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Lively Streets: The Role of Streetscape Elements in Improving the Experience of Commercial Street Users in Amman, Jordan

Shatha Mahmoud Al ODAT*[1], Nabeel Al KURDI[2]

**Corresponding author*

[1] *University of Queensland, School of Architecture, Brisbane, AUSTRALIA*

s.alodat@uqconnect.edu.au https://orcid.org/0000-0001-6869-2355

[2] *University of Jordan, School of Engineering, Department of Architecture, Amman, JORDAN*

nabeelprimo@hotmail.com https://orcid.org/0000-0002-3991-8594

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ABSTRACT

Nowadays, planners and designers manage streets, not only as a channel for movement but also as a place for socialising. However, streets in Amman city are still growing into highways that serve vehicles rather than social interaction. Hence, this situation brings more problems for both the liveliness of Amman's streets and their users' experience. This study examines the characteristics of streetscape elements that particularly affect users' experience to improve social and sustained activities on commercial streets. To achieve this aim, structured and semi-structured observations were used to investigate the stationary and transitory activities and measure their duration time. Also, a questionnaire for street users was distributed, and a simple regression test was used to reveal the most preferable characteristics for streetscape elements to improve users' experience on commercial streets, so that it attracts more users to participate with social and sustained activities for a longer period. The findings reveal that poor and inadequate streetscapes on commercial streets affect users' experience; hence, only transitory and necessary stationary activities are available. Therefore, well-designed shopping streets, with comfortable and suitable seating, shelters along the street, lighting devices all over the street, walkable and accessible sidewalks, and green cover, would become much livelier. Finally, the research highlighted the importance of public participation in creating lively cities and suggesting the best practices to be implemented by the local governments.

1. INTRODUCTION

Streets, in the form of roads, paths, and public areas, play a vital role in everyone's urban life. People need freedom to walk or stay on streets or public spaces because of their cramped homes and lack of private gardens (Tolley, 2003); therefore, urban space presented through squares and streets is considered a key element of the cities' social life (Krier, 1990). Currently, many cities around the world have converted their streets into more pedestrian-oriented people places (Mehta and Bosson, 2018). However, in Amman city, Jordan, streets are still growing and shaped into highways and streets that rather serve vehicles, neglecting the concept of revitalising the main streets for social interaction between users (Tawil et al., 2014). As a result, people in Amman are not willing to socialise on the streets, but are looking for a lifestyle that offers amenities within Amman's public spaces.

Urban planners, architects and designers in Jordan are highly encouraged to create desirable spaces for society, considering the engagement of the public to

develop their street activities. In this research, the authors focused on both measuring the liveliness of a given commercial street and examining the relationship between streetscape elements and users' experience on that street.

The research questioned the public on the priority of providing streetscape elements in Amman's commercial streets, which will improve their experience and determine more users to spend a longer time there and therefore support the social activities from their perspective. Although most Asian cities neglect public participation due to the control of local governments in the planning process for public spaces through top-down initiatives (Miao, 2013), this research considers public participation by studying their opinions to the most preferable streetscape element that encourages them to keep socialising. Further, observations were made in the study area to detect the level of liveliness by revealing the type of user activity, the needed to conduct these activities, and their location.

1.1. Literature review

1.1.1. Liveliness

A lively city is a key factor for offering an ideal urban life that will positively affect the quality of life of inhabitants (Taki et al., 2017; Wey et al., 2016). The concept of a lively city refers to an urban system that includes the physical, social, and mental well-being and personal development of all its inhabitants. Liveliness also comprises the concepts of delightful and desirable urban spaces that bring the community together (Hahlweg, 1997).

According to Gehl (2007), a good physical condition of streetscape elements can positively affect social interaction by increasing the number of users and therefore produce lively areas. Gehl (2013) later mentioned that the most important factors to measure the liveliness are the number of users and the amount of time they spend in public spaces. He also classified the activities into optional or necessary, where necessary activities are an integrated, non-optional part of everyday life, while optional activities are recreational and fun by nature; hence, when optional activities are more frequent than the necessary ones, it indicates that the area is a liveable place (Gehl, 2013).

In this article, the lively street will be measured based on the number of users who engaged in different stationary and sustained activities, particularly those activities social by their nature. As increasing liveliness of city's spaces depends on the quality improvements of that space, such as the rehabilitation of streetscape furniture, it will enhance the city social life quantitatively by inviting more people to use that space, and qualitatively by inviting them to spend a longer time there (Gehl, 2013).

1.1.2. Streetscape elements

Sauter and Huettenmoser (2008) demonstrated that developing and improving the quality of streetscape elements for an urban setting would prevent or decrease the number of social problems of that space. Additionally, Appleyard (1980) stated that the best approach to bring the community together within urban areas is to consider the human aspect when designing any urban environment.

This study selected the streetscape elements based on their frequency and regularity in the studied literature. The users were asked to rank these elements according to their impact on their experience. The selected elements ordered by users are walkability and accessible paving, seats, shelters, lighting, signage system, and green cover (trees and plants).

