

## Creation of a Walkway: Physical Features or Public Behaviors?

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**Abstract** | An urban space is not only a physical concept but also includes social interactions and urban activities. In fact, it finds its meaning through the presence of people and their activities. A walkway, as an urban space, has a substantial role in elevating the socio-cultural activities in the society. With proper design and recognition based on the city's landscapes, pedestrian movements in walkways improve the identity, the power of perception, the sense of attachment to the landscape and the aesthetical elements of a view. One of the recent trends in urban design is the focus on pedestrian movements and their needs as an important, once neglected subject in cities. By looking at Princess Street in Edinburgh, this study tries to identify the critical attributes for a successful pedestrian-based street. This study is explanatory-analytical; it refers to historical evolutions and transformations of Princess Street to examine the important factors which played a part in the formation of the street. We find that the most important factor in such walkways is the active presence of people. This study also emphasizes on the emergence of pedestrian walkways as a way of facilitating movement and safety for the people and checks to see if walkways are a pre-requisite or a post-requisite in obtaining these qualities.

**Keywords** | Urban Space, Street, Walkway, Princess Street.

**Introduction** | In recent years, the global approach in landscape design has been more toward humane cities in order to achieve sustainability. This theory, i.e. the humanistic approach (the balance between vehicles and pedestrians) puts emphasis on protecting the pedestrian movements by dividing the urban space into roadways and sidewalks in order to achieve a sustainable environment. An urban space consists of four principal elements, namely the residents or pedestrians, man-made elements (physical or actual), relations (between people and the elements or between the elements themselves), and time. Herein, the most critical factor in the development and

the identification of an urban space is human and its presence (Sheykhi & Rezaei, 2017). As Hayden (1995) puts it, 'the power of a place lies in stories and everyday narratives of the people who are acting relentlessly to create that place. Unfortunately, in today cities, we do not see much attention paid to the needs of modern people, especially in social aspects.

### Research Questions

Can the mere creation of a walkway be effective, attract people and respond to their social interactions? If not, what makes a good walkway? Was the transformation of Princess Street into a walkway a prerequisite for its performance? Or was it the existing activities that forced us to create this walkway?

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## Hypothesis

It seems that the physical aspect of this walkway only serves to define a space and has no contribution in attracting people, i.e. people have been actively using this place for other reasons. This has prepared the grounds for this transformation. In fact, we argue that this transformation was not necessarily a requisite for the street's success; it has only facilitated the movement and created a safe and peaceful environment for the people involved.

## Background

The history of walkways as we know it today goes back to 70 years ago, and European countries, such as Germany and Netherlands were the first to implement walkways. American cities started to develop pedestrian walkways with a delay of almost two decades, and developing countries have paid attention to the subject since 3 decades ago. Meanwhile, through the time, we can see a shift from mere economical and physical objectives to recreational and social approaches. Olmsted, a well-known American architect and the founder of landscape architecture, was the first to divide the roadway and the sidewalk in New York's Central Park in 1858. Hassklau (1990), in a research called 'Sidewalks and the City Traffic of London', analyzed and compared the different approaches to this separation in UK and Germany, and concludes that in order to attract people in city centers, providing a safe, appealing, desirable pedestrian walkway is mandatory. Matheo babiano (2003) in his research about managing the pedestrian space to reach sustainability, considers different types of needs for pedestrians in an urban space. He declares the ability to move, protection, comfort, joy and identity as the most important needs and identifies the ways to measure these items. Newman et al. (2008) in a research named 'Challenges and Opportunities in the Walkway Initiative' acknowledged the social capital as a strong measure to create pedestrian spaces and walkways. The subject of separating roadways and sidewalks has experienced a rapid growth and is intensely requested by the public. There have also been several studies in Iran: in a research to improve spatial-functional structure quality in city centers, Moeini(2007) surveyed the effective factors in increasing the amount of walking and measures the walking potential in relation with walkways in residential and commercial regions.

Kashanijoo (2010) talked about the importance of features such as retail locations, conflicting usages, coherence and protection against climate in shaping a pedestrian based urban space. Sultani and Piroozi (2012) defined

measures and indicators for being pedestrian-based and put emphasis on factors such as safety, physical conditions, recreational facilities, movement and accessibility, quality and maintenance in promoting pedestrian-based values. Accordingly, it is tried here to explain the factors that facilitate the creation of a walkway.

## Methodology

This research is done with an explanatory-historical approach and refers to historical events and physical-actual attributes of Princess Street to find and analyze the factors that transformed this route to a pedestrian walkway. By a comparative study of different ages and eras, we can reach an inductive conclusion.

