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The Role of Users' Socio-spatial Behaviour in Fostering Sustainable Retail District Projects in Bahrain

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ABSTRACT

This study examines users' socio-spatial behaviour in promoting sustainable retail district projects in Bahrain. It evaluates how customer behaviour and movement impact the social sustainability of contemporary open-space shopping districts. By employing qualitative methods such as questionnaires, on-site observations, and expert interviews, this study investigates factors influencing consumer preferences and attractions to shopping districts. Findings reveal that the vitality of shopping districts is closely linked to meeting users' needs, which fosters social sustainability. The study identifies key elements for a framework that can integrate social sustainability measures into shopping district designs. This framework aims to support stakeholders and designers in planning sustainable commercial projects in Bahrain, ensuring long-term success and vitality. Research highlights the importance of considering socio-spatial interactions in retail environments to enhance livability and user experience. By understanding these dynamics, designers can create retail districts that not only attract consumers but also contribute to the well-being and sustainability of the community. Insights gained from this study can guide the development of future retail projects, emphasizing the significance of socio-spatial behaviour in achieving sustainable urban design and planning.

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Highlights:

- Social sustainability plays a great role in the vitality of shopping districts in Bahrain.
- Employing a SWOT Analysis on the selected case studies can determine factors affecting the projects' social sustainability.
- The quality of the spatial design and the comfort considerations in the space can contribute to the project's success.
- The paper highlights factors that encourage the connection between people and space.
- The findings contribute in developing a framework of criteria to successfully achieve socially sustainable retail projects.

Contribution to the field statement:

The goal of this research is to evaluate the social sustainability of commercial district designs by closely analysing consumer behaviour in Bahrain's modern open-space shopping areas. The findings emphasize the socio-spatial interaction and important role in the sustainability of shopping districts, which could assist stakeholders and designers in creating a framework that would promote the sustainable planning of Bahrain's new commercial projects and ensure its vitality.

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1. Introduction

Developments for commercial districts are a part of a vibrant city. Numerous variables might have an impact on an architectural project's success. Many obstacles, such as those related to cost, time, and performance, might prevent these projects from achieving their goals (Beleiu et al., 2015). Previous studies have shown that a project's social dimensions are one of the main factors impacting its performance (Rausell-Köster et al., 2022). According to Lotfata & Ataöv (2020), even though social issues are crucial to a project's success, the sustainability agenda did not incorporate them until the late 1990s. The popularity and profitability of the project are boosted by the social significance of these commercial areas which entails a sustainable project (Baghaee et al., 2020). The relationship between the built environment and social sustainability is the subject of numerous research that attempt to explore its applications in the literature (Figure 1), intending to connect social and spatial identities to enhance the quality of social and human life and its impact on sustainable architecture (Viry et al., 2022). Accordingly, social sustainability is a method for developing thriving, long-lasting communities that enhance well-being by considering the needs and desires of the residents for their way of life (Winston, 2022). This study suggests addressing the gap in knowledge found in the literature by identifying a project's social sustainability components that can serve as a barometer for Bahrain's retail districts' performance. This study aims to address the following queries: Are commercial/shopping projects socially sustainable? What factors influence the architectural design's effectiveness of shopping districts to make it a long-term societally viable project?

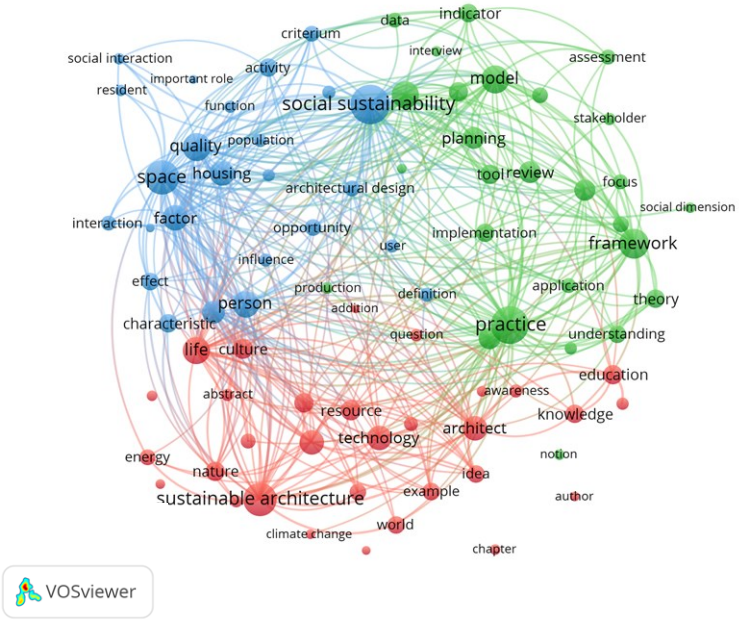

Figure 1. Co-occurrence analysis of keywords using VOSviewer.

The findings of this research can contribute to creating a framework for measuring social sustainability that will allow the stakeholders to assess community health and quality of life in the context of Bahrain's new commercial districts' sustainable design (Liu et al., 2020). To do this, the study looks at how shoppers behave in Bahrain's contemporary shopping locations in terms of their socio-spatial behaviour within the built environment. The following sections demonstrate the extensive analysis applied of people's attitudes and behaviours in these open-space shopping areas to address this issue. In order to achieve this, A thorough analysis of the literature on a basic concept regarding the social sustainability of urban retail projects forms the basis of the study. Additionally, survey research was conducted to examine and assess the socio-spatial characteristics of Bahrain's retail areas on a local level. As a result, information was gathered and participants' experiences were integrated into their cognitive processes through the use of questionnaires, in-depth interviews with experts, and on-site observation.

2. Theoretical Background

2.1 What is social sustainability?

It is imperative to understand the meaning of social sustainability to be able to measure its impact on the sustainability of a project. Bahrain is one of the countries that follow the Sustainable Development Goals (SDGs) (Ministry of Sustainable Development, 2022) which are contained in the United Nations Agenda 2030 to measure and track sustainable social, economic, and environmental development in all nations (United Nation, 2015). The objective is to track advancements and be the leader in global sustainable development. Specifically, (SDG11) measures sustainable development inside cities, with an emphasis on the urban setting. To achieve these goals through economic development that satisfies present demands without jeopardizing the ability of future generations to satisfy their own, numerous earlier research and studies have attempted to define sustainable development in a way that stresses "human livelihoods" (Chaigneau et al., 2022). The social aspect was introduced after numerous discussions of sustainability, especially due to the focus of public and governmental concerns on climate change, sociology has been ignored in professional social scientific circles (Eizenberg & Jabareen, 2017).