1.1.2.1. Walkability and accessible paving

Walkability is defined as the interaction between the pedestrian and paths. Many studies have evaluated the link between pedestrian behaviour and the urban environment; however, they have different ways to measure walkability (Lo, 2009; Moura et al., 2017). For instance, Lo (2009) stated that walkability is not only a physical activity, but also a vital element for the social environment, so the improvement of connectivity between pathways and their physical condition to link pedestrians easily with their daily activities is needed (Zacharias, 2009).

Appleyard (1980), Park (2008), Mesbahul (2008), and Gehl (2013) agree that greater traffic volume is associated with fewer pedestrian trips and less sociability, while street walkability and social interaction are both improved in the case of streets with less traffic. Moreover, a study in Basel, Switzerland, was chosen due to the similarity of street traffic classification in Switzerland with the commercial streets in Amman. The study was conducted to assess the effect of traffic volume on street liveliness. A comparative analysis was used to analyse the three types of street by speed, within a pedestrian priority zone: a 50 km/h street, a 30 km/h street, and a 20 km/h street. The study concluded that liveliness is much more common in the case of streets with less traffic, where the streetscape design meets the human needs to create comfortable spaces for pedestrians and users (Sauter and Huettenmoser, 2008).

Zacharias (2009) noted that a good connection of pathways promotes better accessibility and, therefore, generates increased pedestrian flow. Forsyth et al. (2008) also illustrated that providing highly accessible spaces for pedestrians is a key factor for achieving a lively, sustainable, and vibrant environment. As a basic interface for pathways, the pavement is considered a substantial aspect in

providing walkable and accessible spaces that would also attract people to the space with its continuity and comfortable material (Wang, 2011).

1.1.2.2. Seats

Mexi and Tudora (2012) mentioned that providing suitable, comfortable, and aesthetic seats in urban areas will produce a pleasant experience in these spaces and encourage the community to build an active social life in the city. A study was conducted with a view to Stockholm public spaces to assess the most preferable seat for individuals to make the Stockholm urban areas livelier. The study revealed that local climate, placement, protection, and the view from the seat, all have a positive effect on inviting people to sit and stay longer. In brief, the basic requirements for a place to sit are pleasant weather, suitable placement within the space, low noise and pollution, and facing a good view (Gehl, 2013).

1.1.2.3. Shelters

Forsyth et al. (2008) argued that the urban environment conditions affect social activities in that area, indicating that good environmental conditions attract more social and sustainable activities. Further, achieving the needs of environmental comfort is highly recommended to provide a pleasant experience within the city. For example, Rehan (2013) mentioned that shelters and canopies can serve this need, as they are not only used to cover walkways, bus stops, and setting areas, but also protect pedestrians in different weather conditions.

1.1.2.4. Lighting

Poor visibility in dark hours within open areas causes user anxiety, while insufficient lighting causes dark spots in which crimes can occur. Consequently, improving the lighting system in public spaces can effectively decrease crime (Painter, 1996). Moreover, Quinet and Nunn (1998) discussed that there is a direct relation between the sense of safety and the lighting quality of the street, based on their findings from quantifying crimes through the number of calls made to the police from dark urban spaces. The absence of lighting devices can not only affect people's level of fear but also decrease their desire to stay in that space (Oc and Tiesdell, 1997).

1.1.2.5. Signage system

One more significant element of a streetscape that affects the physical environment is the signage system. Portella (2007) believes that visual damage such as unsightly destructive graffiti and poor design of the commercial signage determines the decrease in the physical quality of the environment, which affects users' perception of that environment. A study was conducted on Amman's commercial streets to investigate the use of signs on commercial building facades. Three main busy streets with pedestrians were selected to examine the function and the perceptual features of Amman's signage system. Some of the physical data that the study focused on were the function of the building, placement, size, height, colour, and illumination of the sign. The study revealed that Amman's commercial streets have destroyed their image by using insufficient and messy signs, which affect users' experience and makes travel more complicated. Thus, the need to develop a sensible design for the signage system to remediate visual pollution is essential (Abu-Ghazzeh, 1997).

1.1.2.6. Green cover

The users of public spaces are influenced by the green cover; urban vegetation views decrease negative feelings such as fear and anxiety and increase positive ones such as comfort and passion (Ulrich, 1979). Also, trees and green cover serve physiologically to relieve noise effects through their effectiveness in blocking the unwanted noise source (Herrington, 1974). Further, Layne (2009) stated that green cover in public spaces supports interaction between different generations and thereby contributes to social sustainability. Roadside trees' effect is not limited to serve the users' experience, but it brings environmental benefits, such as reducing both the urban heat island (UHI) and air pollution (Wang and Zacharia, 2015). This extensive impact was highlighted in different simulation studies. The correlation between the green cover and UHI extent was of 0.93 (Li et al., 2004). In addition, vegetation is a key factor in reducing air pollution, including 2.5 micrometres atmospheric particulate matter (PM2.5) (Matzka and Maher, 1999), which is heavily produced on high-traffic roads (Smargiassi et al., 2005).

