DESIGN CRITERIA FOR MODERN SHOPPING CENTRES BASED ON PUBLIC PEDESTRIAN SPACE

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ABSTRACT

Mobility contributes to the quality of life (Muller, 2016). In Indonesia, shopping centers and pedestrian spaces have not been supporting each other to accommodate public pedestrians. It lets people drive more automobiles instead of walking even though their settlements are convenient to the commercial places. This problem is further causing other matters such as traffic congestion, accidence, air-pollution, anxiety, and so on. By considering the problem, it is important to transform the design criteria of the modern shopping centers to be not only serving as a commercial destination but also space to provide mobility for public pedestrians in an urban environment. This research is aimed to identify the design criteria of modern shopping centers based on public pedestrian space. The criteria are expected to be a new standard for planning and designing future shopping centers in Indonesian cities. The Evaluative Method is utilized in this research involving a theory of Urban Mobility as the main parameter and three precedents as the objects. The similarities between the precedents could be considered as important design criteria that need to be formulated by utilizing aspects of the theory. As a result, the shopping centers should be designed as a complex of building masses to allow mobility for public pedestrians which need support by transit system and facility. Any integrated circulation with another building with different use also promotes pedestrian activity. The character of the building form or façade should be able to balance the rigid character of the surrounding urban area.

Keywords: *Design Criteria, Lifestyle, Pedestrian Space, Shopping Centre*

INTRODUCTION

As big elements in the city, shopping centers have important influences in an urban environment, therefore this kind of building should not be regarded as a single architectural element without being related to the surrounding situations. In Indonesian cities, shopping centers have been serving as centers for commercial activity without providing a built environment that is safe, comfortable, and healthy for public pedestrian activity. Those buildings were commonly designed as massive single fortress without spatial continuity with their neighbors or existing areas to accommodate walking mobility for the public. It lets people drive more automobile instead of walking even though their settlements are convenient to the commercial places. This problem is further causing other matters such as traffic congestion, accidence, air pollution, anxiety, and so on.

Mobility contributes to the quality of life, it is the precondition for economic growth, trade, and creativity, as well as personal wellbeing (Muller, 2016). Therefore mobility is an important aspect in planning pedestrian space that can contribute positively to the life quality of people in the urban environment. Any theory of *urban mobility* is needed to evaluate architectural elements that have an important impact on the urban environment. Most urban design practice is constructed around four main objectives (Walters: 2014):

1. *Walkability* – to promote public health and respond to consumer preference in terms of liveability preferences.
2. *Multi-modal Mobility Options* – to increase personal choices and decrease personal footprint.
3. *Mixed-use of Multi-use development* – to provide market flexibility and to support choices of sustainable urban/suburban lifestyles. (This implies also that the design maximizes development yields consistent with fulfilling social and environmental goals).
4. *Ecological awareness* – to understand and enhance the role of nature in the urban environment.

By regarding to this theory, it is clear that most shopping centers in Indonesian cities are designed with less consideration to *walkability* aspect where the pedestrian activities such as walking, cycling, sitting, traveling, and so on are not supported by the presence of the buildings, instead, they are sometimes obstructed, for instance, the existing linkage of pedestrian ways is cut by the building areas or disturbed by the entrance-exit activity of vehicles. The *multi-modal mobility options* aspect is also rarely considered where there are no convenient spaces for transit activity connected to shopping centers. It lets people commonly lazy to go shopping by walking, instead they drive by motorcycles and cars. The pedestrian activity needs to be supported by the transit system and facility to the extent their walking range from their settlements.

By considering the problem, it is important to transform the design criteria for the modern shopping centers in Indonesian cities to be not only serving as a commercial destination but also space accommodating mobility for public pedestrians in an urban environment. This research is aimed to identify the design criteria of modern shopping centers that are based on public pedestrian space. The

criteria are expected to be a new standard for planning and designing future shopping centers in Indonesian cities.

THEORY / RESEARCH METHODS

Definition of Shopping Centre

According to the English Dictionary, Shopping Centre is (1) a group of shops with a common area for cars to park; (2) a large building or a group of buildings containing a lot of different stores (Cambridge University Press, 2019). These definitions refine the common understandings that shopping centers are not always designed as a single and massive building as those common now, instead it could be a group of buildings. While according to the Indonesian Dictionary, *Pusat Perbelanjaan Adalah tempat terbuka dekat dengan gedung-gedung di kota yang memiliki tempat untuk berjalan dan berbelanja; plaza* (Shopping centre is open space next to buildings in the city which provide space for walking and shopping; plaza) (Kementerian Pendidikan dan Kebudayaan, 2016). This definition emphasizes that the shopping center could be simply open-space for walking as well as shopping.

According to a Business Dictionary, Shopping Centre is a group of retail shops, restaurants, and other businesses with a common interest in soliciting sales. The facility is developed as a planned commercial location and typically offers private, off-street parking facilities or areas (businessdictionary.com, 2018). This definition is almost similar to the definition of language, but there is an emphasis on the *off-street parking* facility that is space for parking separated away from the public road.

It could be formulated from all of these definitions that the shopping center is a built environment which accommodates shopping as well as walking activity, and it could be designed as an open space, a building, or a group of buildings, and equipped by off-street parking facility.

Typology of Shopping Centres

Any theory of typology is required to determine the type of shopping center which could accommodate the public pedestrian activity as well as the shopping activity in certain urban situations. Some design characteristics of the typology could be considered as important criteria.

The shopping center can be classified by market area, pattern, ownership, and merchandising; however, these classifications are not mutually exclusive in that one can find a variety of combinations (Realtors, 2014). Some classifications are:

a. Market Area Classification**,** the size of the market area served by a shopping center is reflected in the center's size (Realtors, 2014).
    1. *Commercial Strip Centre* - may apply to convenience goods and services offered by a neighborhood shopping center or to the full line of convenience, shopping and specialty goods and services offered by a central business district.

