni-directional movement Possibility of conflict zone based on the positioning of the movable product displays	Open layout, for which the set-up is decided based on the collection	No specific flow created through the product/display placement

	allowing customers to revisit products			
Display Methods	Methods of display utilized in the store include mannequins, cloth racks, box racks, shelving, accessory racks, and product walls	Methods of display utilized in the store include shelving, product walls, and rotating mannequin displays	Methods of display utilized in the store include mannequins, cloth racks, box racks, and shelving	Methods of display utilized in the store include cloth racks and box racks
Colors	The colors utilized in the store represent the brand colors	The colors utilized in the store represent the brand colors	The colors in the store do not represent the brand colors but look to elevate the customer's experience	The colors in the store do not represent the brand colors but look to elevate the customer's experience
Finishes	No innovative materials utilized	Innovative materials, like steel gravity tubes and perforated metal panels, were used only for the exterior to attract customers.	No innovative materials utilized	Due to innovative materials like vulcanized rubber flooring, steel mesh, and latex, the finishes equipped in the store give a unique feeling, stripping back layers of polish

Source: Author, Minner [19], MIC [20], Republic [21], Howarth [22], NYC Tourism [23], PIX11 [24]

Several similarities and differences in retail store design approaches emerge when examining the above case studies. Across different stores, there is a common trend towards incorporating movable product displays to reduce conflict zones and enhance flexibility in space utilization. While traditional clothing racks remain prevalent, there is a growing recognition of the need for diverse display methods to cater to evolving consumer preferences. Neutral color schemes featuring hues like black, grey, and white are widely adopted as primary colors across all stores, with accent colors chosen based on brand identity or customer research.

However, notable differences exist in the layout and circulation planning, often tailored to specific customer demographics and behaviors. Stores leverage product displays and visual elements to entice customers and create a compelling shopping experience, highlighting the importance of visual merchandising in driving foot traffic. Additionally, while colors play a significant role in store aesthetics, their prominence varies across case studies, with some emphasizing color selection as a secondary element in design considerations.

Independent Variables - In the context of research, *independent variables* are factors that research manipulates or controls to see how they impact other dependent variables of the research. These variables are "independent" because other factors outside the study do not control affecting them. For this study, three independent variables were established [30, 31].

The first variable is *Spatial Planning,* referring to the intentional organization or physical arrangement in retail. It was manipulated to analyze different spatial planning features, framing, and flow and to evaluate their effect on customers' perspectives and results. The spatial planning variation

method provides an understanding of the role of physical design. It comprehends how spatial planning contextual choices support positive atmospheres of all non-gender identities in any retail shop.

The second variable is *Display Methods*. Display methods are how products are displayed in retail. The researcher used methods that created a gender-neutral retail setting before establishing its impact on prospective customers' perceptions and preferences.

The final independent variable considered for the study is *Colors and Finishes*. Through means of color and texture selection, a store's atmosphere can be dictated. Through observational techniques, the researchers studied direct insights into customer perception, while survey responses offered additional insights into their shopping attitudes and preferences.

Dependent Variable - Dependent variables are the variables used to determine the cause of independent variables [30, 31]. The dependent variables' values depend on how the independent variables are manipulated. These variables serve as the focal point of the study because changes affect the independent variables.

The dependent variable considered for this study was Customer Perceptions and Preferences. Understanding customer perceptions as a dependent variable allows us to assess the impact of design decisions on customer experiences and inform the development of more inclusive retail environments. By systematically manipulating independent variables such as spatial planning, display methods, and colours and finishes, we aim to examine how different design elements influence customer perceptions in gender-neutral retail settings—understanding customer perceptions as a dependent variable allowed us to assess the impact of design decisions on customer experiences and inform the development of more inclusive retail environments. By systematically manipulating independent variables such as spatial planning, display methods, and colours and finishes, we aimed to examine how different design elements influence customer perceptions in gender-neutral retail settings.

Use of Virtual Reality (VR) in Spatial Perception - The use of Virtual Reality (VR) is well-established within many domains. VR has been implemented as a research tool for navigation and spatial cognition research, simulated medical treatment, skill treatment, and more. Virtual environments allow for systematic environmental manipulations that cannot be implemented in real environments once occupied [32]. Environmental simulations acquire a relevant role in environmental psychology as they allow us to recreate and study in isolation and, in a controlled way, the effects of space on human experience. The validity of these simulations is related to their capacity to evoke a participant's response like the one that the space it is simulating would. This logic is based on 'behavioral realism': the context in which an environmental simulation is better and more like the environment in which the user will respond compared to the represented environment. In this sense, new environmental representation technologies address this issue by improving the sense of presence, the visual experience and the interaction with the represented spaces, allowing users to interact with them freely. [33]