Although users' experience within urban spaces was evaluated on several levels in previous studies, only some of the important factors that may affect the users' experience were examined, without focusing on commercial streets as a social place for gathering and interaction. To fill this gap, this research examines the characteristics of streetscape elements (independent variables) and defines their relation to users' experience (dependent variable) on commercial streets. The main research questions are as follows:

- What are the streetscape elements that can improve users' experience on commercial streets?
- What are the effective strategies that could provide new streetscape characteristics to make streets livelier according to users' perception?

2. THEORY AND METHODOLOGY

The research design of this study consists of observations, a questionnaire, and a simple regression analysis, and it is presented in the research framework figure (Fig. 1).

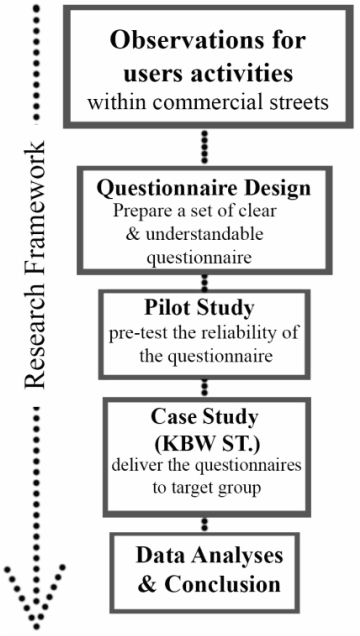

Fig. 1. The research framework.

2.1. Observation

The field observation was applied first through a walk-by observation to illustrate the activity patterns, the number of users, and the location of the activity within the study area. Second, structured direct observations were used to detect the duration of stays of the street users. The observation was conducted on both sides of the street and on the median island to specify the types of activities carried out, whether transitory or stationary, and sustained activities. Each part of the street was monitored during the daytime (from 11:00 a.m. to 6:00 p.m.).

These observations were made from 2 May 2019 to 25 May 2019. An observation table was prepared beforehand to ensure that similar observation strategies and techniques were used each time, and then each activity was represented on the map. Researchers then recorded and classified the activity types on the street into three main categories: moving, standing, or sitting. All the recorded activities were then processed in MS Excel to provide readable charts. During the observation period, the weather was clear and sunny, which was suitable for running the field work.

2.2. Questionnaire

The street users who were assumed to support social life and liveliness, including traders, visitors, and passersby on the commercial streets of Amman city, were invited to participate in a pilot study. The questionnaire was tested through the pilot study to verify its reliability; the questionnaire was found to be valid and reliable with a Cronbach's alpha of 0.84. The target group for the main survey included neighbourhood residents, traders, visitors, and passersby.

The study sample was chosen according to Krejcie's (1970) table for determining the sample size for a given population. The required sample size was of 118 respondents according to the total population of the block segments in Khalid Bin Waleed (KBW) Street, which was of 170; however, the sample size was increased to 140 to compensate for any missing or incomplete questionnaires. The respondents in the block segments were selected through a stratified random selection. First, the sample size was equally divided into two groups: respondents from the left side and from the right side of the KBW Street. Then, the individuals from the block segments were randomly selected, one every five minutes. A total of 140 questionnaires were distributed by the researchers in the area under study. A total of 124 questionnaires were returned (with a response rate of 88.5%), while 16 questionnaires were excluded from the analysis due to incomplete information. The questionnaire was structured into two sections. The first section was related to demographic variables, which consisted of questions about gender, age, education level, and job. The second section included questions about the physical attributes of the streetscape: walkability and accessible paving, seats, shelters, lighting, signage system, and green cover. All the respondents who were selected in the survey were asked to rate the extent to which the streetscape elements affected their experience according to element's existence, physical condition, comfort of use, and aesthetic value. The questionnaire consisted of 26 questions, and answers were based on a five-level Likert scale (5 = extremely important, 1 = not at all important).

Analysis. Data were computed and analysed using SPSS software version 23, and a simple regression test was conducted to analyse the impact of the physical attributes on the liveliness of KBW Street. Each aspect (walkability and accessible paving, seats, shelters, lighting, signage system, and green cover) was tested separately by the simple regression test.

2.3. The case study

The Abdali region is geographically considered the heart of Amman city. It comprises the four oldest residential neighbourhoods in Amman: Jabal Al-Hussein, Jabal Al-Lwebdeh, Al-Shmesani district, and Al-Madena district. In addition, Abdali region houses governmental, social, and economic sectors, for

instance, the parliament building, justice palace, security and military buildings, the King Abdullah I Mosque, and many different retails and shops (Al-Asad, 2005). In this article, we focused on the commercial street of Al-Abdali, a pedestrian-crowded street. To classify the streetscape elements according to their importance in improving users' experience in terms of social and sustained activities, the users of a major commercial route (Fig. 2) in Al-Abdali district were surveyed.