2. *Neighbourhood Centre* - When a person wants something for his or her personal use, that person will probably go to the closest source. The closest shopping center offering that item or service, such as bread, milk, etc., will probably be classified as a neighborhood center. The few stores - perhaps six to eight storerooms in total - occupying the center will be anchored by a supermarket and drugstore.
3. *Community Centre* - is a retail complex anchored by a supermarket and a discount junior department store or regular variety store and is surrounded by several other smaller tenants. It usually includes from 20 to 70 stores. It draws customers from a five-mile radius, 10 - 15 minutes driving time and depends on a minimum of 5,000 families for its support.
4. *Regional Centre* - Depending on its size, the regional shopping center houses as many as six major department stores, accompanied by food stores, satellite stores offering a range of general merchandise, restaurants, and banks. It varies from 70 to 225 stores, serves a radius of 5 to 15 miles and is supported by 50,000 to 150,000 families.
5. *Super-Regional Centre* - It may house 1.5 million square feet or more of shops and appurtenant areas and is usually built with a weather-controlled covered mall and is located in the central business district or a newer outlying suburban area at the intersection of at least two major freeways.

b. Pattern Classification**,** Several basic design patterns have emerged during the evolution of the shopping center (Realtors, 2014).
   1. *The L-shaped cent*er - is a spin-off from the straight strip center and the anchor tenants are usually located at each end of the L.
   2. *U-Shaped Centre* - is another spin-off from the straight strip center and is formed by a line of stores at right angles to each end of the strip. U-shaped centers can have as many as three key tenants - one at each end of the U, with the major anchor store in the middle of the strip.
   3. *Cluster-Design* - form a rectangle bounded by parking facilities on all four sides. The anchor store usually occupies one side of the rectangle and extends from the periphery to the center of the cluster.
   4. *T-Design or Triangle* - centers can accommodate three anchor stores. Both patterns provide for parking on all sides and can be either open or enclosed areas. They may serve a community or an entire region.
   5. *Dumbbell or Double-Dumbbell* - This pattern consists of two strips of stores that face each other along a mall, with an anchor tenant at each end. The double-dumbbell center accommodates four key tenants. One dumbbell runs longitudinally and the other latitudinally.

c. Owner Classification, A shopping center can be owned by a single individual, by a group of persons forming a partnership or by a corporation. The land may be owned by one entity and the stores by another entity. We will not go into these classifications (Realtors, 2014).
   1. *An individual,*
   2. *A partnership or joint venture*
   3. *A Limited Partnership*
   4. *A Corporation*

5. *A Limited Liability Company (LLC)*
6. *A Real Estate Investment Trust (REIT)*
7. *A Trust*
8. *A Land Lease*

d. Merchandising Classification**,** Several special types of shopping centers have developed as a result of a specific merchandising approach (Realtors, 2014).
   1. *Fashion/Specialty Centre* - concentrates on specialty goods and services rather than on convenience and shopping goods and services.
   2. *Outlet/Off-Price Centre* - now commonly known as an outlet, is a variation of the discount concept and has enjoyed ready acceptance. The tenants usually are national and international firms selling discounted, "seconds" or irregular merchandise.
   3. *Power Centre* - Coming into popular use in merchandising as a particular type of specialty shopping center, power centers share certain identifying characteristics. The centers are mostly large national chain outlets that would be considered anchors in a conventional shopping center.
   4. *Mixed-Use Development (MDX)* - is the term used to describe a combination of uses of a single property and grew out of planned unit developments. Generally, it is a combination of retail, office and residential areas.
   5. *Theme/Festival Centre* - is a tourist-oriented center and park. The centers have a unifying architectural theme, which is, to an extent, reflected in their merchandising.
   6. *Lifestyle Centres* - contain leisure amenities oriented towards upscale consumers. They are also known as "boutique malls" containing exclusive shops and are often located in affluent suburban areas.

Theory of Pedestrian Space

Walking indeed can be considered as the most basic form of transport (Amoroso, Castellucio, Maritano, 2012), for the following reasons:

a. *It is universal*. Virtually everybody walks, and all trips (with any mean of transport) include walking links;
b. *It is affordable*. Economically and socially disadvantaged people tend to heavily rely on walking for transport. Walkability improvements provide equity benefits, and bear the special cost associated with serving people with disabilities;
c. It provides *additional benefits*, including exercise and enjoyment;
d. Some walking facility improvements can be *included in other transport budgets* (e.g., transit facilities, airports, parking facilities, ferry terminals, etc.) because they serve these modes.

It could be concluded that walking is still a fundamental activity that needs to be done regularly by people even though their dependence on cars and motorcycles is continuously increasing. It requires appropriate spaces to accommodate walking activity by people with various physical conditions. It also needs to support each other with public transportations to stimulate people walking more instead of driving private vehicles.

In any study about physical characteristics considered to influence walking activity, there are some basic categories of indicators proposed to evaluate the appropriateness of pedestrian space. They are related to functionality, aesthetics, practice, and safety (Figure 1). It should be that these categories of indicators which are further broken down into elements and performance measures (Amoroso, Castellucio, Maritano, 2012).

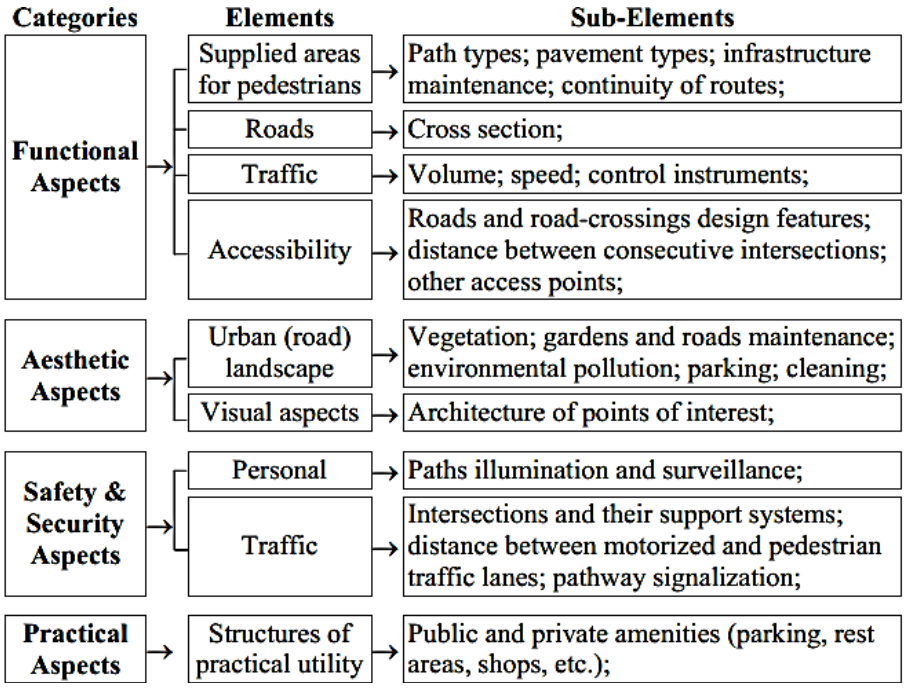

Figure 1. Public Space Features that Influence the Pedestrian Traffic
Source: Amoroso, Castellucio, Mariano, 2012

Theory of Urban Fabrics

Analysis of pedestrian activity in the urban environment also needs to involve theory about *urban fabrics* because the walking activity has interaction with the other mobility systems such as public transport and automobile.