## Pedestrian Walkways

Pedestrian walkways are linear spaces in the city which are shaped to convey the highest social role possible (Cohen, 2010). Based on Lefebvre's theory, Mitchel (1996) defined the urban spaces in relation to everyday life, i.e. working, playing, shopping and living. Low argues that people in their social exercises, form their physical environment to be responsive to their various needs, and that they act as a social force to build their own facts and meanings (Charkh-chian, 2017). The Consecutive Views theory by Gordon Cullen is in fact an emphasis on spatial and visual perceptions in urban spaces. He sees the city as a complex which you can move through it and perceive it as 'diverse continuous landscapes' rather than just a still image. Cullen argues that if we want people to find joy in moving through the city and looking at it, we should prepare the city for pedestrians by prioritizing walkways and their coherence. He thinks that vehicle movements destroy the individual identity while a well-thought network of walkways forms a humane pattern. Based on the belief that urban environment should be a joyful experience for everyone, Cullen emphasized on people and their presence in urban spaces in his own designs. Walkways act in urban scale and should attract different groups of people with different spatial perceptions, carrying symbols and historical turning points that provide a narrative for the city and protect its collective memory (Ashoori, 2010). Jane Jacobs, a journalist and an imminent theorist, talks about the role of public spaces in creating social interactions in his book named 'Life and Death of Big American Cities'. He believes that what stays in mind from a city is its public spaces, especially its streets and walkways. Therefore, the social objectives are the most important factors in the creation of streets: the need for safety, development, ethnical and

economic reasons, etc. The first feature in the landscape of a street is its contribution to creating spaces (Atashin-bar, 2010). These spaces result in the growth of economic activities and the revival of city centers.

### Identifying the research boundaries

One of the main streets in Edinburgh (in Scotland) and the first street in the new Edinburgh is Princess Street. This street has been planned to conform to the formal designs of the main city. Regarding its location, Princess St. is the southernmost street of New Edinburgh and the main shopping center of the city; a very critical region in the city, being located on the external edge, in front of Edinburgh Castle and the old region of the city (Old Edinburgh). One of its prominent features is the lack of any buildings in the southern part and having a panoramic view to the old region, Edinburgh Castle and the valley between these two.

### Historical Analysis

The construction of Princess Street was started in 1770 by an architect named James Craig as the residential blocks started to appear in the northern part of the street. In fact, the street was originally residential and since 1800s, has changed its face to be a commercial street. Since 1880s and by having spectacular views and easy accessibility, this space has become very popular for building hotels (Fig. 1). Railway companies in the east, west and the middle of the street built huge hotels. In 1949, Abercrombie's plan proposed the change of the façades for more integrity and

in 1967, a seamless design was proposed by controlling building heights, materials, floors, façade widths and height designs. During the construction of the new city, polluted water of Nor Lake drained and this region was transformed to Princess Street Gardens. After that, the width of the street was expanded to reach the north edge of the gardens. Since the gardens were much lower than the street, a steep dike was created in the north of the gardens which became a promenade in the street level. Princess Street was once a place for noisy commercial buildings but over time, many offices, hotels and headquarters were built there which shadowed the commercial buildings. The region was left alone with several challenging occupations and potentials until it was rebuilt and some buildings were turned into residential apartments to host more people. This population growth and also the focus on this region as the creative part of the city, advanced its commercial potentials and a solid identity was shaped. To facilitate the movement in the street, Edinburgh's tramway was used between 1871 and 1956; but from 1956 on, public transportations including buses and a limited railway network replaced. By the end of the 20th century, it was decided to revive the tramway (Fig. 2) and it was reopened in 2014. In recent years, there have been initiatives to pay more attention to pedestrians, to prevent personal vehicles, and to create facilities to enhance the spatial quality of the city. In sum, transforming Princess Street into a world-class pedestrian-based street has empowered and enhanced the spatial quality of the city and has encouraged more people



Fig. 1: Effectiveness of the space and active presence of people in Princess Street in Edinburgh. Photo: Norman Parkinson, 1938.



Fig. 2: Princess Street in Edinburgh. Photo: Amin Lotfollahi Yaghin, 2014.

to attend this place. Yet, this transformation was only a part of the overall progress.

From what has happened, we conclude that all of the efforts having been made in this region so far have contributed to attract more people, and the creation of the walkway was not a requisite. Activities, prominent elements, diverse usages along with paying attention to the physical aspects of pedestrians have contributed to shape an active street. Note that a walkway cannot actively attract people to a space, it only promotes the spatial quality and facilitates the movements of the people whom are there for different reasons.