According to Mehan & Soflaei (2017), social sustainability is the process of figuring out what people require from their places of employment and residence to build successful, sustainable environments that improve well-being. It combines the social and physical worlds' designs, offering social amenities, a structure for cultural and social life, ways for citizens to get involved, and flexibility for places and people to adapt throughout time. There aren't many useful materials that specifically answer the issue raised by Woodcraft (2015) "How can we develop locations that are socially sustainable?" There are a few shared traits that other definitions of the literature on social sustainability point to. The first Factor is future focus. Research suggests that the main goals of social sustainability are to uphold the existing conditions, which include people, communities, and societies, while also valuing and safeguarding the positive aspects of cultures for future generations. The second factor is the satisfaction of needs, which includes basic needs and access to resources. It is related to both humans and society, whether at the individual level or social as well as physiological following Maslow's hierarchy of needs (Hale et al., 2019). A third factor is an urban unit that is both physically and socially cohesive. It focuses on both the individual and relational facets of society. The importance of the interactions between the social and physical worlds has grown in recent decades (Shirazi & Keivani, 2017).

2.2. Social Sustainability and Built Environment

Sustainability is a major issue in architecture and urban planning. It is defined by a variety of (social, environmental, and economic) components that address a variety of frequently conflicting goals. This is to suitably satisfy every requirement of intricate urban and architectural projects (Lami & Mecca, 2021). Of the three aspects of sustainable development, social sustainability is the least researched and understood, but since the turn of the twenty-first century, it has been recognized as an essential part of sustainability in the built environment (Costa et al., 2019). Multidisciplinary research has spent the last half-century concentrating on increasing the efficiency, equity, and sustainability of cities; one major challenge is encouraging cities to become more competitive while maintaining a focus on the welfare of citizens within a framework of sustainable development (Sugandha et al., 2022). Taiwo et al. (2021) believes that an architect can recognize a range of social sustainability indicators and apply them as tactics to keep the project succeeding. These signals could result in the provision of healthy and safe environments as well as the adherence to moral standards that should be upheld throughout the recommended design. Spaces ought to be adaptable and designed with the user's needs in mind. It is important to preserve the region's history and culture (Emekci, 2023), and ensure that users may access infrastructure services and be integrated into the local setting.

To determine the architectural needs for social sustainability, a thorough examination of the relationship between people and space in society is necessary. According to Norberg-Schulz (1980), a sense of place refers to what makes a particular place unique and deserving of protection beyond its outwardly visible characteristics. The bond between the individual and the place is a result of Knowledge, feelings, beliefs, and behaviours (Ujang, 2017). Because human behaviour tends to occur in places and settings that offer opportunities for interactions, architectural and urban spaces are essential hubs for the growth and achievement of social sustainability (Ibrahim & Mikhail, 2016). Social sustainability in architecture

aims to create planned environments that foster social interaction, equity, and inclusion (Santi et al., 2019). It entails developing surroundings that promote human health and well-being and improve community quality of life (Stokmane, 2021; Yıldız et al., 2020). It is becoming more obvious that social and cultural components of the built environment must also be considered in sustainable design to guarantee that buildings and spaces are designed with people and communities in mind (Yıldız et al., 2020). Designing spaces that promote social interaction and connection is essential to social sustainability in architecture, according to (Netto et al., 2019). This means designing spaces that encourage congregating, mingling, and collaboration by creating spaces that offer opportunities for civic involvement and engagement (Agboola et al., 2018).

A "sustainable" relationship between the built environment and people is characterized as architecture that integrates human behaviour into its design and creates spaces that are as long-lastingly compatible with human behaviour and lifestyles (Kefayati & Moztarzadeh, 2015). Developing physically appealing areas that satisfy the environmental, social, and commercial requirements of their surroundings is a prerequisite for developing socially viable environments (John-Nsa et al., 2023). By putting people and communities first and working with local stakeholders, architects may create places and structures that are not just environmentally sustainable but also socially and psychologically healthy (Sadri, 2019). This will ensure the vitality of the built environment making it more desirable and creating an attachment to the place that offers social activities and encourages cultural exchange (Hajialiakbari et al., 2021). According to Lynch (1961), Vitality is recognized as one of the indicators of a sustainable urban design in which it integrates performance and human needs, which can be measured by the pedestrian flows in the space that if not achieved successfully will reflect in the image of the place being undesirable (Li et al., 2024). The more the flow, the more the space is alive (Zhang et al., 2024).

2.3. Retail Development

One of the most important social activities of our day is shopping. The retail industry is incredibly dynamic. Its evolution is evident in many different ways, and over the past few decades, numerous experts have tried to focus their studies on these changes. One of the most important aspects of how people interact, consume, and exchange value is the retail sector (Askholm & Gram-Hanssen, 2022). Retail has always been one of the most popular urban activities, therefore what may attract customers the most are the amenities and services they offer. Apart from urban growth, human development is reflected in the social component (D'Auria et al., 2018). With the increased recreational offerings that most shopping malls currently provide, their influence on our culture is expanding. As a result, malls that were once primarily used for business are now regarded as recreational spaces. The world of retail establishments affects people's shopping behaviour. The retail industry's utility can be characterized by several factors, such as shop count, diversity of retailers, accessibility, scale, and travel time (Baghaee et al., 2020). Retail settings offer a great way to research consumer behaviour as well as the physical and social aspects that characterize a community; these in turn influence the characteristics of the area. According to Maria Soares & Georges Elmashhara (2020), shopping is a meaningful experience that is permeated with social and emotional aspects that are overlooked in traditional consumer research that emphasizes objective factors like time and location.