Cities are shaped by many historical and geographical features, but at any stage in a city's history, the patterns of land use can be changed by altering transportation priorities. Urban fabrics in this theory are products of transport-related lifestyles and functions that have needed certain physical elements and environments to enable them. Each fabric has a particular set of spatial relationships, typology of buildings and specific land-use patterns that are based on their transport infrastructure priorities (Newman, Kosonen, Kenworthy, 2016). The urban fabrics of any city can be identified and the areas of the fabrics can be shown on maps (Figure2).

a. *Walking Urban Fabric*. Many cities worldwide are trying to reclaim the intense urban activity and fine-grained street patterns associated with walkability in their city centers and they find that they cannot do this unless they respect the urban fabric of the walking city areas that still exist today and are generally being recovered, often through pedestrianization and traffic calming.
b. *Transit Urban Fabric*. Most big cities and parts of intermediate size cities have trams or light rail as the basis of their inner transit urban fabric supplemented by buses. In addition to rail-based transit cities, there are a large number of bus-based cities and now large areas of transit urban fabric that more or less permanently bus-based.
c. *Auto Urban Fabric*. Automobile based-urban fabric took over much of the old walking and transit fabric once road and parking for the automobile were provided. At first, the new transit lines tend to attract automobile fabric such as park-and-ride facilities, but after a few years, the willingness to pay for reduced travel time leads to the increased density of activity around transit stops.

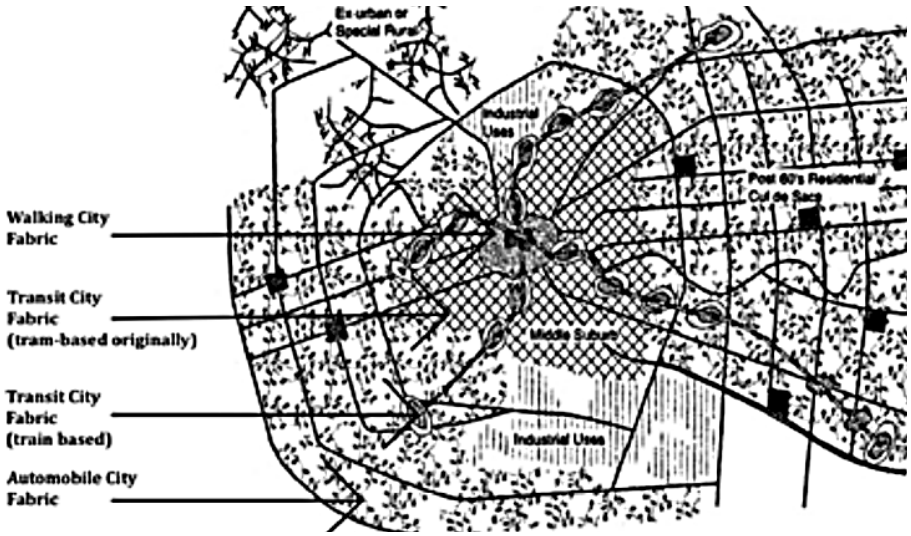

Figure 2. Three Urban Fabrics in a City
Source: Newman, Kosonen, Kenworthy, 2016

Research Methods

As mentioned previously, this research is aimed to identify the design criteria of modern shopping centers based on public pedestrian space. It requires a systematic framework to identify any *similarities* between the various *design typology* of precedents involved in this research. Those similarities could be considered as important criteria that need to be formulated.

This identification utilizes the Evaluative method to compare design typologies of the precedents with the *Urban Mobility* theory as the main parameter with its four aspects (Walkability, Multi-modal Mobility Options, Mixed-use

Development, and Ecological Awareness). It is also supported by the other theories that have been explained to extend objective statements in each aspect (Table 1). The *walkability* aspect is further extended by the aspects of pedestrian space because it could be considered as walkable space if it has good functionality, aesthetic, safety, security, and practice. Next, the aspect of *multi-modal mobility options* is extended by the three urban fabric as important aspects because the options for mobility in shopping centers are always connected to existing fabrics in surround urban areas. Then, the aspect of *mixed-use development* is extended by the classifications of typology because the development of the shopping center requires any type of building in certain situations and purposes. It needs to determine the type of mixed-use shopping center which can accommodate another use especially the public pedestrian space. Yet the extension for *ecological awareness* aspect is limited since the ecology is not the main issue of this research, though it needs to be explored more in other research regarding its specialty and complexity.

Table 1. Theories Utilized to Identify the Design Typology of Each Precedent

Aspects (Analysed by the Main Theory: Urban Mobility)	**Design Typology (Analysed by Support Theories)**
A. Walkability How to design appropriately public pedestrian space in the shopping center?	Theory of Pedestrian Space: 1) Functionality 2) Aesthetic 3) Safety and Security 4) Practice
B. Multi-Modal Mobility Option How to plan mobility options that support walking activity?	Theory of Urban Fabrics: 1) Walking Urban Fabric 2) Transit Urban Fabric 3) Automobile Urban Fabric
C. Mixed-use Development How is the shopping center able to accommodate another use such as public pedestrian space?	Typology of Shopping Centres: 1) Market Area Classification 2) Pattern Classification 3) Owner Classification 4) Merchandising Classification
D. Ecological Awareness How to present a natural environment for pedestrians?	Analyzed without special theory because ecology is not the issue.

Source: Analysis, 2019

RESULTS AND DISCUSSION

This research involves three precedents of modern shopping centers based on public pedestrian space in some countries. The precedents are chosen regarding any *similarity of the urban situations* comparing to the common situations of Indonesian cities and regardless of any differences at local characters. The similar situations are expected to be a warranty that design criteria formulated from the precedents could be applied to future shopping centers in Indonesian cities. The chosen buildings are

Kuta Beachwalk in Indonesia, *Namba Parks* in Japan, and *Meydan Retail Complex* in Turkey, regarding the following reasons:

a. *The role* of the shopping centers *as public pedestrian space* as well as shopping places which indicates relatively that people visit the buildings by walking instead of driving automobile. That means the shopping centers able to accommodate the mobility of public pedestrians.
b. *The density of settlements around* the shopping center's site relatively indicates the vitality of the commercial buildings for people around to gain their daily necessities. The maps of urban planning in Indonesian cities called RTRW (Rencana Tata Ruang dan Wilayah) often place the commercial areas accompanying the residential areas.
c. *The density of the traffic around* which would be similar relatively comparing to the situation of big cities in Indonesia like Jakarta, Surabaya, Denpasar, Medan, and so on. The walking fabrics should be considered with other fabrics such as transit and auto fabrics.
d. *The availability of transit system*s in the urban area and the *transit facility* provided in the shopping centers because many cities in Indonesia are now trying to improve the quality of public transports such as MRT (Mass Rapid Transit) in Jakarta and BRT (Bus Rapid Transit) in Surabaya.
e. *The potential of tourism* in the urban area because cities, towns, and villages in Indonesia commonly have either a tourism site or pilgrimage place at least for locals. Tourism requires infrastructure to accommodate pedestrian mobility as well as commercial activity.