The architectural industry relies significantly on visual communication and has transitioned into adapting to virtual environments in the past decade. During the project's design phase, VR has shown to be an effective tool for building mock-ups as revision tools to analyze and address issues before the construction phase. Virtual environments have also been used as collaborative design tools, providing a better avenue for information exchange in multi-disciplinary team environments. By creating a better sense of realism through its one-to-one scale, VR mock-ups have been used to understand a project better to end-users and stakeholders, resulting in improved communication [34]. Previous research has suggested that these environments have the potential to provide a sense of presence – "presence is defined as the subjective experience of being in one place or environment, even when one is physically situated in another" [35] – found in physical mock-ups and make evaluation of numerous potential design alternatives in a timely and cost-efficient manner. [36, 37]

While it would be challenging to alter spatial configuration in an existing building substantially, the effect of several redesigns on users' behavior can efficiently be simulated in VR without interrupting ongoing building usage. Current application scenarios for VR focus mostly on domain-specific architectural experts and less on the experiences of current or future building usages. [32] Hence, VR offers numerous advantages within gender-neutrality in retail, like visualizing, experimenting, experiencing, analyzing, and collaboratively discussing planned designs.

Extraction of Models - Based on the findings from the case studies, several design models were extracted to serve as prototypes for the subsequent VR experiments. These models aimed to represent different spatial configurations and design elements relevant to gender-neutral retail environments. As illustrated in Figures 4, 5, and 6, the extracted models were categorized into grid layout (Model A and B) and freeform layout (Model C), providing participants diverse experiences to evaluate during the VR experiments.

| (a) | (b) | (c) |
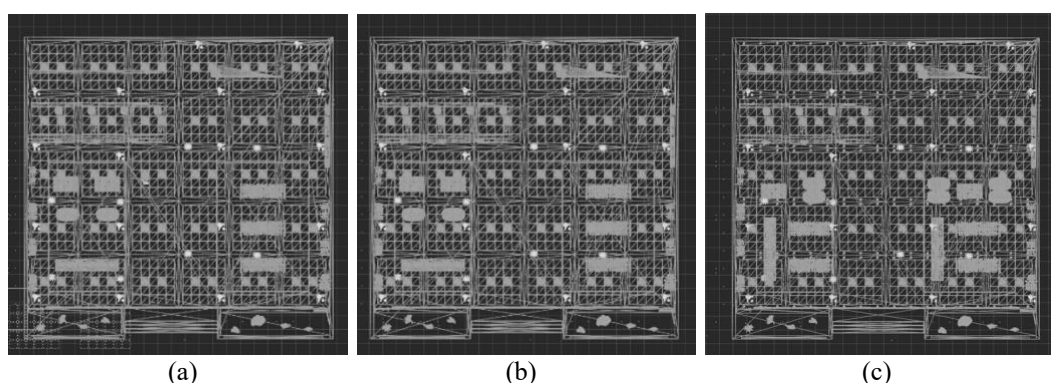
Fig. 4. (a) Model A- Grid Layout. (b) Model B- Grid Layout (c) Model C- Freeform Layout

Setting: In models A, B, and C, the layout encompasses the shopping area and the billing counter, strategically crafted to observe participant movement within gender-neutral retail environments. Each model presents a distinct spatial arrangement and design features intended to foster inclusivity and cater to various gender identities. These layouts are tailored to facilitate the flow of participants while emphasizing inclusivity and interaction within the retail space. Each model provides unique spatial configurations and design elements to enrich the shopping experience and gather insightful data on the efficacy of gender-neutral design approaches.

Table 3
Overview of Model Type in Settings

	Model A	Model B	Model C
Shopping Area	(A)	(E)	(I)
	(B)	(F)	(J)

	(C)	(G)	(K)
Billing Area			
	(D)	(H)	(L)

(Source: Author)

Model A: Setting A-D

Within Model A, a grid layout is selected as it enhances the shopping experience by providing a clear pathway for customers, allowing them to locate desired products efficiently. Moreover, the visually appealing display of merchandise in a grid layout can enhance the overall shopping ambience, creating a more enjoyable and engaging environment for customers.

The methods of display utilized for clothing are mannequins, box and standing racks, and wall-mounted displays. There are free-standing racks also provided for accessories, makeup, and footwear. These display methods cater to diverse customer preferences and shopping behaviors. Moreover, employing a mix of display techniques allows for an effective showcase of different product categories, highlighting their unique features and benefits.

A cool and neutral color scheme is selected for the store, as neutral colors evoke a sense of simplicity and inclusivity, making the store welcoming. It also promotes a modern and minimalist aesthetic, which aligns well with the contemporary branding often associated with fast fashion. The color schemes provide a versatile backdrop for showcasing a vibrant and diverse range of clothing and accessories, allowing the merchandise to take center stage.