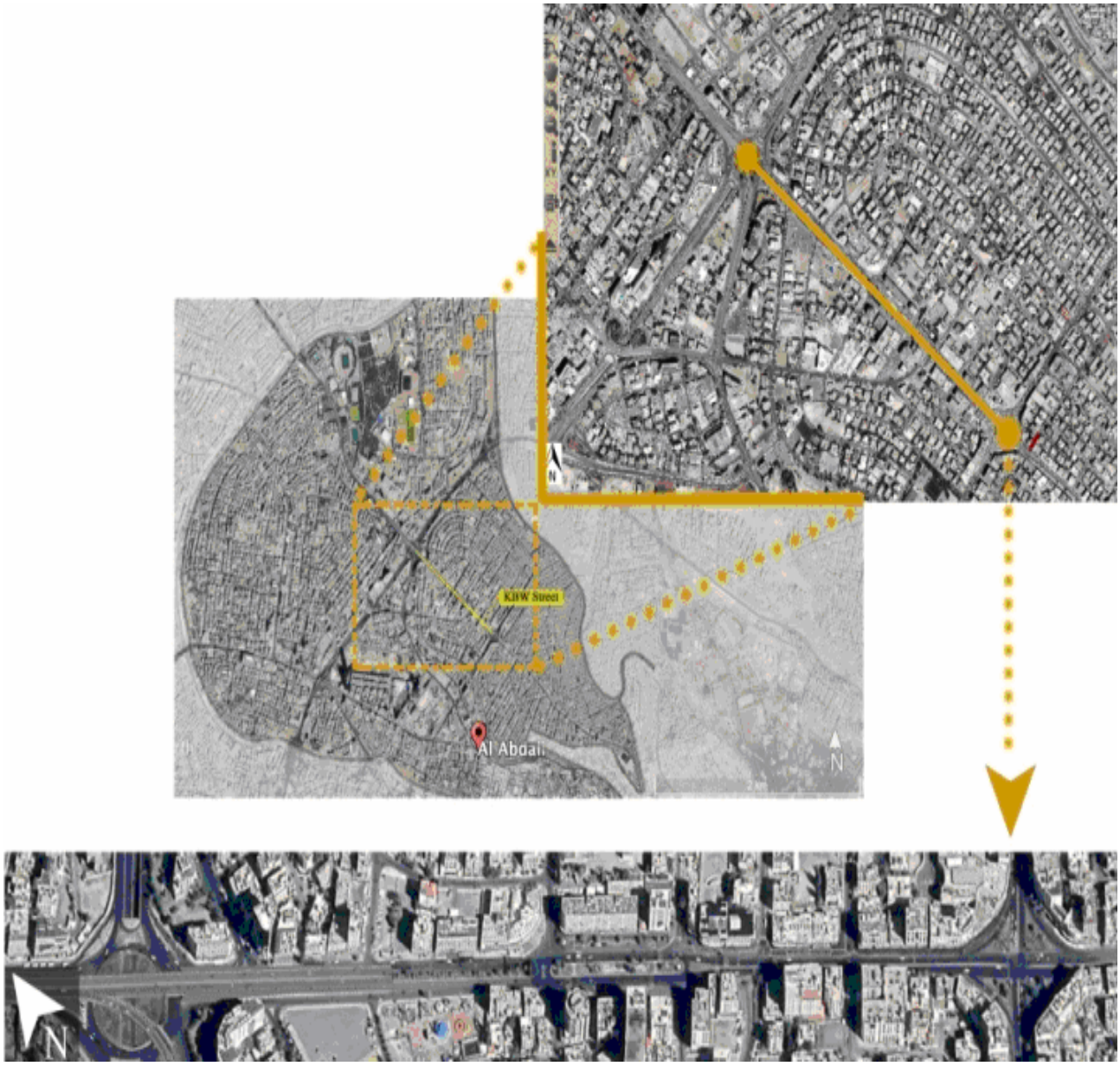

Fig. 2. The KBW Street within the Abdali district.

The KBW Street was selected because it is considered the most important commercial street in Al-Abdali district, as it presents the largest outdoor shopping area along both sides of the street. The KBW Street has around 32 blocks, including 170 block segments on both sides. These block segments have different shops for clothes, bank branches, cafes, restaurants, pharmacies, mobile accessories, and other destinations that service the daily needs of inhabitants on the street and visitors passing by. Moreover, KBW is a channel for both public and private transportation, as well as for pedestrians (Al-Asad, 2005). Although pedestrians are detected on the street, the street still serves vehicles more than pedestrians, as it is easily accessed by cars, while stoplights are not available down the street to support the safety of pedestrians. KBW Street is structured into two sides, each having three lanes each, with a maximum speed of 70 km/h.

A wide median island is located almost in the centre of the street; it has several chairs, fountains, and restrooms for both genders. KBW Street also has a wide paved area for pedestrians on both sides, but often the pedestrian experience along the pavement is interrupted by hindrances such as broken paving, high

difference in step levels, road junctions, and many other walking obstructions (Fig. 3).