Kuta Beachwalk

Kuta Beachwalk is a shopping center located next to the western coast of Badung, where the city of *Kuta* located. Kuta is a tourist area, administratively an *urban village (kelurahan)*, and the capital of Kuta District, Badung Regency, southern Bali, Indonesia. It is located near Bali's *Ngurah Rai Airport.* (en.wikipedia.org, 2020). In 2015, the total population in Badung Regency is 615.146 people (id.wikipedia.org, 2019) with additional occupants of 3.464.348 foreigner tourists in 2019 (bali.tribunnews.com, 2019). These situations make pedestrian mobility and commercial activity in Kuta so busy, especially along with the tourism sites. The mobility is also supported by some transit systems like *Kura-Kura Bus, Kuta-Buleleng Electric Bus, Bus Pariwisata,* and so on which also linked to other regencies.

Kuta Beachwalk also serves as an attractive public pedestrian space and crowd since the location is strategic between the city and the tourist beach area. According to the designer company, Enviro Tec, the form-making concept is inspired by the typical *terraces* of rice fields in Bali (Enviro Tec, 2018).

Figure 3. Kuta Beachwalk (left) besides Sheraton Hotel (right)
Source: Melali.news, 2018

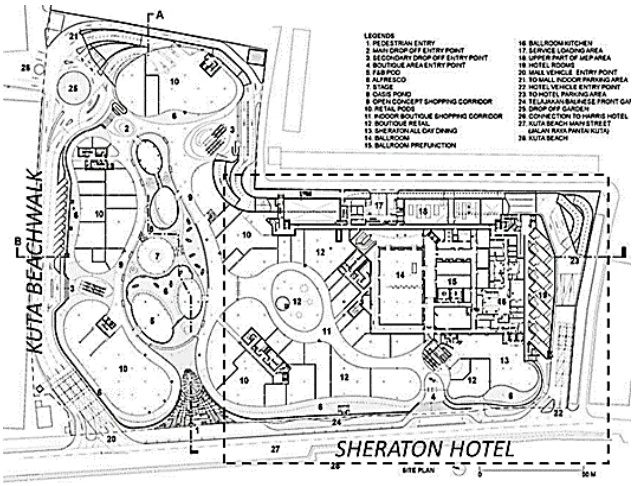

Figure 4. Lay Out Plan of Kuta Beachwalk beside Sheraton Hotel
(Source: 10.aeccafe. com, 2017)

Figure 5. Terrace as the Pedestrian Way in Kuta Beachwalk
Source: Cwfoodtravel.blogspot.com, 2015

A. Walkability.

How to design appropriately public pedestrian space in the shopping center? (Analysed by Theory of Pedestrian Space):

1. *Functionality.* The pedestrian space in this shopping center is formed as open-shaded terraces along the building sides and also formed as hardscape gardens in the center area of the building complex (Figure 5). The shading elements are the upper floor deck covered by vines; small local trees; and canopies. Public pedestrians or tourists could be walking there comfortably below the blazing sun of Kuta.
2. *Aesthetic.* The circulation lines are following the form of building mass which is oval and organic (Figure 4). It is accompanied by plants and ponds, so that increases the sense of the natural environment in the urban situation of Kuta. The most floors are not covered by tiles, but stone, wood, and plaster, so that is relaxing the pedestrians.
3. *Safety and Security.* The buildings consist of only two and three floors, and extent horizontally and circularly, so the visitors could be touring easily around the buildings (Figure 4). There are no sharp-angled corners in every intersection that is dangerous for pedestrian traffic since the circulation is flexible and organic.
4. *Practice.* The main entrance is not formed as a lobby room that has firm privacy, instead, it just formed as terraced-stair dividing the sidewalk outside and pedestrian space inside of the site area (Figure 6). Therefore, public pedestrians could be walking free through the building complex. The border of the site area is only marked by big sculptural letters with some ponds around it.

Figure 6. Terrace as the Pedestrian Way in Kuta Beachwalk
(Source: Cwfoodtravel.blogspot. com, 2015)

B. Multi-modal Mobility Options.

How to plan mobility options that support walking activity? (Analysed by Theory of Urban Fabrics):

1. *Walking Urban Fabric.* There are five entrance areas spread away to four sides of the building complex (Figure 3). Each of them is called *pedestrian entry point,*

main drop-off entry point, secondary drop-off entry point, and *boutique area entry point*. Therefore, the circulation lines inside could be passed by pedestrians from the city area to the beach area as well as from the opposite. This shopping center is virtually located in one site with Sheraton Hotel Resort beside since they are owned by the single developer company. Pedestrian ways between both buildings are integrated, so this shopping center provides mobility for the hotel occupants to walk around.

2. *Transit Urban Fabric.* This shopping center becomes one of the transit spots served by any public transport company named Kura-Kura Bus since there is any special space provided for the transit activity inside the site area (Figure 7). This transit system supports people to keep walking even though they are from far away as well as reduces their dependence on private vehicles.

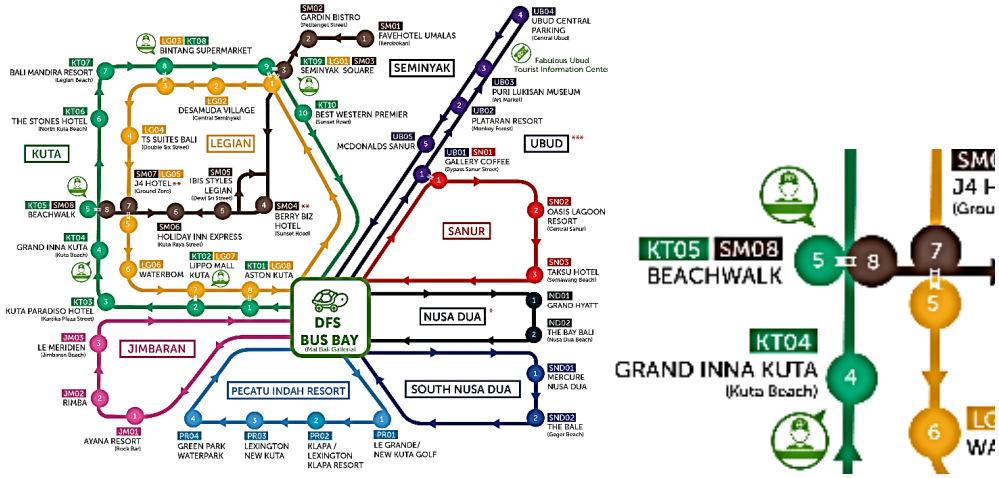

Figure 7. The Green Lines are the Routes of Transit Kura-Kura Bus
(Source: Turindo.co.id, 2015 and Blog.kura2guide.com, 2018)

3. *Automobile Urban Fabric.* The drop-off area for private vehicles is placed on any side of the building at the furthest range from the main road, so it reduces the entrance-exit activities of the vehicles disturbing the traffic on the main road (Figure 3). This drop-off area is also wide enough for the line of vehicles.