The importance of storefront retail stems from its ability to promote social interaction, pedestrian-oriented urban design, and street life (Talen & Park, 2021). It is necessary to ascertain the preferences of consumers, their location, and their ability to pay for the merchandise before attempting to find retail locations. Consequently, the majority of shopping complexes are constructed near their target clientele, typically in outlying areas. According to social sustainability, locational disadvantages constitute a kind of social exclusion and have to be reduced. Howard & Stobart (2018) determined in their study that many city centre retail markets are no longer as desirable as they once were for both customers and businesses looking for places to open stores. Thus, maintaining social vibrancy in neighbourhood shopping areas and promoting social inclusion should be key objectives of a successful retail policy. The traditional urban retail systems are changing due to the emergence of new retail forms, which are also challenging the current retail hierarchies in shopping centres (Guimarães, 2023). From the beginning of the 20th century, malls have changed, introducing social and recreational activities along

with new shopping trends. Today, they serve as venues for engaging in interactions between store owners and their patrons.

In the old days, traditional markets, known as souqs, were a social destination more than for shopping. A place where people meet and socialize on a daily basis making it a part of their daily lives activity (Khan et al., 2021). (Elsayed et al., 2019) highlighted the factors that make the significance of traditional markets. Due to the market's harmony and compatibility as well as its synergistic relationships with adjacent city center uses, a synergy is found between various functional uses in historic marketplaces. Creating a space that won't draw people is a challenging task. Though traditional public squares encourage a great deal of social contact, the new design strategy for commercial districts inspired by traditional marketplaces should aim to create communal areas that are economically, socially, and environmentally sustainable. There is proof that traditional markets have a host of social issues when there are insufficient local resources, services, and community support.

Arabs have used traditional shopping settings to satisfy their social, psychological, and economic requirements. These settings are crucial to Arab and Islamic cities, serving as the city's centre. In the research done by Qualizza & de Luca (2022), the modern shopping environment is found to be integrating the traditional city centre where people gather daily, and exchange experiences, with the complex virtual and physical infrastructure networks. The physical and geographical layout of towns all across the world, including the Arabian Peninsula, usually centres around marketplaces. The souqs are public pedestrian markets featuring plazas, arcades, and numerous stores where people typically gather to trade goods, mingle, and stroll. As urban populations increased, souqs moved from beyond city walls to city cores. In Islamic nations, the Friday Mosque typically serves as the hub of the town, and the nearby souqs are a crucial location for daily activities (Major & Tannous, 2020).

Since the start of urbanization, souqs have fulfilled the role of being the centre of communication and trade throughout the Arabian Peninsula because they enable both scheduled and unplanned encounters among a range of urban users, souqs continue to address social, economic, and cultural needs, leading many to conclude that they are crucial to the long-term health of Middle Eastern cities (AL-Habsi, 2023). Urban morphogenesis and souqs' socioeconomic sustainability are linked, as modern growth in many of these places has taken away the traditional urban fabric. The spaces found in souqs usually serve a wide range of people's demands for social interactions, financial transactions, and random encounters in daily communal life. These kinds of places can provide civic value to foster a feeling of community and raise the bar for urban space to support the growth of sustainable cities (Major & Tannous, 2020).

2.4. Commercial Development in Bahrain

The Bahraini market is distinguished by a sophisticated customer base that is increasingly drawn to individualized and immersive purchasing experiences. E-commerce has grown significantly as a result of shifting consumer preferences for convenience and online purchasing, with online merchants and delivery services prospering. The growth of digital payment methods and e-commerce was also further accelerated by the COVID-19 pandemic, as many consumers shifted to online purchasing due to its convenience and security (Gu et al., 2021). People have been drawn to outdoor retail shopping because it is believed to be safer during a pandemic. To satisfy customers and contribute to a sustainable future, the retail sector needs to adopt eco-friendly procedures. One major issue that still has to be addressed is how to reconcile sustainability with environmental difficulties.

According to 6Wresearch (2023), several significant growth factors are driving the retail market in Bahrain. First, efforts by the government to diversify the economy, encourage foreign investment and strengthen the tourism industry have created a favourable environment for retail expansion. Second, because of economic growth and a thriving expat community, the population's increasing disposable income and purchasing power are driving consumer consumption. Thirdly, the popularity of malls and retail centres has grown, drawing in customers with a wide range of shopping experiences from local and international stores to high-end luxury labels. Together, these elements support Bahrain's retail market's continuous expansion.

The retail industry in Bahrain has shown resilience and adaptability. Among hundreds of shopping destinations across the country, there is a changing retail environment marked by the development of modern shopping districts like the Sa'ada Waterfront Project, Juffair Square, and Al Liwan mixed-use project, coexisting with historic souqs like Souq Al Qaisarya, one of the oldest parts of Muharraq, which

used to have shops selling everything from pearls and other jewellery to spices and teas, turning it into a well-liked social hub for both residents and visitors. By examining user socio-spatial behaviour and investigating the factors that make some shopping district projects more appealing to users than others, this study seeks to evaluate the social sustainability of these projects.

3. Material and Methods

It is imperative to examine consumer behaviour in Bahrain's modern shopping centres to measure the impact of their socio-spatial behaviour within the built environment on the vitality of the space. This will allow stakeholders to assess the quality of life and community health within the framework of sustainable design for Bahrain's new commercial districts. Through a thorough examination of the attitudes and actions of people in Bahrain's contemporary shopping districts, this study seeks to find answers to questions through the study design such as: Do current retail spaces give adequate utility to improve the social conditions of our city and community? For an architectural design to be a long-term, socially feasible project, what design aspects are necessary? To what extent do consumers think that shopping in retail districts is welcoming and comfortable? The exploratory nature of all these questions supports the choice to use a qualitative approach as one of the methods to develop the research questions that will be investigated and refined during the process Mason (2002). Qualitative research is exploratory, flexible, data-driven, and context-sensitive, according to her description. However, integrating quantitative in the qualitative research processes, to attain the understanding that will also be employed in expressing the human experience (Creswell, 2024). Two projects were chosen as case studies based on the participant's responses to the questionnaire, and a cross-method triangulation of qualitative and quantitative approaches was used to assess the critical components that impacted the vitality of both spaces. To meet the research goals, the research methodology is broken down into three sections (Figure 2a). In the first stage, a qualitative approach based on the literature review, five key indicators were set as criteria for social sustainability assessment for architectural projects as suggested by (Kefayati & Moztarzadeh, 2015) which are used in the analysis of the case studies in the third stage of the research methodology (See Table 4). The demographic questions pertaining to the participants in this stage of the study, which help the qualitative research by providing more context, illustrate the quantitative approach's presence in this stage. The second stage uses a qualitative method which includes in-depth expert interviews were primarily intended as a way to interact with representatives of professional stakeholders to provide further insights, contextualize the results, and reinforce any possible connections between the experiences of users and practice. This is followed by an analysis of the spatial characteristics of the projects selected as case studies conducted through on-site observations. The third part with a qualitative approach aims at interpretation, data analysis, and integration of SWOT analysis (Figure 2b) to assess the social sustainability of the selected case studies.