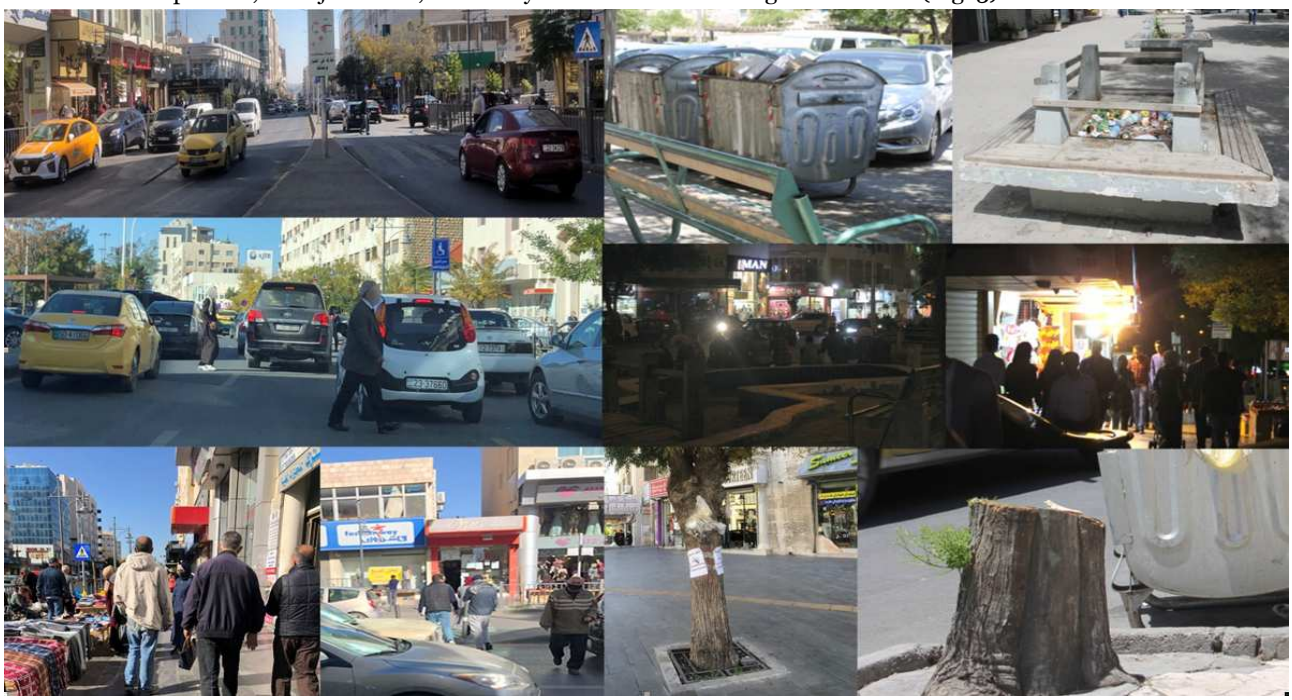

Fig. 3. Traffic, pedestrians, and some streetscape elements on the KBW Street.

3. RESULTS AND DISCUSSION

3.1. Observation results

3.1.1. Walk-by observation

Through the walk-by observation, the activity patterns, the number of users, and the location of activities were detected. The total number of observed activities was of 10,838. The results showed that 46.9% of the users were engaged in walking and cycling, while the remaining 53.1% were engaged in stationary activities. The stationary category was divided into standing and sitting categories: the standing category includes standing for traffic, waiting for transportation, trading, eating, smoking, talking on the phone, looking for activities, and enjoying life; the sitting category includes sitting to rest, trade, eat, supervise, have a conversation with someone, or enjoy the weather (Fig. 4).

Fig. 4. Different patterns of activities detected on the KBW Street: *a). Stand for traffic; b). Standing alongside; c). Stand to trade; d). Sit to smoke; e). Sit to sell; f). Sit to rest.*

The Excel programme was used to sort the collected data from the activity observations. The authors then focused on the order of the observed stationary activities from the most optional and

sustained activities to the most necessary activities to have a real measurement of liveliness on the KBW Street. The chart below shows the number of users who were engaged in each stationary activity (Fig. 5), and the location for each detected activity is presented in Figure 6.