C. Mixed-use Development.

How is the shopping center able to accommodate another use such as public pedestrian space? (Analysed by Typology of Shopping Centres):

1. *Market Area Classification*. Kuta Beachwalk could be classified as the Neighbourhood Centre because it only gains tourists staying around the Kuta beach especially from the Sheraton Hotel, therefore the building size is not as big as the common modern mall. But, it also could be classified as the Community Centre since it provides between 20 to 70 shop rooms including department stores and other commercial rooms.

2. *Pattern Classification*. The shop rooms are arranged commonly by the linear formation and turning to form U-shaped around the landscape in the center which is connected directly to the Sheraton Hotel (Figure 4).
3. *Owner Classification*. The Kuta Beachwalk and Sheraton Hotel are developed by the same company.
4. *Merchandising Classification*. In terms of merchandising, this shopping center could be classified as the Outlet Centre since the commercial rooms are anchored by outlets of some famous brands. There is a neon box displaying some of the brand's logos. But, it also could be classified as the Theme/Festival Centre since the buildings apply any natural and recreational theme.

D. Ecological Awareness.

How to present a natural environment for pedestrians? (Analysed without special theory):

This complex of the shopping center is designed concerning the local tradition of Balinese people where the sustainability of the natural environment is maintained well. Therefore the arrangement of the building mass, as well as the circulation, is oriented to the open green space with the local plants and ponds.

Namba Parks

Namba Parks is a complex of a shopping center located on the former site of baseball stadium next to a commuter railway station, Nankai Namba, *Osaka*, Japan. Osaka is a designated city in the Kansai region of Honshu Island in Japan. It is the capital city of Osaka Prefecture and the largest component of the *Keihanshin Metropolitan Area,* the second-largest metropolitan area in Japan and among the largest in the world with more than 20 million inhabitants. (en.wikipedia.org, 2020). These situations make the commercial activities, especially shopping activity in Osaka so crowded.

Osaka connects to its surrounding cities and suburbs via the *JR West Urban Network* as well as numerous private lines such as *Keihan Electric Railway, Hankyu Railway, Hanshin Electric Railway, Kintetsu Railway*, and *Nankai Electric Railway*. Osaka is served by two airports outside of the city, *Kansai International Airport* which handles primarily international passenger flights and *Osaka International Airport* which handles mostly domestic services and some international cargo flights. (en.wikipedia.org, 2020).

Namba Parks also serves as a public pedestrian space integrated by commuter trains and buses. According to the designer company, Jerde, the substitute for the baseball stadium in Osaka must be a *green space* in the center of the crowded Osaka city (Jerde Partnership, 2019). This complex includes an office tower called *Parks Tower* and has a big influence on mobility in that city especially pedestrian and transit activities since the size is large and the location is strategic.

Figure 8. The Complex of Namba Parks Osaka
Source: Urbancapture.com, 2017

Figure 9. The Canyon Street in Namba Parks
Source: Urbancapture.com, 2017

A. Walkability.

How to design appropriately public pedestrian space in the shopping center? (Analysed by Theory of Pedestrian Space):

1. *Functionality.* There is the main circulation line called the *Canyon Street* that is wide, open, and shaded formed in the gap space between the building masses (Figure 9). The line also serves as lobby as well as an atrium that guides visitors to the corridors of shops around it. The line is also utilized as the public pedestrian space.
2. *Aesthetic.* The gap space is designed with the curving-shaped pattern forming a winding corridor in the middle of building masses (Figure 9). The walls are

covered by cladding with horizontal line textures which analogize the character of the *Grand Canyon*. Even though it is linear entirely, the winding pattern of the corridor makes the pedestrians experiencing any sequences, so they do not feel bored.

3. *Safety & Security.* Every corner of intersections is formed aerodynamically with the curving pattern at the walls, so that prevents accidence between pedestrians while turning and crossing each other (Figure 9). Canyon Street is also designed as wide as a plaza, so the visitors can keep the distance of each other easily.
4. *Practice.* This public pedestrian space could be accessed from four directions that are from the railway station; a sidewalk beside the road; car parking area; and any pedestrian way beside the railway called *Carnival Mall* (Figure 10).

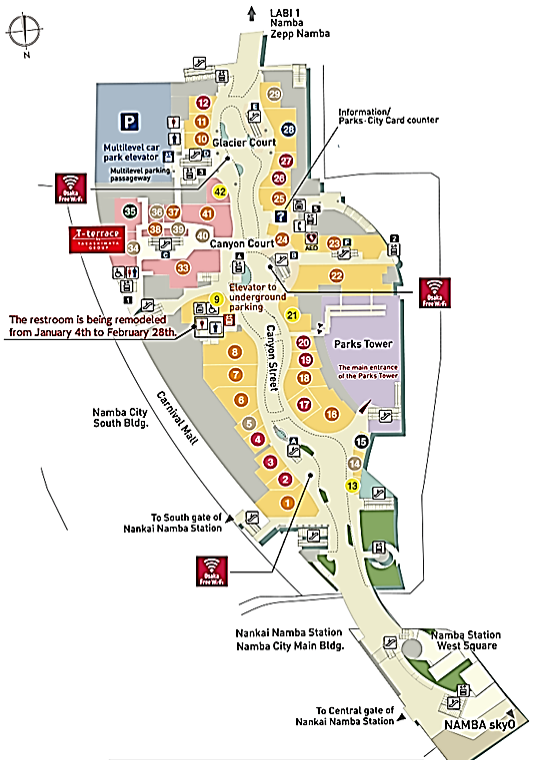

Figure 10. First Floor Plan of Namba Parks
Source: Nambaparks.com.e.uq.hp.transer.com

B. Multi-modal Mobility Options.

How to plan mobility options that support walking activity? (Analysed by Theory of Urban Fabrics):

1. *Walking Urban Fabric.* Canyon Street as the main pedestrian way could be guiding the pedestrians from the office's area to the Nankai Namba Station as well as from the opposite. There is any special parking area for bicycles provided in the basement next to the circulation to the station (Figure 11).