### Analyzing the area of the street

Princess Street is the main east-west transportation route through the city center but it seems that the buses are partly blocking the view to the south; still, the “one-sided” natural environment of the street has been able to provide a proper view for users. As we can see in the section of the street (Fig. 3), by having vast pedestrian routes in both sides of the street (physical conditions), rows of trees and proper urban equipment (facilities), this street has provided enough safety, appeal, and hence the spatial quality for the people.

### Contributing features in pedestrian-based urban spaces

Among the important features of urban spaces which bring more people to the space are disparity and diversity of uses, desirability of visual qualities, permeability, pedestrian-based functions and proximity to historical elements. With such elements in hand, public presence comes about

to give meaning to the space. Below, we will analyze each feature to show that how this street has used these features to be a successful pedestrian walkway in the urban space of Edinburgh.

### Mixture of usages, environmental experiences

Pedestrian life is the essence of society and the spirit of a city, and attachment to a place and regarding it as one’s own – which brings peace and balance – depends on how we experience the environment (Ashoori, 2010). People come to a certain place for different activities; Jun Gehl (1970) divides them into 3 groups of mandatory, optional and social, each of them having specific features in the physical environment. High quality public spaces and their ability to contain different usages result in the maximal use of people and beneficiaries. This ability is provided by factors such as safety, ease of access, activity and behavior in public spaces (Haji-Aliakbari, 2017).

Princess Street as a city center was able to provide an environment for each group: visiting historical places, galleries and shopping as optional activities, recreation in Princess Park and using public spaces as social activities, using Waverley Wireline Station and hotels and offices as mandatory activities and attending exhibitions and festivals as temporary optional activities. All of these have resulted in a live, easy to read and safe environment which is a main feature of urban spaces’ quality. Hence the focus on different existing usages (cultural, residential, administrative, commercial, historical, and recreational) and the events going on in its surroundings resulted in the proper solution to be the creation of a walkway.

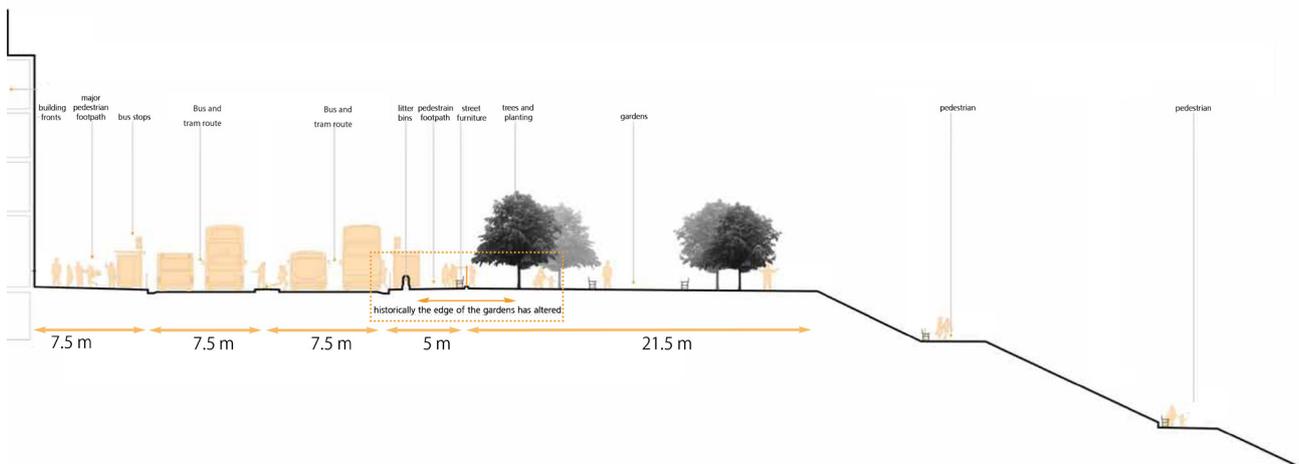


Fig. 3: Section of Princess Street in Edinburgh. Source: Authors.