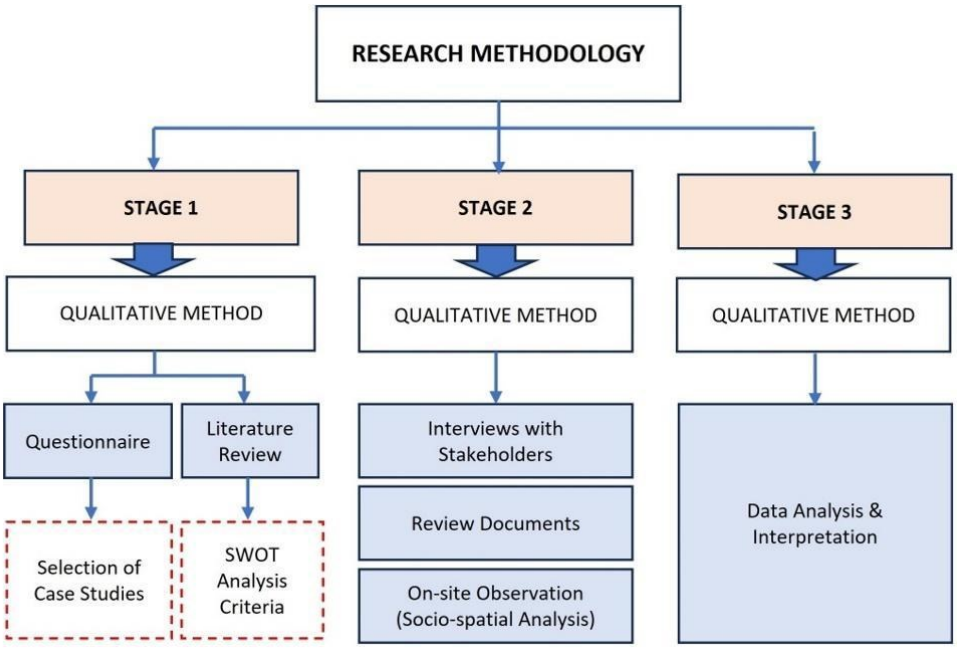

Figure 2a. Research Methodology – Structure of study design.

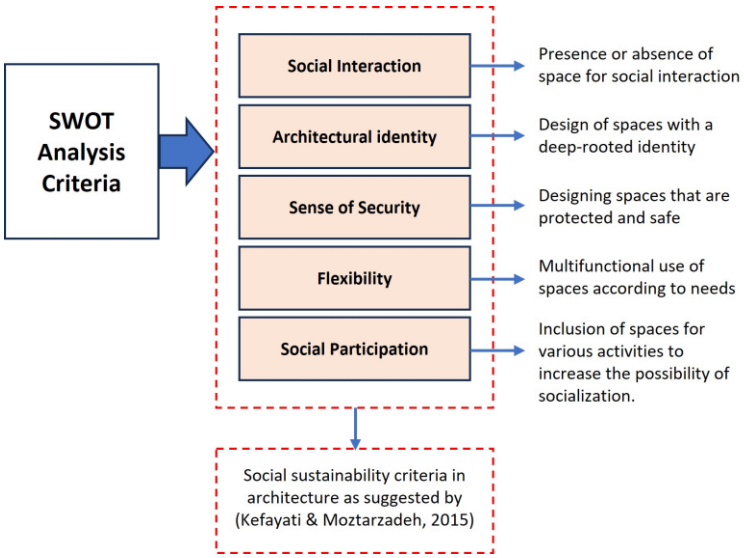

Figure 2b. SWOT Analysis Criteria as derived from the literature review.

4. Results

The first part of data collection was through a digital questionnaire that was randomly circulated to the respondents. There were 105 respondents in all who provided data for this study. In response to seven questions about sociodemographic traits and their opinions of environmental aesthetics, safety and security, accessibility, comfort and use, and connectivity—among the features of retail districts—respondents were asked about their perceptions. Table 1 shows the demography of the respondents. The respondents were mainly females 71.4% compared to the male respondents who were at 28.6%. The survey received responses from a variety of age groups, however, the majority were from the young generation of 10-20 years of age.

Table 1: Demography of Respondents.

			% of Participants
1	Gender	Male	28.6%
		Female	71.4%
2	Age Group	10-20	29.5%
		21-30	21%
		31-40	18.1%
		41-50	22.9%
		51 & above	8.6%

The questionnaire included a list of retail districts in Bahrain to choose the most popular among them. 78.1% preferred Al Liwan project as the best destination, while the least chosen was Al Saada Waterfront at 2.9% of the participants' choices (Figure 3).

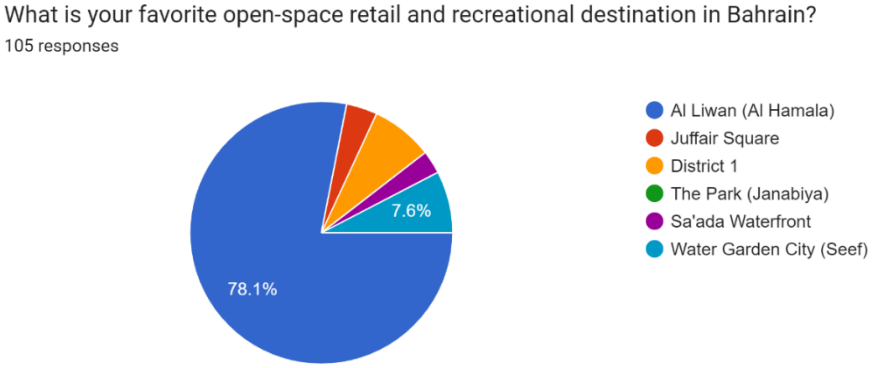

Figure 3. Results of the respondents' favourite open-space retail destination in Bahrain.