Model B: Setting E-H

Within Model B, the design is like Model A with just the difference in the lighting, which is changed to warm, yellow-tinted lighting. Grid layout is selected as it enhances the shopping experience by providing a clear pathway for customers, allowing them to locate desired products efficiently. Additionally, the clear and logical arrangement of products allows customers to compare items easily, facilitating informed purchasing decisions.

The methods of display utilized for clothing are mannequins, box and standing racks, and wall-mounted displays. There are free-standing racks also provided for accessories, makeup, and footwear. These display methods cater to diverse customer preferences and shopping behaviors. Moreover, employing a mix of display techniques showcases different product categories, highlighting their unique features and benefits.

A cool and neutral color scheme is selected for the store, as neutral colors evoke a sense of simplicity and inclusivity, while the warm ambience invokes a sense of comfort and relaxation. The color schemes provide a versatile backdrop for showcasing a vibrant and diverse range of clothing and accessories, allowing the merchandise to take center stage.

Model C: Setting I-L

Within Model C, a freeform layout is selected as it allows for more fluidity and flexibility in store design, enabling retailers to create more dynamic environments. It encourages exploration and discovery as customers navigate the store, potentially stumbling upon unexpected displays and products. Moreover, freeform layouts can convey a sense of authenticity and personality, reflecting the brand's identity and values. By breaking away from rigid structures, retailers can experiment with innovative display techniques and spatial arrangements, keeping the store fresh and exciting for repeat visitors.

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A cool color scheme is selected for the store, as it evokes a sense of calmness and tranquility, reducing potential shopping-related stress and anxiety and fostering a more enjoyable and inclusive shopping experience for all genders. Additionally, the versatility of cool hues allows them to complement a wide range of clothing styles, providing a cohesive background for displaying their products and merchandise.

Equipment

One of the standout features of the Oculus Quest 2 is its all-in-one design, meaning it does not require any external sensors or a powerful gaming PC to operate. The headset is self-contained, with built-in sensors and cameras that enable inside-out tracking, allowing users to move freely in virtual environments without needing external tracking devices [38].

The VR headset has emerged as a valuable tool in architectural design, offering architects and designers a powerful visualization, collaboration, and presentation platform. With its high-resolution display and immersive VR experience, the Quest 2 allow users to explore architectural designs in a lifelike virtual environment, providing a sense of scale, proportion, and spatial relationships that traditional 2D renderings cannot convey. Architects can use Oculus Quest 2 to create virtual walkthroughs of their designs, allowing clients and stakeholders to experience spaces realistically before construction begins. This enables architects to gather feedback, make revisions, and communicate design intent more effectively, leading to better-informed decision-making and improved project outcomes. [39]

Furthermore, the Oculus Quest 2 can be used as a tool for immersive design exploration and experimentation. Architects can create virtual prototypes of their designs, experimenting with different layouts, materials, and lighting conditions in real time. This iterative design process allowed the quick iteration and refinement of the designs, leading to more innovative and creative solutions [40].

Participants

Twenty-eight participants were recruited to participate in the VR experiment based on purposive sampling followed by snowballing technique, representing a diverse range of Generation Z individuals aged between 18 and 25 years. The participants were primarily college students. 39% of the participants identified as male, while 61% identified as female. Each participant experienced three immersive VR simulations, spending approximately 5 minutes on each model prototype. The duration of the experiment totaled 15 minutes per participant. By employing purposive sampling and capturing responses from individuals of varying gender identities and backgrounds, the study aimed to gauge participants' responses, preferences, and comfort levels within these environments, providing valuable insights into the effectiveness of gender-neutral design strategies.
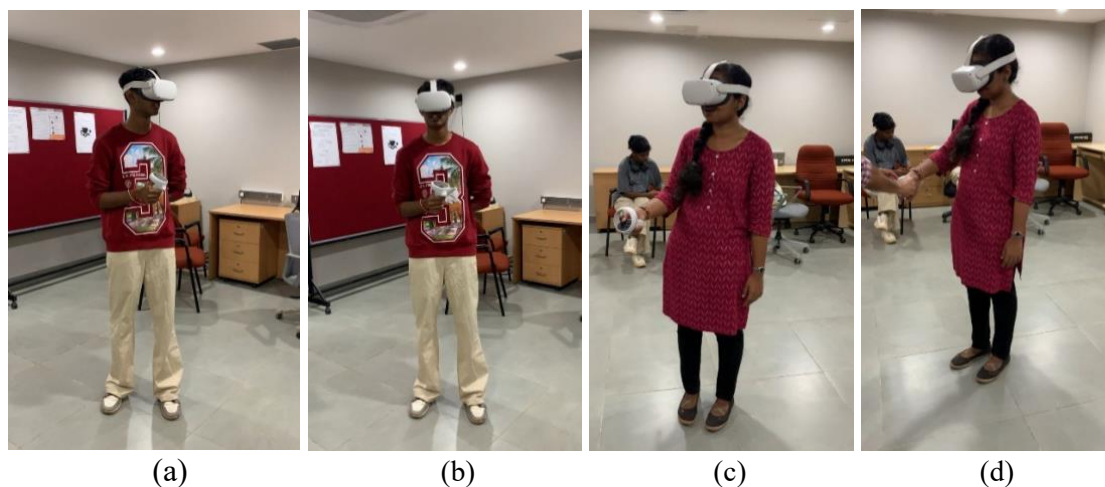
(a)   (b)   (c)   (d)
Fig. 5. Participants Experiencing the VR Models (Source: Author)