### Flexibility and diversity

Life should always run through pedestrian walkways and liveliness is a main and integral feature of them. This space should also conform itself to the events happening within. Therefore, flexibility is an important subject in walkways (Pakzaad, 2007). The success of Princess Street is based on a rich combination of different activities. The growth of Edinburgh was due to being a cultural, art and recreational center, an important international center, and also the integrity of these activities with residential buildings. All of this is what we may expect in a city center. The provision of recreation and spare time is resulted from a proper approach to rebuilding specific buildings. Also the revival of vaster regions is obtained by bringing back the life in the city center and creating an image as the City of Exhibitions. One of the other important qualities that leads to the liveliness of a walkway is the diversity of spaces. According to the slow movements of people, one policy to reach diversity is focusing on the city's signs and symbols, either based on the existing physical structure or shaped by conditions

and values of the context; this adds to the readability of a route and makes it a symbol itself (Habibi, 2001). Environmental quality is the complete perception of a place (Van Kamp, 2007). The city's spatial quality as a product of public interactions, activities and the physical structure of the city is highly dependent on the quality of its visual attributes. Being objective and tangible, these visual attributes can be perceived by human senses and provide grounds for perception, recognition and evaluation of the environment by citizens (Heidari et al, 2013). One can enjoy the best cultural experiences in Princess Street: Edinburgh Castle, Princess Street Gardens, Scottish National Gallery, Scott Monument – a massive complicated building which belongs to Walter Scott, the of Waverly novels – and then the railway station of Waverly, hotels and shopping centers which are among the eminent visual attributes of the city (Fig. 4). In fact, we can argue that Princess Street is a monumental street in an extraordinary surrounding; this leads the views, activities, passion and movement and discovering values and attractions to be discovered in the environment.



Fig. 4: Diversity of usages while maintaining coherence in Princess Street, Edinburgh. Source: Authors.

Table.1: policies and measures to improve the overall quality of Princess Street. Source: Authors.

policies	measures	Opportunities
defining a rigid identity	improving the conditions for pedestrians as a priority improving the conditions for cyclists and providing enough parking spots for them organizing public transportation to reduce undesirable outcomes movement and accessibility of taxis and providing proper access ease of access for disabled people	to walk to stay and wait to sit to see to talk and listen to play and to do sports positive sensual experiences permanent and temporary activities
redefining tourism	having more green spaces	
focusing on the street as a creative region	development of residential and administrative sections reviving the retail sector attempting to improve the pedestrian connections by creating green spaces	

### Policies and measures to value pedestrians

Paying attention to landscape’s features rather than mere physical aspects plays a key role in enhancing the spatial quality of the city. Physical approaches to walkways without considering the potentials and subjective factors cannot guarantee the success of a walkway. In fact, public spaces, streets and walkways as examples of public spaces, should attract people and be a platform for social interactions in order to continue their lives; this will shape an identity for a place. We should note that the prime objectives of organizing a pedestrian walkway are safety, security, ease, coherence, comfort, integrity, attractiveness and aesthetics (Mansoori et al, 2012). In this regard and by considering the existing potentials and the active presence of people in Princess Street, policies and measures were taken to improve the overall quality of the street and the sidewalk. One of these policies was shifting the traffic weight to public transportation which made it a pedestrian-based street. The balance between vehicles and pedestrians is achieved through the protection of pedestrian movements by dividing the space into two sections to achieve sustainability. Hence we can say that the improvement in public spaces along Princess Street implies opportunities for changing the place for the people. The success of Princess Street does not depend on the essence or the quality of retails or the sidewalk itself. Instead, it was the people that gave life to it and only after that it found its appeal, coherence, safety and ease of access. Accordingly, in the following table we can see some of the main policies and measures to organize the street and to improve its look, attractiveness, permeability and accessibility:

### Measures to improve the conditions for pedestrians

An urban space is not only a physical concept but also includes social interactions and urban activities as well. In fact, it finds its meaning through the presence of people and their activities (Kashanjoo, 2010). Permeability is a major quality to bring life to an urban walkway. One policy to reach permeability within the walkway is providing mutual visual connections between the path and the body, while creating visual differences to imply unity and coherence (Tibbalds, 1992). Hence, by considering the potentials and dimensions of the landscape, we can apply measures to create the walkway and to bring more social interactions to the place. In other words, in an urban space like a street or a sidewalk, it is impossible to force people to be in a space which they do not belong to. In table 2, we can see some of the measures taken in Princess Street to revive it and to increase the permeability, and the effects of each measure on attracting more people either directly or indirectly. As we can see in figures 5 and 6, the buildings’ façades in the northern section of the street create a continuous path for pedestrians.

### Expanding the public property

An important strategy in Princess Street was seeing it as a public property with the priority of increasing the pedestrian space (Fig. 7). In fact, the measures taken in the street was in order to attract more people and facilitate the movements and also to create more attractiveness. All of this has brought the street back to life. In other words, we cannot achieve such a goal by the mere creation of a walkway and adding minor



Fig. 5: The green field and the public space in front of the National Gallery and a view from the north of Princess Street. Photo: Amin Lotfollahi Yaghin, 2014.