The reasons for choosing the destinations are stated in the below results as shown in Figure 4. 62.9% chose aesthetic landscape features as one of the main reasons for choosing the destination, followed by 61% choosing the comfort of walking between the facilities as a valid reason for visiting the retail district.

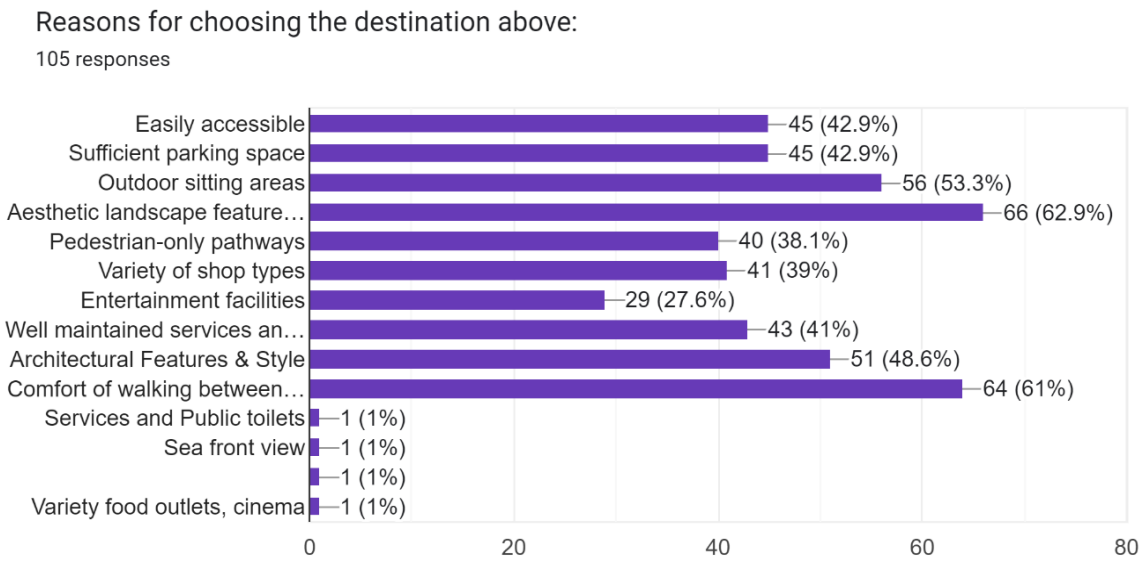

Figure 4. Reasons for choosing the favourite open-space retail destination in Bahrain by respondents. By Author.

According to the findings, 40% of the participants make monthly visits to the selected location, primarily for eating experiences and family activities (Figure 5a & 5b).

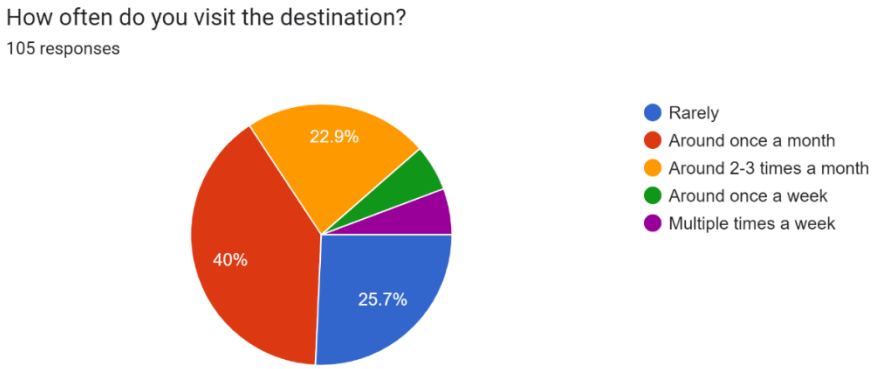

Figure 5a: Frequency of respondents' visits to the retail district destinations.

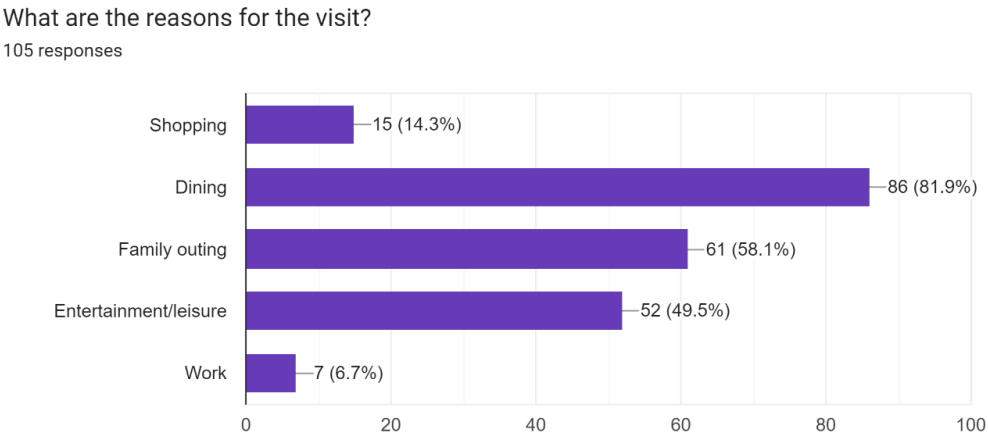

Figure 5b: Purpose of respondents' visits to the retail district destinations.

The last question in the survey reflects people's perceptions of what makes a destination more desirable and popular than other similar projects. The majority of respondents strongly agree that taking into account climatic conditions and the convenience of walking outside in hot weather is one of the primary elements, as shown by the comparison of differing perspectives in Table 2. However, a considerable number of respondents were concerned about the location of the project and that traffic congestion can have a negative impact on public attractions to the destination.

Table 2: Respondents' Opinions on given Statements related to the retail district destinations.