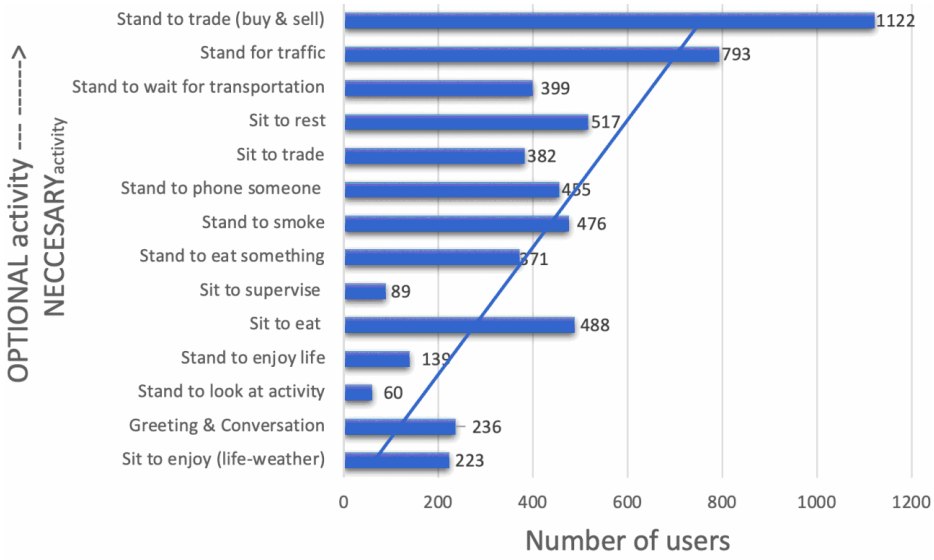

Fig. 5. Users engaged in different optional and necessary activities.

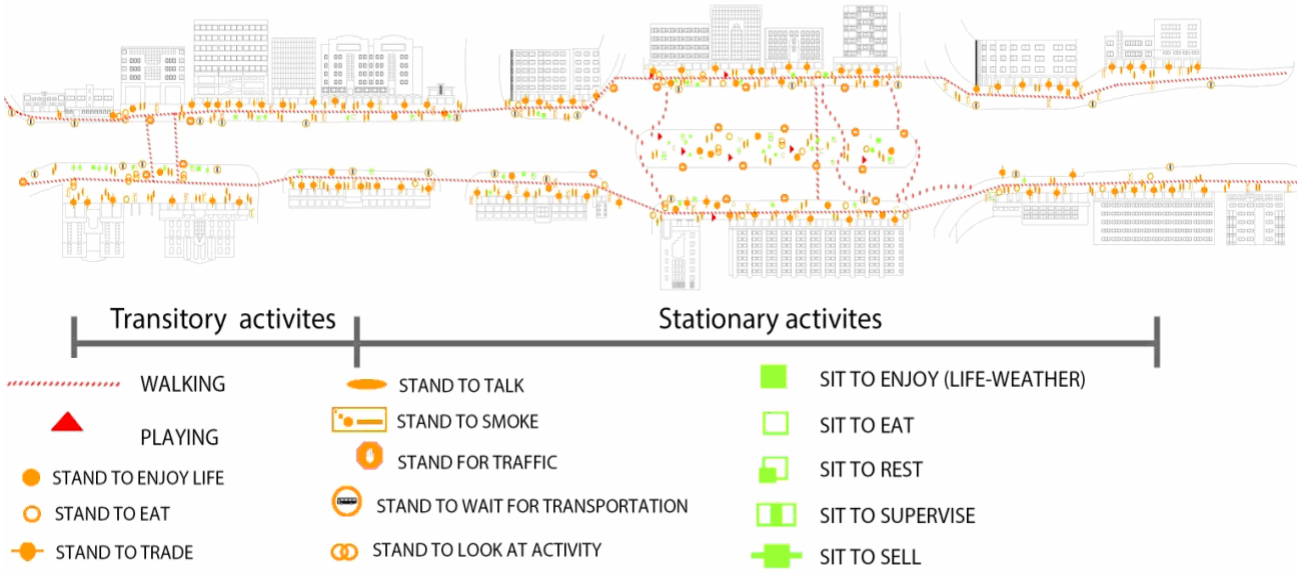

Fig. 6. The location of each detected activity on the KBW Street.

The total number of individuals who were recorded as engaging in stationary activities was of 5,750. The results of the walk-by observation showed that the highest share of users was engaged in standing for trading (19.5%).

Standing for traffic and sitting to rest were recorded for 13.8% and 9% of the street users. Alternatively, the activities of standing to watch other activities, sitting to supervise children, and standing just to enjoy life were recorded for 1%, 1.5%, and 2.4%, respectively.

3.1.2. Structured direct observation

The analysed commercial street was divided into the right side, the left side, and the median island, as mentioned in the observation section. The authors located themselves for 20 min in the median island and for 20 min in each block on both sides of the street to record the duration of stationary activities. The direct 20-minute observation of the activities was applied on the median island and on each block three times each day during the field work period.

The duration of stationary activities was classified into five categories: less than 1 min, 1 to 5 min, 5 to 10 min, 10 to 15 min, and longer than 15 minutes. The results showed that the duration time for all observed persons who were engaged in the sitting and standing for trade was higher than 15 min. The average duration time for persons engaged in optional activities is considered a short duration of stay. For instance, the average duration time for sitting to enjoy

the weather, sitting to have conversations, standing to enjoy life, and standing to watch other activities was of 2 min, 3 min, 2 min, and 1 min, respectively. Moreover, the traffic environment was found to influence the duration time for some stationary activities. For example, standing to wait for transportation and standing to wait for traffic to slow down to cross the street took an average duration time of 9 and 6 min, respectively.