Fig. 6: The north side of Princess Street with commercial façade (continuity). Photo: Amin Lotfollahi Yaghin, 2014.

Table 2: Measures taken in different sections of Princess Street in Edinburgh. Source: Authors.

	measures to revive and to increase permeability	direct effects on attracting people	indirect effects on attracting people
western end	maximizing the connections between pedestrians throughout the connection points	•	
	expanding the active façade		•
	improving the façade of key buildings		•
	improving the connection with proximal spaces		•
	improving the public space and the activities taken place around Saint John Church	•	
	expanding the entrance to the west of Princess gardens	•	
west	improving the walkway	•	
	maintaining the peaceful environment of the garden		•
	improving the access points of pedestrians	•	
	improving the connection to the old city	•	
	reinforcing the connection with tramway station	•	
middle	expanding the entrance to the garden and the monument	•	
	improving the gallery's façade		
east	improving the pedestrian movements and maximizing the opportunities offered by the garden	•	
	improving the connection with the mountains and Waverly Bridge		•
eastern end	improving façades		•
	creating a distinct space	•	
	discovering new opportunities by the transformations of St. Lith's and St. James's fourth streets		•



Table 3: Proposals for Princess Street in Edinburgh. Source: Authors.

objectives	Proposals	outcomes	architect	company
1. Offering a “real substitution” for the galleries plan 2. Motivating “public dialogue”	1. Destroying the 12 worst buildings in the street and replacing them with 3 to 4 high quality retailers 2. creating a public fair	Creating nearly 0.5 million ft <sup>2</sup> of extra space for the retail sector by expanding the regions between Princess and Rose Streets	Malcolm Fraiser	Cockburn Association
aligning and emphasizing on the landscape and the new structure of the city, the old city, historical buildings and gardens in a world class public region	separate designs for a new main entrance from the Waverly’s railway station which results in a new experience of gardens and a connection to the galleries in Princess Street	transforming the Waverly’s station and galleries into the symbol of the city	Allan Murray	EDI consultant group and MAB (Dutch developer)

physical elements to it. The proposals for creating diverse public spaces and enhancing the spatial quality of this street were more focused on shaping more social interactions rather than changing the whole nature of the street. We can see a summary of such measures in table 3.

**Conclusion**

Physical features are integral in the realization of walkways but they don’t suffice and if we neglect intangible aspects such as the intentions of people for being in a place, sociability, memorability and so on, walkways will do against themselves: they will create an unsafe, unprepared space rather than a live and fresh one.

A space’s ability to be pedestrian-based has a direct connection with usages, transportation, environmental appeal, cohesion, safety, social and cultural features, etc. but the most important factor is the public presence which brings meanings to a certain place. When people are actively present in a place, we can start to create the walkway by considering the subjective and objective attributes of the street and also the public needs. In fact, the creation of a walkway itself cannot attract people, but it is a mean to facilitate and enhance the quality of urban spaces which attracts more social interactions. We should also note that we can force people to be in the place by a street or a walkway. On the other hand, focusing only on the physical aspects will not yield a proper solution to revive a street’s landscape since the landscape is a mixture of physical aspects and meanings in the eyes of the public. Walkways are not something imposed or merely decorative;

they are shaped in response to a need or to enhance the urban quality. Hence creating a walkway by any means is not necessarily desirable. We can see the process (create a walkway) in two ways:

- walkways imposed (to control damages and reduce tensions).
- walkways planned (to enhance the quality of urban life).

If a street is suddenly transformed to a walkway forcefully because it is not responsive to the existing need and activities or the improper interference of pedestrians and walkways (like 15th of Khordad Street in Tehran), despite having the most important factor which is public presence, it will not change to a high quality public space due to insufficient planning and facilities. The second type of spaces are the ones with specific planning and time frames, where the necessary features to create a high quality space are brought about first, and then, the street turns to a walkway to enhance the quality of life. In both cases, public presence is the main pillar.

In this regard, plans to turn Princess Street into a walkway will be placed in the second type of walkways which are created through prior planning. This street has been able to act as a pedestrian-based street by having a public space approach and containing cultural and historical potentials.

Creating a walkway is not an objective by itself. It is a mean to attain a space with higher level qualities. Therefore, it is important to identify its necessity first. Then we should pay attention to the physical context to reach motivational methods for attracting the public, and at last – as the case of Princess Street – we should have continuous monitoring to see the strengths and weaknesses through the time and act to revise and change it if necessary.

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