No.	Statement	Opinion			
		Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**
1	"I like shopping in open-space retail districts"	43	50	12	0
2	"I feel safe in pedestrian-only retail destinations"	53	48	4	0
3	"Air-conditioned retail destinations encourage more shoppers"	65	36	4	0
4	"The more visitors the better the experience"	19	43	40	3
5	"The short walking distance from the car park to the retail facilities encourages more visitors"	58	39	8	0
6	"We need more open-space retail districts than malls"	49	42	12	2
7	"I visit my favorite retail district even if it's located in a very congested area"	21	38	31	15

Adhering to the methodological framework of interviewing experts and professional stakeholders, two of the most successful developers in the country were interviewed as the initial step in the study process. Interviews were conducted with the developers of the destinations that were found to be the most and least favorable, which are the Sa'ada Waterfront project in Muharraq City, and Al Liwan shopping district in Al Hamala area. The questions were broad and open-ended, covering topics like the biggest obstacles the experts had to overcome for their projects, and the experiences these projects had given them. There was a discussion of a few issues that were specifically related to the case studies that highlighted methods, choices, and plans for planning, management, and design elements. Further supporting material related to the case studies was also asked for. To get the interviewees' viewpoints on the research's central theme, the third important area involved questioning them about their expectations and any changes they had noticed in the way people used the retail district projects over time. Clarifications and thoughts on subjects pertinent to the research setting were also sought during the expert interviews (*e.g. variety of leisure activities, open space management, walkability, public*

facilities and services, social interactions, and safety considerations). Table 3 displays the transcription and recording of the interview.

Table 3: Experts Interview - Questions and Responses**.**

No.	Questions	Answers by Expert Interviewee	
		Al Liwan Project	Sa'ada Waterfront Project
1	What was your inspiration behind this project?	As developers, our constant goal is to invent new things and lead the way in novel ideas. The Al Liwan project launched a brand-new open-space mixed-use development to build a small community with a cosy social setting that offers a pleasant experience with a range of amenities all in one location.	Touristic offering that links the waterfront to the historical and heritage sites, Muharraq Souq
2	Why did you choose an open shopping district instead of a closed mall?	The idea is to create a comfortable retail destination with a sense of street retail environment. The country is saturated with closed shopping malls, it is time to provide new experiences to the users.	Moving away from conventional closed malls and toward venues that provide guests with unique experiences is part of the current market trend. The shopping area is used since it has a lovely waterfront frontage as well.
3	What is the outcome of this project even since the opening?	The project has gained a lot of publicity since the day it opened. It is becoming the most popular destination in the country attracting many visitors of different ages, individuals and families, Bahrainis, and visitors from GCC countries, especially in good weather.	The project is quite a popular destination, especially for visitors living close to Muharraq.
4	Have you done any survey on the number of visitors per week/month?	We can observe when the project gets busier during the year and when it receives fewer visitors. However, we are in the process of installing a technique to count the traffic to the project through the security cameras and the car parks for a more accurate count.	No. This can be done once we have full occupancy of rented spaces. So far it is 80% occupancy.
5	What are the best months and worst months with high numbers of visitors?	Usually, it gets packed with visitors during the good weather months, starting from October to March. Nevertheless, visitors are noticed to visit the project during summer due to the summer programs offered in the facilities.	The best days observed to have more visitors are the weekends and the best months are during winter – November, December, January, and February
6	What are the strengths of this project? What makes it successful?	There are many factors affecting the success of the project. One factor is the design of the layout in creating the zones where people can enjoy moving from one to another. The element of surprise yet with a comfortable environment. The spaces are allocated for a variety of shops and brands as well as many dining options in the same place. The outdoor facilities encourage people to walk around the different zones and enjoy the landscaping and water features. Families mostly enjoy the dining places and the family entertainment facilities provided in the project.	The waterfront feature and the location. It is easily accessible and close to the Capital, Manama.
7	What are the weaknesses in your opinion? What would you change/improve to overcome these weaknesses?	The only weakness that can be highlighted is the traffic on the surrounding roads. The project is located in an area that is limited in accessibility from the main highway.	Because of their vast proportions, the units don't draw in more retailers or eateries for greater leasing prices. In order to meet the needs of the general public, additional research should be

			done on the property's mixed-use tenancy and spatial organization.
8	What are the opportunities you see in the future of this project? E.g. expansion, duplications,..etc.	We are looking towards expanding the project and adding more facilities according to the demand of the visitors, rather than duplicating the project somewhere else. As a developer, we always find new ideas and concepts for different locations instead of repeating a successful project.	cooperation with the Bahrain Tourism & Exhibitions Authority to increase attendance at events and host more of them. increased foot traffic by collaborating more with the marina operator to introduce new pathways. Interactions between Edamah's adjacent development plots, Sa'ada East, and Muharraq Waterfront 1 and 2.
9	What factors affect the success of the project? Now and in the future? How do you think this project added value to social sustainability?	We are trying to provide the best service that will attract more visitors to the project. We are focusing on continuous maintenance, a clean environment, safety & security, new tenants, and shops, etc. The success of the project depends on the visitors, the more we attract them the more the project will maintain its success. Maintaining the project socially will lead to timeless success.	Variety of tenancy use. Availability of car parking, good landscaping, and well-maintained services. For future Success, our target is better marketing, efficient utilization of outdoor spaces, and hosting more events.

According to the responses related to the preference of destination, the on-site observation was carried out in two of the destinations. The first one was the Al-Liwan retail district for being the most favourable destination in the results, and the Sa'ada waterfront development was the least preferred one. Both locations were observed on a weekend night between 8 pm-9 pm. The observation was to monitor the users' behaviour at different zones of the projects as indicated in Figures 6a and 6b. It was observed that the visitors were reaching the observed zones from the closest parking lots near each zone. This also reflects the response of 58% of respondents strongly agreeing on the factor of the short distance between the car park and the destination to encourage more visitors to the destination. It was also observed that more visitors were using the pedestrian-only promenades and walkways than the roads that vehicles can access. In comparison between the two locations, it was observed that more visitors were in Al Liwan than in Sa'ada Waterfront.