Experiment Protocol

The study comprised individual experimental sessions lasting between 15 to 25 minutes, conducted over seven non-consecutive days. Each participant wore the VR Headset for approximately 5 minutes beforehand to regulate their emotions, minimizing any potential influence on the experiment results. They were then guided in adjusting their fit. At the outset of each session, participants received a brief explanation of the study's objectives. Participants remained standing throughout the session and were encouraged to explore hand movements within the virtual environment. Prior to commencing the survey, the contextual scenario of the virtual environment for each experimental session was clearly outlined, with participants instructed to envision themselves shopping within this space.

Table 4
Average Participation Time

	Average Time (Males)		**Average Time (Females)**	
	Walk (seconds)	**Paused (seconds)**	**Walk (seconds)**	**Paused (seconds)**
Model A	235	15	275	25
Model B	240	10	285	15
Model C	215	35	250	50

(Source: Author)

Survey

56% of the survey participants were found to shop in retail stores a few times a month. The reasons are as shown in Figure 6.

Reasons In-Person Shopping is Preferred to Online Shopping
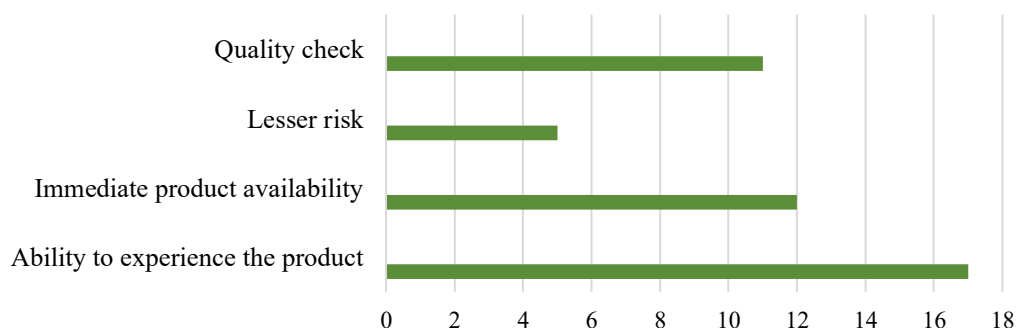
Fig. 6. Reasons In-Person Shopping is Preferred to Online Shopping by Survey Participants

49% of the survey respondents were likely to visit a gender-neutral store if one opened in their locality. The standard issue in fast fashion retail stores was spatial inequality due to a low number of changing spaces and inadequate spacing between aisles.

Indicator of Impact

The analysis reveals the factors influencing parameters across multiple brand studies, as illustrated in the comparison table. The impact indicator in the research article is rooted in the Design Quality Indicator (DQI). It offers a robust framework, amalgamating functionality, build quality, and spatial impact, enriched by stakeholder feedback for a holistic evaluation. Its structured questionnaire format ensures systematic data collection, fostering rigor and validity in assessing design quality, which gauges design quality in space through stakeholder feedback. Derived from these, the impact indicator is based on functionality assessed through spatial planning and display methods, and space impact is evaluated by creating a sense of place using visual elements. [39]

3. Results

Spatial Elements - Spatial Planning

In examining spatial planning, as denoted in Figure 7, Models 1 and 2 were characterized by a Grid Layout, while Model 3 adopted a Freeform Layout. Survey participants narrowly preferred the Grid Layout, primarily citing its facilitation of product exploration. This layout allows customers to navigate the store more systematically, ensuring that all products are easily accessible for browsing. Moreover, participants noted that the Grid Layout encourages leisurely shopping experiences, as individuals can spend ample time perusing various items without feeling rushed or overwhelmed. This preference underscores the importance of spatial organization in enhancing the overall shopping experience and aligning with consumer expectations for a seamless and enjoyable retail environment.