3.2. Questionnaire results

The participants involved in the study were 61.3% male and 38.7% female. Most participants were aged between 18 and 29, with a share of 54.8%. Regarding the education level of participants, the highest percentage was represented by bachelor's degree holders - 62.1%, followed by people having different other levels of education high school graduate - 20.2%, post-graduate - 15.3%, and PhD degree - 2.4%.

Moreover, the participants were classified as neighbourhood residents, traders and employees who work in retail, and users and passersby who were shopping or visiting the area, representing 21.8%, 30.6%, and 47.6%, respectively.

3.2.1. Simple Regression Test

A simple regression test was used to reveal the impact of the streetscape elements on the user experience on the KBW Street; each aspect (walkability and accessible paving, seats, shelters, lighting, signage system, and green cover) was tested separately. They were considered independent variables, while the users' experience was considered a dependent variable.

The simple regression test revealed that user's experience on the KBW Street was affected by walkability and accessible paving (F=4.77, P=0.03) and the green cover (F=7.872, P=0.04) of the area. Yet, their impacts were not as influential as seats (F=56.5, P=0.00), shelters (F=49.4, P=0.00), and lighting devices (F=8.3, P=0.005). On the other hand, the signage system (F=0.173, P=0.678) was found to have a negative impact on the user's experience on the KBW Street (Table 1).

Table 1. Simple regression to ensure the impact of physical attributes on user experience of the KBW Street.

Tested dimension	R	R^2	B	Beta (ß)	F Value	DF	Sig
Walkability and accessible paving	0.202	0.04	0.128	0.202	4.77	123	**0.03**
Seats	0.579	0.336	0.396	0.579	56.555	123	**0**
Shelters	0.554	0.306	0.359	0.554	49.486	123	**0**
Lighting	0.264	0.07	0.123	0.264	8.374	123	**0.005**
Signage system	0.039	0.002	0.025	0.039	0.173	123	**0.678**
Green cover	0.222	0.049	0.111	0.222	7.872	123	**0.04**

3.3. Discussion

3.3.1. Observation discussion

3.3.1.1. Walk-by observation

The results showed that most users on the KBW Street were engaged in transitory activities. This is because of the central location of the KBW Street, which connects various neighbourhoods while providing a long commercial strip that serves local inhabitants and visitors; the shopping in this area requires walking to buy goods from different shops. Regarding the stationary activities, the most frequently detected were sitting and standing for trade, standing for traffic and waiting for transportation and sitting to rest, all of them being considered necessary activities. On the other hand, the optional activities that occurred on the KBW Street as sitting or standing to enjoy the weather, sitting to have a conversation, and sitting to look at a certain activity recorded a small number of users. In Figure 5 the trendline shows the general direction of the number of users, which decreases dramatically when activities are considered rather optional. The reason for detecting necessary activities more than the optional ones is the poor and inadequate streetscape in the KBW Street. This finding can clarify why the respondents chose some streetscape elements as a major factor affecting their experience. As previously mentioned, the characteristics of the physical environment are a key factor for supporting stationary and social activities (Gehl, 2013).

3.3.1.2. Structured direct observation

It was clear that the duration of the stay for each activity varied according to the type of activity. For example, the activities of sitting to trade or standing to trade are necessary activities, and they are long by their nature, so we cannot say that they are sustained activities because they are necessary. Sitting to enjoy the weather or to have conversations, standing to enjoy life or to watch other activities, are all optional activities that occurred on the KBW Street for a short time, of approximately less than 5 min. Moreover, the average time for activities related to the traffic environment i.e.,

standing to wait for traffic to slow down and cross the street took 6 min, which is considered a long duration time.

This indicates that the priority in this mixed traffic area is not given to pedestrians. Overall, according to the duration of stay to carry out stationary activities on the KBW Street, we note that optional activities did not occur for a long time, while the necessary ones showed more people who spend much time in that space. The KBW Street is highly transited by passersby, yet few people staying for optional and recreational activities. This suggests that KBW Street is not a comfortable and pleasurable place to perform sustained activities that would make the street socially vibrant and liveable. This finding was supported by Gehl's (2013) opinion that lively spaces must have longer-time duration optional and recreational activities, while the duration of stay can reflect the pleasure, comfort, and enjoyment of the users within that space.

3.3.2. Questionnaire discussion

3.3.2.1. Walkability and accessible paving

The results of the questionnaire employed in this study revealed that the walkability and accessible paving have a significant effect on the users' experience. Although the walk-by observation revealed that most KBW Street users were engaged in transitory activities at 46.9% for walking and cycling, the users showed discomfort and dissatisfaction while moving along most of the sidewalks of the KBW Street. They highlighted the most significant causes. First, there were issues related to poor connection of sidewalk paving with many broken areas, a high difference in step levels, and no specific areas for users with disabilities. Consequently, the continuation of pathways, which was previously mentioned by Zacharias (2016), is critical for promoting comfortable accessibility to users. Second, the high traffic on the KBW Street increases the risk of accidents, especially because the speed limit is around 70 km/h. This finding was similar to the study conducted in Basel, which revealed that walkability is offered comfortably on streets with less traffic, where the paths meet the human needs to create comfortable spaces for pedestrians and users (Sauter and Huettenmoser, 2008).

