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Urban Greenspace: A Review of Place Image Approaches

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Abstract
This study aims to explore greenspace place images through collective approaches to spatial settings and human association in the place. A scoping review is adopted for the method, and 100 peer-reviewed journal papers are used in the analysis. Eight types of greenspace – private garden, pocket park, community garden, neighborhood park, forest park, urban forest, unmanaged greenspace, and others – are categorized based on the ownership, size, location, volume of vegetation, and service facilities; four types of human association in the greenspace are attended with a psychological, physical, social, and environmental focus. Place image is applied with five level spectrum – place brand, place visual image, place reputation, sense of place, and place identity – according to the experience level in the place. It is found that psychological association and sense of place are the most attended research subjects in greenspace discussion. Conducting Phik (ϕk) correlation analysis proposes four sets of greenspace types – small-size greenspace, neighborhood park, forest park, and green corridor – as the inclusive spatial settings for future greenspace studies in the sense of place context.

Keywords: greenspace, greenspace types, human interventions, place image

I. INTRODUCTION

Urban greenspace has drawn growing attention confirming that human nature is attached to the beneficial effects of the natural environment (WHO, 2016). Especially psychological restoration from greenspace is believed as a significant well-being benefit for urban residents (Kaplan, 1995; Kaplan & Kaplan, 1989). Approaching urban greenspace from place image context provides insight for sustainable urban management and development since place image represents the collective perceptions towards the place through subjective experiences. Understanding greenspace behavior concerning the specific spatial attributes provides practical implications for land planning and policy-making (leBrasseur, 2022).

Greenspace is human modified or natural outdoor environment containing various volumes of vegetation, although a clear definition of greenspace has yet to reach consensus (Budruk et al.,2013; Taylor, & Hochuli, 2017). Greenspace can be categorized according to its ownership, size, location, volume of vegetation, and service boundaries; different types of greenspace provide different spatial experiences and elicits various emotional responses (Wang et al., 2021). Human association in greenspace has been researched in four realms – psychological, physical, social, and environmental (Fisher et al., 2021; Ives et al., 2017; Muro et al., 2020). The psychological association mainly discusses mental restoration or appreciation of nature; physical activities represent utilitarian use of greenspace and outdoor leisure activities; social association presents social cohesion and prevention of social isolation; environmental association represents the promotion of perceived ecological assets, such as biodiversity, climate change, or educational need.

Place image traverses a spectrum of spatial associations. Clouse and Dixit (2017) suggest five levels of place image according to the experience level in the place – place brand, place visual image, place reputation, sense of place, and place identity. The former three assets of place image can be developed as an indirect association representing the place's attraction level. In comparison, the latter two assets present the retention level of place image possible from the direct association. The present study adopts five levels of place image to explore the greenspace place image since each level provides the applicable value for place management in the sustainable development context.

The study adopts a scoping review as a method since greenspace place image has yet to reach consensus and needs to be identified through synthesizing process (Munn et al., 2018). One hundred peer-reviewed journal papers from EBSCO and SCOPUS are used for analysis. The analysis process follows from the spatial aspects to human associations in the greenspace. The types of greenspace are attended with eight categories – private garden, pocket park, allotment or community garden, neighborhood park, forest park, urban forest, unmanaged greenspace, and others. Human associations are applied to the spatial context to draw place images in types of greenspace. Data is manipulated for correlation coefficient analysis to discern the relationship between greenspace and place images. Finally, the greenspace types are redefined in the inclusive forms to traverse the urban greenspace system.