2. *Transit Urban Fabric.* This Canyon Street is directly connected to the entrance area of Nankai Namba Station on the edge, so the tourists easily visit this shopping center by only once transit. Another transit facility is a bus stop provided in the basement called *Osaka Wonder Loop Bus Stop* where many route maps are available (Figure 11). This *off-street* transit space makes the buses to stop without disturbing the traffic on the main road.

Figure 11. A Part of Basement Plan of Namba Parks
Source: Nambaparks.com.e.uq.hp.transer.com

3. *Automobile Urban Fabric.* There is any basement floor integrated to the parking lot outside of Nankai Namba Station since one of the owners of the Namba Parks is a railway company, *Nankai Namba Electric Railway Co., Ltd*. Therefore the visitors are allowed to park in this parking lot, then walking to the Namba Parks.

C. Mixed-use Development.

How is the shopping center able to accommodate another use such as public pedestrian space? (Analysed without special theory):

1. *Market Area Classification*. Namba Parks could be classified as the Community Centre because it provides between 20 to 70 shop rooms and gains visitors from faraway by making circulation integrated to the railway station and providing basement for the bus stop and parking lot.
2. *Pattern Classification*. The shop rooms in this building are arranged commonly by the linear formation and facing each other along with the main circulation, the Canyon Street, so it could be classified as the Dumbbell.
3. *Owner Classification*. The development of the Namba Parks is the product of cooperation between two big company that are Nankai Electric Railway Co., Ltd and Obayashi Corporation.

4. *Merchandising Classification*. In terms of merchandising, this shopping center could be classified as the Theme/Festival Centre since it bases on any natural and recreational theme.

D. Ecological Awareness.
How to present a natural environment for pedestrians? (Analysed without special theory):

The rooftop area is utilized as a green landscape with grass and small trees, so it serves as a central park in the center of dense buildings and traffics in Osaka city. The gab space between building masses serves as an atrium that lets the natural light entering, so this building could save more energy.

Meydan Retail Complex

Meydan Retail Complex is a shopping center located in a suburban area that is rapidly developing in the Asian-side of *Istanbul*, Turkey. Istanbul is the most populous city in Turkey and the country's economic, cultural and historic center. Over 12 million foreign visitors came to Istanbul in 2015, five years after it was named a European Capital of Culture, making the city the world's fifth most popular tourist destination (en.wikipedia.org, 2020). The strategic location and history make mobility in Istanbul so busy especially pedestrian traffic along with the tourism sites and commercial places.

Istanbul's local public transportation system is a network of trams, funiculars, metro lines, buses, bus rapid transit, and ferries. Operated by *Istanbul Electricity, Tramway,* and *Tunnel General Management (İETT),* trams slowly returned to the city in the 1990s with the introduction of a nostalgic route and a faster modern tram line, which now carries 265,000 passengers each day. (en.wikipedia.org, 2020).

Meydan Retail Complex is also designed to accommodate pedestrian mobility as well as shopping activity. According to the designer, Farshid Moussavi, the shopping center is prepared to serve as an *urban cent*er for the residents that are continuously increasing in the area (Farshid Moussavi Architecture, 2014). Therefore the main design concept is a plaza space and green landscape.

A. Walkability.
How to design appropriately public pedestrian space in the shopping center? (Analysed by Theory of Pedestrian Space):

1. *Functionality.* The visitors could be walking almost on the all-area of the building complex including the rooftops which are designed as a landscape with walkable pavement between grasses (Figure 12). This landscape is connected to a wide pavement plaza in the center of the building complex as the public space which also could be used to hold any events. The public pedestrian space is formed by the connection between the plaza, the roof landscape, and the surround pedestrian ways.
2. *Aesthetic.* The connection between plaza in the middle and landscape on the rooftop creates a sense of the green hills in the center of the sub-urban

environment (Figure 13). It also makes sustainable space and visual between the building complex and the surrounding area.

3. *Safety and Security.* The public pedestrian space in this shopping center is not formed as circulation ways, but a wide paving plaza, so the visitors could be walking free with minimal chance of accidence (Figure 14). This situation is appropriate for the elderly and disables people.
4. *Practice.* There is no special entrance such as lobby which has firm privacy. Visitors could enter the building complex by five open entrances spread out to many sides.

Figure 12. The building of Meydan Retail Complex besides IKEA building
Source: Farshidmoussavi.com, 2018

Figure 13. Plaza and Terraces in Meydan Retail Complex
Source: Worldarchitecturemap.org

B. Multi-modal Mobility Options.

How to plan mobility options that support walking activity? (Analysed by Theory of Urban Fabrics):

1. *Walking Urban Fabric.* Meydan Retail Complex is located in one area with existing settlements and residential blocks that are being developed. There is also any existing furniture store owned by IKEA besides the shopping center. These situations make the pedestrian space in this shopping center supporting the existing linkages of circulation around it (Figure 14). The spots of the entrance are located facing directly to intersections of the residential blocks, so the pedestrian way in this shopping center could be accessed easily.

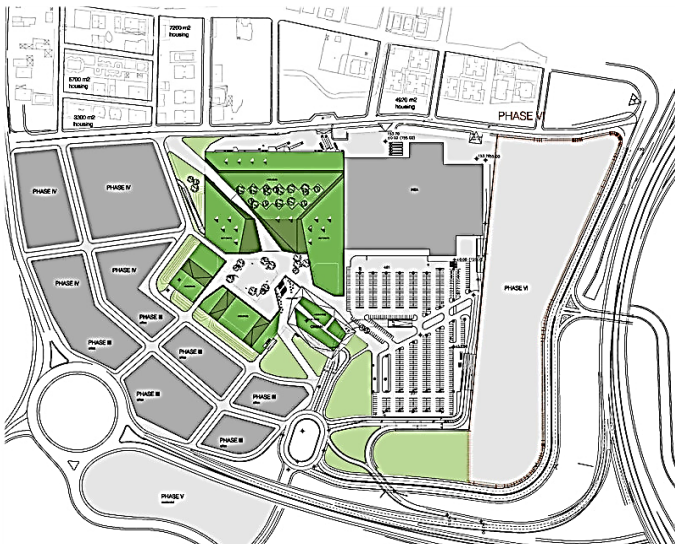

Figure 14. The Site Plan of Meydan Retail Complex and the Surrounding Area
Source: Archdaily.com, 2008

2. *Transit Urban Fabric.* This shopping center is providing a special transit facility for public transport, especially taxi and bus. The site location is strategic nearby any intersection circle of two freeway roads, so the pedestrians are also able to pass this shopping center to the bus stop around the road.
3. *Automobile Urban Fabric.* There is any basement for car parking lots and bicycle racks. This shopping center also has a parking lot outside owned together with the IKEA furniture store.