3.3.2.2. Seats

The results in Table 1 show that users consider a suitable location with an appropriate and aesthetic seat view as the most remarkable element that substantially affects users' experience. This may be because the land use of the study area was considered commercial, where retail and shops provide different categories of services that involve a long-time activity for users, so they need to rest or have a break while shopping there, using a seating area with the previous characteristics. Likewise, the most desirable seats detected in Stockholm were located along edges, facing a good view, and with low pollution and noise; along with pleasant weather (Gehl, 2013).

When observing the activities on the KBW Street, the percentage of users engaged in sitting activities was of 17.9%. They were observed sitting on chairs located only on the median island, while the sitting activity on both sides of the KBW Street was performed by users by using their own moveable chairs or sitting on the ground to sell their goods. Accordingly, it is necessary to provide a comfortable and pleasant sitting area for users to rest, eat, or do any other activity. Abdulkarim and Nasar (2014) mentioned that providing sitting areas in public spaces such as near retail shops with various locations, characteristics, types, and flexibility is highly important to enhance the liveliness of the area.

3.3.2.3. Shelter

The survey showed that shelters and canopies also have a positive correlation with users' experience within commercial streets. This is due to the concept of environmental comfort on the street, as direct sunlight is not desirable in summer, as rain in winter, so most users seek covered places. This finding is congruent with Rehan's argument that achieving environmental comfort is highly recommended to offer a pleasant experience for users, and shelters and canopies serve this need (Rehan, 2013). This also confirms Maslow's concept regarding the need for environmental comfort, where shelters protecting from different natural conditions are one of the most basic physiological needs and essential for designing the built environment (Maslow, 1968).

3.3.2.4. Lighting

Lighting devices were also chosen by respondents as an effective element in users' experience, as they must be available on any street to induce a feeling of safety and security. Respondents ranked lighting as highly important due to their urgent need for a high level of safety during dark hours, as lighting devices on the KBW Street were found only in the median island to light the motorway, while the median island that contains the sitting area did not have any lighting devices, and the sidewalks on the right and left sides were lit only by the shop fronts. Oc and Tiesdell (1997) mentioned that bright and lighted areas increase the sense of safety and security to users; therefore, if suitably equipped the space would become more desirable and attractive to users.

3.3.2.5. Signage system

The results of the questionnaire revealed that there is no significant impact of the signage system on users' experience. This can be explained by the fact that most of the users were familiar with the study area due to the simple form of the street that can be recognised easily. This contrasts another study conducted on Amman's streets, which showed that providing a sensible design for the signage system can affect users' experience by simplifying their navigation, in addition to solving the visual pollution caused by insufficient and messy signs (Abu-Ghazzeh, 1997).

3.3.2.6. Green cover

Table 1 shows that respondents perceived the green cover as an important factor affecting their experience on the KBW Street. This result could be illustrated through the effect of the high traffic founded on the KBW Street, which spread noise and pollution in the surrounding areas, where unpleasant feelings and discomfort are experienced by users. Therefore, the respondents prefer much vegetation in commercial streets to provide a soft element with good views and to block the noise and polluted air. Wang and Zacharia (2015) supported this finding, as they stated that roadside trees not only improve users' experience but also benefit the environment by reducing UHI and air pollution.

4. CONCLUSIONS, LIMITATIONS, AND RECOMMENDATIONS

4.1. Implications for practice and advancement of research

The findings of this study listed the most important elements that can support stationary activities and users' experience on a commercial street in Amman city, Jordan. Their descending order was providing proper seating, covered walkways and seating areas, lighting devices all over the street, walkable and accessible paved areas for pedestrians and disabled users, and increased vegetation and green cover in the street. According to users, the provision of these elements will encourage them to stay longer on the street to engage in social and sustained activities; hence, the area will become much more useful and meaningful for users. Although the researchers could not select additional cases due to the time limitation of the study, the observations detect a similarity among commercial streets in Amman city, as they mostly serve vehicles and neglect the concept of revitalisation of the main streets for social interaction among users. The study can be considered a key model for improving the social aspect within Amman's commercial streets.

The outcome of this research is to establish a set of recommendations to improve the physical condition of the study area, whereby users' experience of all Amman's commercial streets will be enhanced. The first useful action is to provide proper street furniture such as seating, suitable shelters, and an efficient lighting system. The next step is to provide areas with proper paving accessible to both pedestrians and disabled people, green cover, and planting. Thereafter, periodic maintenance of each element of the streetscape is required, such as pavements, seats, and lighting. Finally, public participation has an effective role in creating lively cities and without people's involvement, municipalities and other governmental departments will not be able to develop and maintain lively and enjoyable cities. Thus, the Greater Amman Municipality must raise public awareness of urban maintenance and cleaning issues.

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