II. METHOD

The present study adopts a scoping review to interpret how 'green' has been discussed in the place image context, in which a clear consensus on the meaning of greenspace has yet been reached. A scoping review can be regarded as the same continuum as a systematic review since both take an evidence synthesis approach; a scoping study, however, is more appropriate to traverse unclear or disparate concepts that can be identified and mapped through synthesizing process (Munn et al., 2018). 100 peer-reviewed journal articles are collected from two databases – Scopus and EBSCO – published until August 2022. For a keyword search, terms were sourced concerning place image and greenspace, place brand, visual image, place reputation, sense of place, place identity, and 'green.' After removing duplications, the first stage yielded 8093 articles. Papers are separated by titles containing 'green,' and 326 studies are remained. We manually reviewed abstracts of the papers and deleted manuscripts focusing on only technical approaches, such as urban architecture or landscape design that did not contain human interpretation. Review studies were also removed since the present analysis does not consider an umbrella review as a method.

III. GREENSPACE

Discrete classification of greenspace has yet to reach the collective since the spatial boundary of greenspace differs according to the research context emphasizing special functions of the site. In the present study, greenspace is discussed into eight types – private garden, pocket park, allotment or community garden, neighborhood park, forest park, urban forest, unmanaged greenspace, and others – depending on its ownership, size, location, volume of vegetation, and service boundaries.

Private garden: The inclusion of private gardens in the boundary of greenspace has yet to reach a consensus since urban greenspace mainly refers to public open space. However, some reviewed papers focused on a private garden as the greenspace discussion because a private garden was seen as a part of daily life for immediate nature. Cerina et al. (2017) investigated older adults' residential environment preferences using photo elicitation in which a private garden was the focal factor of the nursing home environment.

Pocket park: Pocket parks usually indicate green roofs, walls, and street trees (Kozamernik et al., 2021). Zhang and Han (2021) have adopted a scoping analysis to discuss the cultural difference regarding pocket parks between English and Chinese studies. They found that there exist different concepts of size in a pocket park, i.e., between 0.02 and 0.4 ha in English papers; between 0.04 and 1ha in Chinese writings, while a consensus has been made about their functions contributing to the environmental and health benefits to urban life.

Allotment or community garden: Allotment and community gardens refer to small parcels of land for growing food or recreational gardening (Taylor & Hochuli, 2017). The term allotment is mainly used in the European region, whether community garden is more common in Asian culture. Along with language usage, the meaning can also differ between allotment and community gardens. The ownership of the land for both allotment and community garden is public, such as local government, association, or church. Still, allotment means land provided to individual households mainly for food growing, while a community garden tends to be managed by neighboring people rather than a single household (Taylor & Hochui, 2017).

Neighborhood park: Zhang et al. (2015) defined neighborhood greenspace as all public nature areas or vegetated land covers, such as parks and urban forests, within 10 to 15 minutes of walking distance from home. When researchers placed neighborhood parks in a category of urban vegetation, namely parks and forestry, neighborhood parks were regarded as a minimum size of greenspace provision for active outdoor recreation (Grzyb et al., 2021). Municipal schools can be included in a type of neighborhood park following the idea that public schools are community facilities (McCunn & Gifford, 2014).

Forest park: Forest parks refer to the publicly managed urban forest with park service facilities ranging from 9.8 ha to larger park areas (Ode Sang et al., 2020), and it includes water-adjacent park areas, such as a bay park or coastal park (López-Mosquera & Sanchez, 2011; Subiza-Pérez et al., 2019). Hoyle et al. (2019) compared perceptions toward controlled and uncontrolled naturalness and found that visitors needed more naturalness and biodiversity in managed greenspace since forest parks comprise trees and plants of the same species. On the contrary, Tzoulas and James (2010) claimed that a well-maintained natural environment would promote recreational values, encouraging sports or leisure activities, and utilitarian values, such as walking and cycling, for commuting.

Urban forest: Urban forests refer to the largest greenspace showing the mixture of managed and unmanaged features, such as cemeteries, green belts, and woodland (Campagnaro et al., 2020). Urban forests can provide the urban greenspace for isolation and active outdoor recreation, likely affiliated with the more extensive greenspace. Nesbitt et al. (2018) proposed the association between urban forestry and urban green equity, focusing on environmental justice as the forest is

a fundamental source of ecological value orientation (Li et al., 2010).