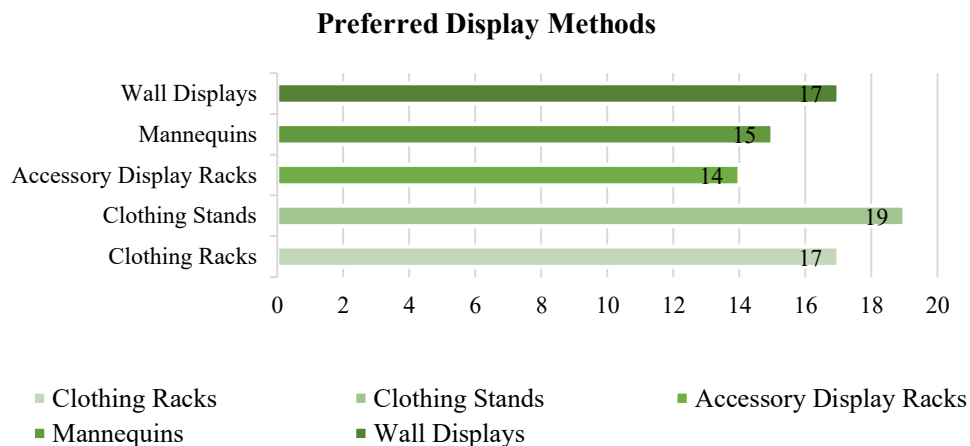**Ease of Navigation**

49% 51%

☐ Grid Layout   ☐ Freeform Layout
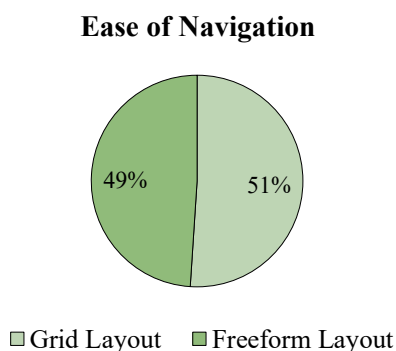
Fig. 7. Ease of Navigation of Survey Participants within models

Spatial Elements - Display Methods

In evaluating display methods across the models, as denoted by Figure 8, various fixtures were featured.

Preferred Display Methods

Fig. 8. Preference of Display Methods within Retail Stores amongst Survey Participants

Out of the 28 respondents, 19 survey takers showed a preference for clothing stands as a fitting display method within a gender-neutral retail store. Clothing stands ranked highly among the respondents due to its capability to present apparel neutrally and flexibly. This approach grants the customers to select clothing based on personal style instead of traditional gender stereotypes. Moreover, with the ever-changing landscape of fashion trends, stands provide a reorganizable and adaptable display method that evolves.

Only 14 people showed preference for accessory display racks. Accessory display racks are the least favoured approach for highlighting products due to their potential reinforcement of traditional gender norms. Categorizing accessories on these racks often implies certain styles are designated for specific genders, hindering the inclusive shopping atmosphere that is strived for. The rigid categorization of accessories on these racks may also impede customers' freedom to explore and mix items as they wish, a crucial aspect in a gender-neutral retail setting that prioritizes individual expression.

Mannequins were also lowly ranked, with only 15 respondents preferring this method. This could be because they often come with built-in gender cues and can easily undermine the store's inclusive atmosphere. Traditional mannequins are usually designed with distinctly male or female features, which can subtly push gendered expectations and limit customers' freedom to choose items based solely on their style. This can create an environment where shoppers feel confined rather than encouraged to explore and express their identities. Additionally, mannequins are less adaptable than other display methods, making it challenging to create a fluid, versatile shopping experience that aligns with fashion's fast-paced nature.

Preference of Visual Parameters - Colours

Models 1 and 2 adopted a neutral palette in analyzing the color scheme across the models, while Model 3 leaned towards a cooler color scheme. Survey respondents overwhelmingly favored the neutral palette, as shown in Figure 9. This is due to its perceived gender neutrality and ability to evoke inclusivity by avoiding traditional gender stereotypes. This preference highlights the significance of tactile elements in enhancing the retail environment's overall sensory experience and comfort.