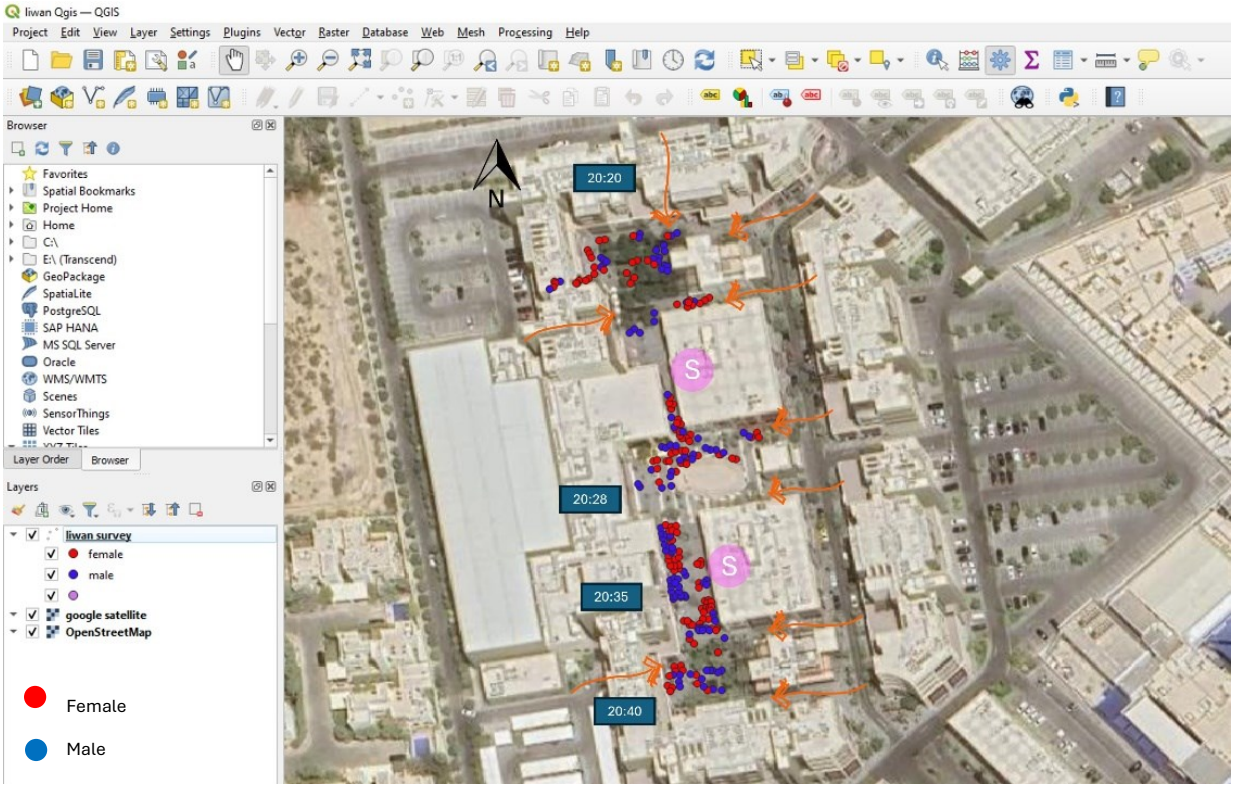

Figure 6a: on-site observation of users' behaviour and circulation pattern on a weekend night time at Al Liwan using GIS for cluster analysis. Image source: https://www.google.com/maps. Analysis by: Author.

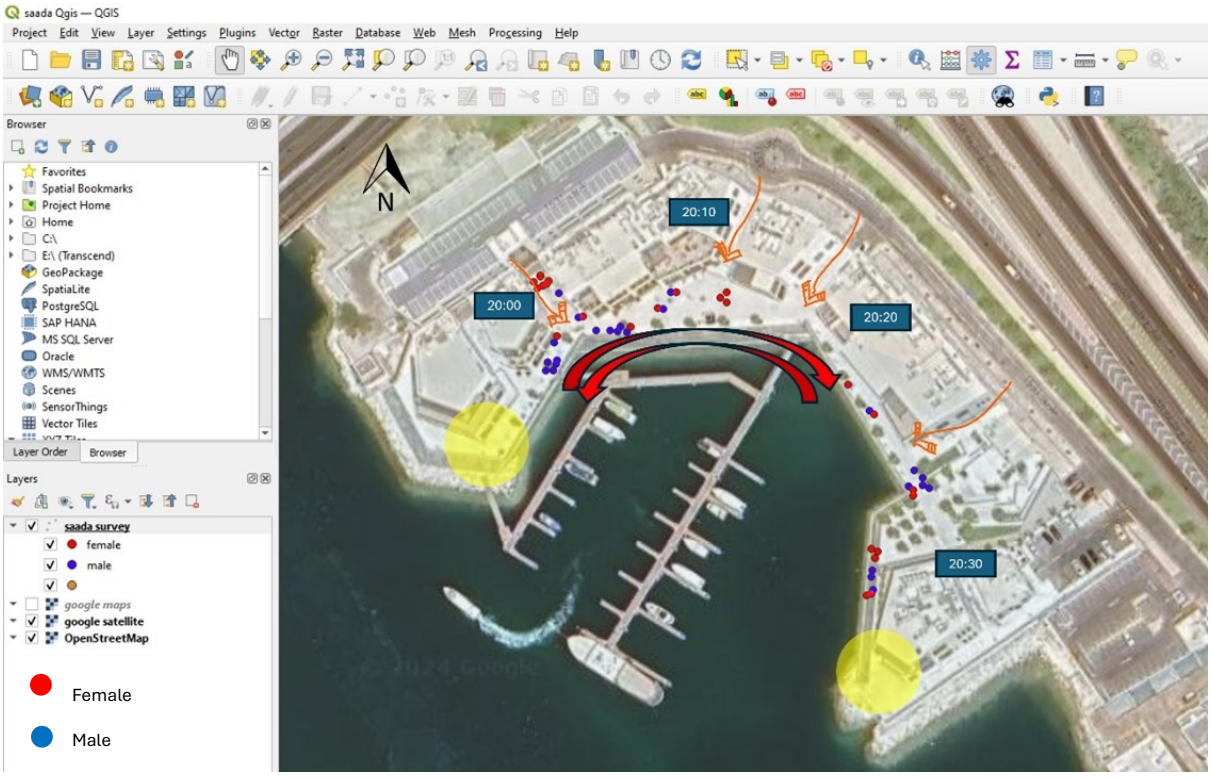

Figure 6b: On-site observation of users' behaviour and circulation pattern on a weekend at Sa'ada Waterfront development using GIS for cluster analysis. Image source: Sa'ada brochure by developer. Analysis by: Author.

The Socio-spatial analysis in both locations shows that the visitors gather around areas that have public facilities and operational shops, mostly crowded at the food outlets. The vacant shops have fewer people

around them even though these are facing an outdoor feature with shaded sitting areas and greenery. However, Sa'ada's spatial layout being a linear format with dead ends on both sides restricted the public in movement, while Al Liwan's spatial layout allowed the visitors to loop around the area and had more freedom of movement in between the blocks which encouraged a continuous pedestrian circulation in the area.