C. Mixed-use Development.

How is the shopping center able to accommodate another use such as public pedestrian space? (Analysed without special theory):

1. *Market Area Classification*. Meydan Retail Complex could be classified as the Regional Centre since it gains visitors from a wide range of surround the sub-urban area and also from the center of Istanbul city. It is supported by freeway roads next to the building which accommodates many big anchor tenants. But, it also classified as the Community center since it provides between 20 to 70 shop rooms including a supermarket and other commercial rooms.

2. *Pattern Classification*. The shop rooms in this shopping center are arranged commonly by an L-Shaped pattern which is doubled rotating the plaza in the middle which is indirectly connected with the entrance of IKEA building. It looks like the Cluster-Design, but this pattern requires any corridors between the shop rooms while this shopping center based on the outdoor plaza.
3. *Owner Classification*. This building is developed upon the cooperation between Metro Group and IKEA.
4. *Merchandising Classification*. In terms of merchandising, this shopping center could be classified as the Outlet Centre because the commercial rooms are anchored by many big tenants and outlets of some famous brands. But, it also could be classified as the Theme/Festival Centre since it bases on the natural and recreational theme.

D. Ecological Awareness.

How to present a natural environment for pedestrians? (Analysed without special theory):

The Meydan Retail Complex is designed with the green landscape on the rooftops to balance the fast growth of settlements around that is gradually denser and more polluted. As the main concept mentioned initially, this building is prepared to be an *urban cent*er in the sub-urban that is gradually becoming denser in an urban district.

Formulating Design Criteria

The similarities between the precedents could be considered as important design criteria that need to be formulated by utilizing many aspects of the theories. Initially, the four aspects of urban mobility theory are stated as the main classification, then classified further by the aspects of the supporter theories as listed in the column of *Design Typology* to compare the design characteristics of the precedents (Table 2). Finally, the design criteria could be formulated.

Table 2. Identification to Similarities between the Precedents to be the Design Criteria

Aspects (From Urban Mobility Theory)	Design Typology (Comparing design characteristics of the Precedents)	Criteria (Formulation from the similarities)
A. Walkability How to design appropriately public pedestrian space in the shopping center?	**1) Functionality.** The public pedestrian space is formed as the gap space between building masses (Ex: Namba Parks); open terraces; hardscape garden (Ex: Kuta Beachwak); Green landscape on the rooftop; outdoor plaza surrounded by building masses (Ex: Meydan Retail Complex). It is aimed to make open space that allows mobility for public pedestrians to cross over the site.	The building mass is divided to be a complex of buildings (compound buildings).

Aspects (From Urban Mobility Theory)	Design Typology (Comparing design characteristics of the Precedents)	Criteria (Formulation from the similarities)
	2) Aesthetic. The aesthetic concept is the analogy of natural form or character such as the gap space of canyon (Ex: Namba Parks); the landscape of hills (Ex: Meydan Retail Complex); and organic terraces (Ex. Kuta Beachwalk). It is aimed to balance the urban environment around that is crowded and rigid, so that could be attractive for public pedestrians.	The character of building form or façade is the analogy of natural characters.
	3) Safety and Security. An accident could be prevented by curving or aerodynamic patterns at the corner of intersections (Ex: Kuta Beachwalk, Namba Parks) or with plaza space (Ex: Meydan Retail Complex). It is aimed to allow a wide view for pedestrians so they could anticipate something ahead and avoid any accident.	Intersections with a curving pattern or with plaza space.
	4) Practice. There is no special room for the lobby. The complex of buildings could be entered from several entrance spots spread away (Ex: Kuta Beachwalk, Namba Parks, Meydan Retail Complex). It is aimed to be accessed by public pedestrians so they could utilize the site area as their mobility space to across.	There are several entrance spots spread out to many sides.
B. Multi-Modal Mobility Option How to plan mobility options that support walking activity?	**1) Walking Urban Fabric.** Providing several entrances spread out and pedestrian ways to connect any surrounding area to another across, for example between offices and station (Ex: Namba Parks); between city and beach (Ex: Kuta Beachwalk); and between two settlements (Ex: Meydan Retail Complex). It is aimed to provide space for public pedestrians walking from one important location to another.	The pedestrian space in the shopping centers connects important surrounding areas.
	2) Transit Urban Fabric. Providing circulation ways that are directly connected to existing station building (Ex: Namba Parks). Providing off-street transit space such as bus stop in the basement (Ex: Namba Parks); drop-off space for the bus (Ex: Kuta Beachwalk); or providing parking lot for a taxi (Ex: Meydan Retail Complex). It is aimed to support walking activity and also to maintain regularity on the traffic road outside.	Providing off-street transit space. It could be designed as a bus stop inside the building site, drop-off area, basement, or parking lot.

Aspects (From Urban Mobility Theory)	Design Typology (Comparing design characteristics of the Precedents)	Criteria (Formulation from the similarities)
	3) Automobile Urban Fabric. Providing drop-off area at the furthest side from the main road (Ex: Kuta Beachwalk and Meydan Retail Complex). Providing parking lot integrated to one provided by another building beside (Ex: Kuta Beachwalk, Namba Parks, Meydan Retail Complex). It is aimed to reduce the dense of automobile activity in one site.	Providing a shared parking space if the shopping center is developed by the same owner with another building beside.
C. Mixed-Use Development How is the shopping center able to accommodate another use such as public pedestrian space?	**1) Market Area Classification.** Developed as the Community Centres which have between 20 until 70 commercial rooms (Ex: Kuta Beachwalk, Namba Parks, and Meydan Retail Complex) or the Neighbourhood Centre which is close to settlements (Ex: Kuta Beachwalk), or Regional Centre which gains visitors from wide range of surround area (Ex: Meydan Retail Complex).	Developed as the Community Centre which provides between 20 to 70 commercial rooms and other uses.
	2) Pattern Classification. The shop rooms are arranged following the pattern of the main circulation or pedestrian way that is connected to the other building by U-shaped pattern (Kuta Beachwalk), Double L-Shaped (Ex: Meydan Retail Complex), or Dumbbell (Ex: Namba Parks).	The arrangement of shop rooms is following the pattern of the public pedestrian space or the main circulation that is integrated into the other building.
	3) Owner Classification. Two complexes of the building are owned by the same company (Ex: Kuta Beachwalk) or some companies are cooperating to develop one complex of the building (Ex: Namba Parks, Meydan Retail Complex). It is useful to make the buildings supporting each other to gain visitors and provide parking areas.	The single ownership with another building beside.
	4) Merchandising Classification. Developed as the Outlet Centres which provide room for big tenants and famous brands (Ex: Kuta Beachwalk and Meydan Retail Complex) or the Theme/Festival Centres which apply a certain recreational theme (Ex: Kuta Beachwalk, Namba Parks, and Meydan Retail Complex)	Developed as the Theme/Festival Centre which bases on any recreational theme.
D. Ecological Awareness How to present a natural	Providing green landscape on the rooftops (Ex: Namba Parks, Meydan Retail Complex) or arranging the building masses to around the green landscape in the center (Ex: Kuta Beachwalk). It is aimed to balance the dense	Providing green landscape accompanying the main circulation/ pedestrian space.