Colour Palette Preference
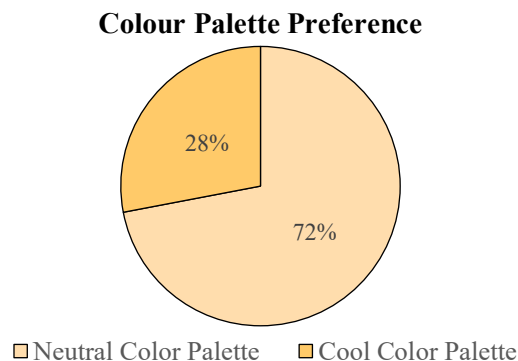
Fig. 9. Preference on Colour Palette of Survey Participants within models

Preference of Visual Parameters - Textures and Finishes

Regarding texture preferences, Models 1 and 2 featured warm wooden finishes, contributing to the store's cozy ambience. In contrast, Model 3 opted for rougher concrete textures. Most participants preferred smoother textures, as shown in Figure 10. They are favored due to their ability to establish a sleek, contemporary, and all-encompassing ambience that attracts many customers. In contrast to textured or intricately designed surfaces, smooth finishes provide a neutral canvas that allows the garments and accessories to become the focal point. This simplistic method eliminates any visual signals linked to conventional gender stereotypes, ensuring the emphasis remains on the products rather than the store's architecture.

Texture Preference
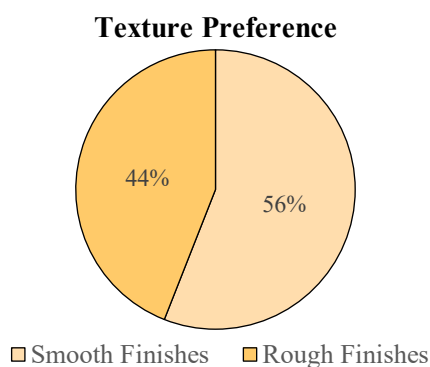
Fig. 10. Preference on Finishes of Survey Participants within models

When considering flooring materials, Models 1 and 2 showcased wooden flooring, while Model 3 featured ceramic tiling. Among participants, there was a clear preference for wooden flooring, as shown in Figure 11. Wooden flooring is frequently preferred in retail establishments due to its ability to blend aesthetics and practicality, resulting in a cozy and welcoming ambience that enriches the shopping experience. Moreover, wooden flooring possesses durability and resilience against substantial foot traffic, rendering it a pragmatic selection for bustling retail settings. Its adaptability further enables it to harmonize with various interior design aesthetics, from contemporary to traditional, ensuring the store maintains a unified appearance.

Flooring Material Preference

☐ Wooden Planks ■ Ceramic Tiles
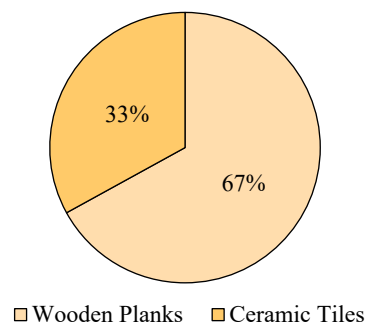
Fig. 11. Flooring Material Preference of Survey Participants within Models

Preference of Visual Parameters - Lighting

Regarding lighting solutions, Models 1 and 3 utilized cool lighting, while Model 2 employed warmer lighting tones. Most respondents favored warm lighting, as shown in Figure 12. Warm lighting is preferred in retail stores due to its ability to establish a cozy atmosphere that promotes relaxation and comfort among customers during their shopping experience. In contrast to cold lighting that may come across as sterile, warm lighting enriches the overall ambience of the store, making it more appealing and conducive to browsing. This lighting choice also complements the presentation of merchandise, particularly apparel, by providing a natural and attractive radiance that effectively highlights colors and textures. Furthermore, using warm lighting can impact consumer behavior by fostering a feeling of wellness, potentially resulting in extended shopping durations and heightened sales figures. This preference underscores the importance of lighting in creating a visually appealing and comfortable environment that encourages customers to linger and explore the store further.

Lighting Preference

☐ Cool Lighting ■ Warm Lighting
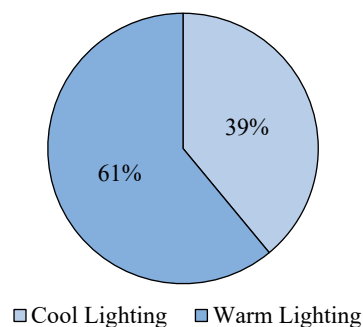
Fig. 12. Lighting Preference of Survey Participants within Models

Perception of Gender-Neutral Model

In evaluating gender-neutral layouts, participants were asked to consider various aspects such as spatial planning, display methods, colors, and finishes. From Figure 13, it is observed that Model 1 garnered favor from 44% of survey respondents, indicating a notable preference for its gender-neutral design attributes. This finding suggests that the combination of spatial organization, display techniques, color schemes, and finishes in Model 1 resonated well with participants' perceptions of inclusivity and neutrality. It implies that the layout and design elements incorporated in Model 1 effectively communicated a welcoming and non-discriminatory environment, aligning with the participants' preferences for gender-neutral retail spaces.