SWOT analysis was used as a qualitative tool to evaluate the social sustainability potential of these two case studies (Table 4). The utilization of SWOT analysis enables the targeted enhancement or exploitation of particular project features, hence facilitating the development of the five critical factors that were identified from the literature as prerequisites for attaining sustainable architecture.

Table 4: SWOT Analysis of the Selected Case Studies Assessing the Social Sustainability Using Five Key Indicators.

Criteria		Sa'ada Waterfront development	Al Liwan Project
1	**Social Interaction**	The project lacks interactive nodes or gathering spaces due to its linear arrangement focusing mainly on the middle waterfront	The project consists of multiple gathering spaces and nodes that facilitate social interaction among the users. These spaces can be identified in Al-Ain, Albaraha, and Alhadiqa.
2	**Architectural identity**	The location offers the link of the waterfront to the historical and heritage site, Muharraq Souq. Targeting the residents of Muharraq mainly due to their social connection with the site location.	Adapting a contemporary style of architecture featured with traditional spatial layout of creating open spaces and gathering piazzas in between the blocks giving the visitors a more nostalgic experience and convenient circulation pattern on site.
3	**Sense of security**	Narrow corridors in between the units leading to non-socially active areas reduce the sense of security in the area. However, the pathways are pedestrian-only with no hazard potential from vehicles.	The spatial connections between the different components and spaces of the project give a strong sense of security in being socially active in every corner. The boulevard area allows vehicle accessibility, however, the narrow road area is designed for a slower pace of vehicle movement, promoting the sense of safety in this area.
4	**Flexibility**	Limitation of expansion and multifunctional use of the space due to the waterfront layout and linear arrangement of the components.	The project consists of potential areas for multifunction use according to the public need. The layout with continuous looping around the blocks provides maximum use of areas around the site that can be accessible by the visitors.
5	**Social participation**	The lack of cultural, social, and recreational activities reduces the potential for visitors' involvement and engagement with the site.	Continuous social, cultural, and recreational activities and campaigns on site encourage the visitors' interest in the place and increase socialization.

The above SWOT analysis explains the reasons why the majority of the participants in the questionnaire selected Al Liwan Project as their preferred shopping destination compared to the Sa'ada waterfront development. It is evident that the Al Liwan is more socially sustainable due to incorporating vital elements that make the space socially active and show a good sense of vitality in its urban location.

4. Discussions

In an analysis of the above findings, the study results indicate that open-space retail districts are preferred over closed malls. Therefore, many aspects should be taken into consideration to ensure social sustainability in these projects. Safety aspects concerning vehicle restrictions and the provision of pedestrian-only pathways are one of the key elements to be considered. Another element is environmental aesthetics, which is highlighted in the literature and is also evident in how the public responds to certain elements like water features, landscaping, and covered outdoor seating places. Another point that can be realized from the findings is that social sustainability does not necessarily relate to the number of visitors and the crowdedness of the place, but rather the quality of the spatial design and the comfort considerations in the space that would attract more visitors to the destination.

The feedback from the expert's interview supports the notion that a retail project's success depends on social sustainability. An examination of related literature reveals several connections across conceptions of urban social sustainability: social engagement is fostered, human needs are met, the future is emphasized, social interaction (cohesion and inclusion) is incorporated, and the quality of life is improved (Mehan & Soflaei, 2017). To encourage walkability in open urban settings, conceptual planning combined with a thorough strategy is required (Arslan et al., 2020) The results of the questionnaire support the argument of Vural Arslan et al. (2018) that cities can be designed to foster connections between people and places by emphasizing, among other things, factors like use, comfort, connectedness, crime prevention, and traffic safety. Moreover, the participants highlighted the importance of environmental aesthetics as a critical element in the walkability attributes of these projects, which calls for greater research and in-depth analysis. Although the information and data collected from the expert's interview were important to understand the case study in depth, one interview with an expert in this field is not sufficient to draw an overall framework to foster sustainable retail districts in Bahrain. The perspectives of several stakeholders are essential to generalizing crucial factors in the framework. A bigger sample of respondents will eliminate the bias preferences. In addition to that, on-site observations will need to be conducted several times at different timings to give a wider range of possibilities and a better perception of users' behaviours throughout different circumstances. Comparative analyses of more case studies with different geographic locations, demographic profiles, and environmental conditions might be able to help overcome the challenges the research technique has in influencing people's opinions and social interactions.

5. Conclusions

In this research, the importance of social sustainability on the vitality of shopping districts in Bahrain is explored. The chosen methodological framework addressed the research concerns in the context of factors affecting the sense of belonging and attraction to retail environments. It is evident from the findings that social sustainability can be achieved by thorough analysis and study at the planning stage of any project. The quality of design and provision of human needs are key elements that can shape the framework towards a sustainable retail project. The selection of the location is a key element towards the success of the project. In order to determine the factors that make up a precise foundation for the future development of the retail industry, a proper and well-studied research strategy is employed to explore the experiences and significance within the socio-spatial setting of these projects. This gives stakeholders confidence in the project's success and social sustainability. Additionally, by analyzing the results, suggestions can be made, such as highlighting the areas that the current projects can be improved in terms of a variety of facilities, attributes, and characteristics (physical and social aspects), along with recommendations on elements that ought to be considered for future projects. Based on a review of the socio-special activities and user behaviour seen in the two spaces, it is clear that the layout and architecture of the space play a critical role in fostering a sense of security, attachment, and inclusion. This could affect the social function that retail districts play in terms of how long customers spend and where they cluster in the shopping area.

Although this research is limited to a small sample of participants and focused on mainly two projects as case studies, the findings may be helpful to the stakeholders who are involved in the process of developing retail spaces. In addition, using them to improve Bahrain's commercial and retail developments by considering their essential features as shopping places that fulfil the users' needs in the space. Following a framework of criteria and including chosen qualities might help designers create environments that are more motivating and successful in achieving social sustainability in these projects. Given the country's extensive

development of retail districts, it is imperative to give greater thought to enhancing the social impact of these projects to ensure their sustainability in the future.

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Data availability statement

The research data is available within the article or its supplementary materials.

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