Aspects (From Urban Mobility Theory)	Design Typology (Comparing design characteristics of the Precedents)	Criteria (Formulation from the similarities)
environment for pedestrians?	and pollution of the urban environment around.	

Source: Analysis, 2019
Note: "Ex" = Example of Precedent (s)

The table above is the formulation of how the shopping center able to accommodate public pedestrian activity in an urban environment. The following are the explanations from the design criteria expected to be applied as the standards for the future projects of a shopping center based on public pedestrian space in Indonesian cities:

1. The building site should be located *between important existing areas* so that pedestrian space provided by the shopping center can contribute mobility for public pedestrians, for example from settlements to offices, settlements to existing commercial places, offices to the local station, and so on.
2. The building mass of the shopping center is divided to be *a complex of buildings* to create public open space between the masses that allows mobility for people walking across the site area. There should be several entrance spots spread out to give access to public pedestrians, so they could utilize the site area as their mobility space to across from one surrounding area to another.
3. The shopping center needs to be developed as the *Community Centre* which provides 20 to 70 stores including a supermarket, department store, and other commercial rooms because it could attract people from a wide range.
4. Walking activity in an urban environment needs to be *supported by a transit system* or public transport system. Providing off-street transit space in the site area can support walking activity and also maintain regularity on the traffic road outside. It could be designed as a shaded bus-stop, drop-off area, basement, or parking lot.
5. In any situation where the shopping center and another building beside are developed by the same owner, any *integrated circulation* is needed to support each other for gaining visitors and providing mobility for public pedestrians.
6. The character of building form or façade needs to *balance the character of the urban environment* around that is rigid, crowded, and polluted. Therefore analogy of natural characters could be applied such as organic shaped or natural materials, so it would be attractive to gain visitors.
7. The organic form or curving-shaped pattern is also needed to be applied in intersections of circulation to *allow a wide view* for pedestrians, so they could anticipate something ahead and avoid any accident.

CONCLUSIONS

The points above could be simplified as the conclusion that shopping centers should be designed as a complex of building masses to allow mobility for public pedestrians which need to be supported by transit systems and facilities. Any

integrated circulation with another building with different use also promotes pedestrian activity. The character of the building form or façade should be able to balance the rigid character of the surrounding urban area. The typology of the shopping centers is determined as the Community Centre to attract visitors from a wide range area.

The recommendation for further similar research is to involve the requirements from local government as important design standards influencing the design criteria of a shopping center in Indonesian cities. The precedents from another country probably do not apply the same regulations for shopping centers.

The similar researches also need to identify the pattern of urban fabrics in any city including walking fabric, transit fabric, and auto fabric, because every country or city commonly has different dominated fabric utilized by its majority of people. The pattern of existing walking activity also needs to be tracked to make appropriately the extension of walking fabric.

REFERENCES

Amoroso, S and Castellucio, F and Maritano, L. (2012), *"*Indicators for Pedestrians Mobility", *Urban Transport,* Vol. 128, 173-185.

Muller, G. (2016), *Urban Mobility: Strategies for Liveable Cities,* Federal Ministry for Economic Cooperation and Development, Berlin.

Newman, P dan Kosonen, L dan Kenworthy, J. (2016), "Theory of Urban Fabrics: Planning the walking, transit/public transport automobile/motor car for reduced car dependency", *Town Planning Review,* 429-459.

Realtors (2014), *Anatomy of a Shopping Center: 3 Hour Elective CE,* REALTORS Real Estate School, Chicago.

Walters, D. (2014), *Urban Design for Architects: Space, Place, and Urban Infrastructure, Online Version,* PDH Academy, Pewaukee.

ArchDaily (2008) Meydan Retail Complex and Multiplex <https://www.archdaily.com/3338/meydan-umraniye-retail-complex-multiplex-foa?ad_source=search&ad_medium=search_result_all> (Accessed in October 2019)

Cambridge University Press (2019) *Cambridge Dictionary: Meaning of Shopping Center in English* <https://dictionary.cambridge.org/dictionary/english/shopping-center> (Accessed on October 2019)

Kementerian Pendidikan dan Kebudayaan (2016), *KBBI Daring: Pusat Perbelanjaan* <https://kbbi.kemdikbud.go.id/entri/pusat-perbelanjaan> (Accessed in October 2019)

Enviro Tec (2019) *Beachwalk Kuta Bali Indonesia* <http://et-envirotec.com/portfolio/ beach walk-Bali/> (Accessed on October 2019)

Farshid Moussavi Architecture (2014) *Meydan Retail Complex and Multiplex Istanbul* <https://www.farshidmoussavi.com/node/24> (Accessed in October 2019)

Faust, Coronare (2011) *Namba Parks – an office and shopping complex located in the Namba district, Osaka, Japan – is one of the finest examples of urban*

development <https://spfaust.wordpress.com/2011/01/28/namba-parks-urban-canyon-oasis/> (Accessed on October 2019)

Jerde Partnership (2019) *Namba Parks* <http://www.jerde.com/places/detail/namba-parks> (Accessed in October 2019)

Kura-Kura Guide (2015) *All there is to know about Beachwalk Shopping Mall* <http://blog.kura2guide.com/all-there-is-to-know-about-beachwalk-shopping-mall/> (Accessed in October 2019)

Tribun Bali: Mangapura (2019) Hingga Juli 2019 Dispar Badung Catat Kunjungan Wisman Menurun 7,61 Persen <https://bali.tribunnews.com/2019/09/01/hingga-juli-2019-dispar-badung-catat-kunjungan-wisman-menurun-761-persen> (Accessed on March 2020)

Web Finance Inc. (2019) *Business Dictionary: Shopping Center* <http://www.businessdictionary.com/definition/shopping-center.html> (Accessed in October 2019)

Wikipedia: The Free Encyclopedia (2020) *Read: Kuta* <https://en.wikipedia.org/wiki/Kuta> (Accessed in February 2020)

Wikipedia: Ensiklopedia Bebas (2020) *Read: Kuta, Badung* <https://id.wikipedia.org/ wiki/Kuta,_ Badung> (Accessed in February 2020)

Wikipedia: The Free Encyclopedia (2020) *Read: Osaka* <https://en.wikipedia.org/wiki/Osaka> (Accessed in February 2020)

Wikipedia: The Free Encyclopedia (2020) *Read: Istanbul* <https://en.wikipedia.org/wiki/Istanbul> (Accessed in February 2020)

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