Perception of Gender Neutrality
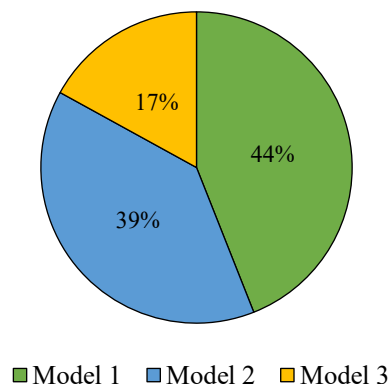
Fig. 12. Perception of Gender Neutrality among Survey Respondents within models

Perception based on Gender

Gender-neutral designs enable a more nuanced understanding of customer perception by separating participant opinions by gender. Designers can pinpoint specific preferences and concerns specific to each gender by examining factors such as acceptability, flexibility, the store's impact on mood and stimulation, and gender bias separately for male and female respondents. For instance, while females may emphasize the emotional experience and inclusiveness of the store environment, males may emphasize functional aspects like adaptability and acceptability. This orientation-isolated investigation assists planners with fitting their way to address the assorted necessities and inclinations of both male and female clients, at last improving the general solace and fulfilment levels inside the unbiased plan. Also, by distinguishing and moderating orientation predispositions in plan components, like format, signage, and item arrangement, creators can make seriously inviting and comprehensive spaces that reverberate with all clients, paying little mind to orientation. As a result, this strategy fosters a deeper comprehension of how customers feel comfortable and engaged in gender-neutral retail settings, resulting in design outcomes that are more successful and inclusive.

Table 5
Comparative Analysis

Indicators	Male	Female
Flexibility (presence of privacy)	● ● ● Ⓧ •	● Ⓧ ● ● •
Acceptability (time spent)	● Ⓧ ● ● •	Ⓧ ● ● ● •
Positive impact of store on mood and stimulation	● ● Ⓧ ● •	● Ⓧ ● ● •
Gender bias	● ● Ⓧ ● ●	● ● ● Ⓧ •

(Source: Author)

High ⟷ Low

The impact of gender-neutral retail design on spatial inequalities prevalent in fast fashion stores reveals multifaceted dynamics influenced by various factors. Individual preferences, cultural norms,

and the evolving role of technology shape the retail environment's complexity. One key finding is the significant role of decision-making by store management and designers in determining the layout and hierarchy of retail spaces. While traditional gender roles may influence some decisions, there is a growing recognition of the importance of inclusivity and diversity in retail design.

Notably, the study highlights a shift towards gender-inclusive decision-making processes, with input from diverse stakeholders influencing spatial planning and design choices. Women's perspectives are gaining prominence, reflecting a broader trend towards inclusivity in retail environments. Furthermore, the research underscores the importance of transitional spaces in retail settings where all genders feel welcome and included. Modern retail spaces exhibit fewer gender-segregated areas, fostering a more inclusive atmosphere conducive to diverse shopping experiences.

Overall, the findings suggest that gender-neutral retail design is a crucial role in addressing spatial inequalities within fast fashion stores. By considering all customers' diverse needs and preferences, retailers can create more inclusive and equitable environments that enhance the shopping experience for everyone. As the retail landscape evolves, ongoing attention to gender considerations in design and spatial planning remains essential to promoting inclusivity and diversity in retail spaces.

4. Conclusions

In fast fashion retail context, the study provide emphasises on how important it is to resolve space inequities and adopt gender-neutral design principles. The results show that design decisions that inadvertently promote particular gender norms or ignore the demands of a broad customer base frequently contribute to the persistence of inequality in the present retail environment. Through a detailed examination of these challenges, the study highlights how important it is to design retail environments that are inclusive and friendly to everyone, regardless of background or gender identity, in addition to being practical and visually beautiful.

Designers play a crucial role in this transformation. The study's beneficial recommendations offer as a guide for converting retail areas into settings that support fairness and inclusiveness. These suggestions are not just theoretical but they provide organisations with practical actions that they can take to improve customer satisfaction and guarantee that all parties involved feel appreciated and respected. Businesses may boost their brand image and customer loyalty by creating a sense of belonging among their consumers via smart spatial planning and intelligent design decisions. The study emphasises that adopting gender-neutral design is an intelligent business decision that may increase customer retention and loyalty in addition to being a social obligation. Retailers may create spaces that represent the diverse and changing demands of their customer base by putting the design suggestions from this study into practice. This will help to create a more equitable and inclusive retail environment.

Design Guidelines - Effective spatial planning is crucial in creating a gender-neutral retail environment that is both functional and welcoming to all customers. A grid layout should be prioritized to facilitate easy exploration since it provides a clear, methodical arrangement of the area that makes it simple to explore and navigate. By making products easier to see and reach, this arrangement not only improves the shopping experience but also lessens the confusion that frequently arises in less structured spaces. Creating inclusive fitting rooms to accommodate regardless of gender, identity and expression are a ideal practice. Visual cues like expansive aisles, visible signage, and coloured codes could be included to assist customers even more. These components ensure that consumers may locate what they need without needless frustration by guiding them through the shop in a logical manner. Large aisles are very useful for accommodating a variety of customers, including those who need mobility assistance, and for discreetly directing consumers to different areas of the retail through the use of colour coding and clear signage.

Comfort and accessibility are also crucial elements of gender-neutral retail spaces. To guarantee that every consumer can easily navigate the business, regardless of their physical capabilities, wide aisles should be offered. Where necessary, ramp access should be provided to accommodate those with mobility issues. Furthermore, the design of the retail should prioritise comfort by taking into account factors like ergonomic seating, efficient ventilation, and the maintenance of a suitable temperature. Customers are able to shop more comfortably and with less physical strain thanks to these characteristics.

A gender-neutral retail environment should have display strategies that appeal to a wide range of patrons. Adaptable displays that can be accessed at different heights guarantee that all customers, no matter how tall, can reach the items. In order to draw in and keep consumers, visual merchandising strategies should be used using eye-catching and useful displays. The use of interactive features like touch displays and try-on mirrors can further improve the shopping experience by promoting consumer interaction and making the procedure more pleasurable. The entire store should have a stereotype-free, gender-neutral colour palette. By combining soft accents with neutral colours, this strategy fosters an inclusive atmosphere that is appealing to all patrons without alienating any one demographic. Technology may further improve the consumer experience by offering more information and a smooth transition between the physical and digital purchasing environments. Examples of this technology include QR codes for more product information and access to online content.

Limitations - Although the scope of the study is limited to the visual design of gender-neutral retail design, there is still room to explore other sensory elements, such as touch and sound. Future research could expand the scope to include these other design elements that allow for a better understanding of customer perceptions and preferences.

The research sample exclusively comprises Gen-Z participants, justified by their heightened acceptance of evolving gender concepts. However, extending the analysis to encompass participants from different age groups would provide valuable insights into the broader impact of gender-neutral retail design. Understanding how these designs resonate with individuals across various age demographics could inform strategies for attracting a more diverse customer base. Furthermore, the VR experiment saw an uneven distribution of 61% female and 39% male respondents. While this was not done deliberately and depended on the participant's acceptance of experiencing the model, it has shown us how the female respondents enjoyed the experience and how they are more acceptable than their male counterparts. Further research needs to be done to understand better whether male perception of gender-neutral retailing is less accepting than female perception.

Moreover, the literature review reveals a notable gap in research concerning spatial inequalities and gender neutrality within fast fashion stores. Addressing this gap could show how retail spaces' physical layout and design intersect with gender inclusivity, offering practical implications for businesses aiming to create more equitable and inclusive environments. By exploring these dimensions, future studies could contribute to a deeper understanding of the complexities surrounding gender-neutral retail design and its implications for consumers and retailers alike.

Implications - The research paper presents significant implications for various aspects of marketing design and engagement. First, we aim to address the main problem of spatial inequality in fast fashion stores and offer suggestions for reducing it. By examining the spatial arrangement and configuration of these stores, this study aims to identify strategies that promote fair distribution and availability of resources for all customers. Hence, companies can be crucial in promoting engagement by incorporating visible elements into store design.

Secondly, this study highlights the obstacles and challenges of implementing a gender-neutral marketing design. This study aims to identify potential barriers to adopting gender-neutral design principles by examining the complexities of gender identity in retail settings. Understanding these

barriers can provide strategies to overcome them and promote the creation of larger business environments that include people from all walks of life.

The study also highlights the importance of visuals in creating a safer shopping environment for LGBTQ+ people. By examining the role of visual cues and design features in inclusive communication and acceptance, this study aims to show how the design of marketing spaces can promote a sense of safety and accessibility for LGBTQ+ customers. This suggests that companies can be crucial in promoting engagement by incorporating visible elements into store design.

Finally, the research paper proposes some guidelines for future fast fashion retail design based on the insights gained from the research findings. This guide provides practical recommendations for businesses to create a more accessible shopping environment. By offering practical advice and best practices, this study aims to empower companies to adopt gender-neutral design principles and promote spatial justice in their stores. Through thoughtful and thoughtful design choices, fast fashion retailers can contribute to broader efforts to create inclusive and appropriate retail spaces.

Acknowledgement

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