Unmanaged greenspace: It is noticed that perceived biodiversity in the unmanaged greenspace positively influences psychological well-being, and less human intervention could increase the attractiveness of the place and promote the green consciousness (Ode Sang et al., 2020).

Others: Apart from parks and forests, urban vegetated areas include greenways or alleys (Chang et al., 2020; Han et al., 2021), golf courses (López-Mosquera & Sanchez. 2011), cyclist belts (Muro et al., 2020), and even the city itself for the green city image (Chan, 2017). Greenways are linear public parks that facilitate recreation and active travel, especially for the non-motorized journey in an urban environment (Horte & Eisenman, 2020).

IV. HUMAN INTERVENTION

The association between the research subject and their use of greenspace allows researchers to approach the 'green place image' implication. The present study classified the research subject into individual, community or group, and national. The research subjects' association with greenspace was categorized into psychological, physical, social, and environmental aspects (Fisher et al., 2021; Ives et al., 2017; Muro et al., 2020.

Psychological: The psychological association between humans and nature has been focusing on mental well-being (Crossley & Russo, 2022), psychological restoration (Addas & Magrabi, 2022), emotional responses (Pipitone & Jović, 2021), and aesthetic appreciation (van Dinter et al., 2022).

Physical: Physical activities in a green environment can be bifurcated into utilitarian use and leisure purpose. The utilitarian use mainly indicates walking or biking for the commute (Tzoulas & James, 2010); low-intensive activities, such as walking or playing with children, were mainly found as physical leisure activities in greenspace (van Dinter et al., 2022).

Social: Increasing social bond through the nearby natural environment prevents social isolation (Ward et al., 2016) and promotes environmental justice (Enssle & Kabisch, 2020). Especially for the social minority group, greenspace functions as a place for their unification and acculturation (leBrasseur, 2022).

Environmental: Researchers discerned that people develop an emotional attachment to nature through caring concern and responsibility to improve the natural environment. Among various environmental concerning assets of human interventions in greenspace, researchers mainly discussed perceived biodiversity, the perceived value of ecosystem service, and greenspace stewardship with significance (Fisher et al., 2021; Meenar et al., 2022).

V. GREENSPACE PLACE IMAGE

The level of human association in greenspace elicits greenspace place image. Place image contains complications of meaning about the place (Kotler et al., 1993). It depends on how closely associated an individual is with the place. Clouse and Dixit (2017) proposed a conceptual model for place image comprising five attributes, place brand, place visual image, place reputation, sense of place, and place identity. A place brand is an intended image of the place promoted by authorities. On the contrary, place visual image and reputation represent the place that people can visually and verbally notice and express the place without direct involvement. These three attributes are assets of place attractiveness. However, the sense of place and place identity belong to retention or nostalgic level of place image that can be developed in direct association with the place through various experiences.

When the place image concept comes to the greenspace extent, the retention level of discussion has been the main source of greenspace analysis. It is due to the fact that human association in greenspace represents a broad spectrum of beings and doings, and green place image rather be developed by human beings' direct association with greenspace (Kleyn et al., 2020). The review process claims that the sense of place is the most frequently explored concept among place image attributes, such as place attachment, sense of belonging, community attachment, and place identity.

In order to discern the relationship between greenspace and the sense of place, their study conducted a correlation analysis using Phik (ϕk), which is a correlation coefficient that works between categorical, ordinal, and interval variables (Figure 1). The result indicated that the sense of place has a certain degree of correlation with forest park ($\phi k = 0.33$) and neighborhood park ($\phi k = 0.30$). Along with the correlation between a greenspace type and the sense of place. It was also noticed that there is a moderately high correlation between greenspace types, i.e., above 0.80, between neighborhood parks and forest parks, forest parks and urban forests, urban forests and unmanaged greenspace, and pocket parks and allotments. Four sets of greenspaces imply that the value of greenspace affordance from each group shares similar

characteristics eliciting the same layer of sense of green place.

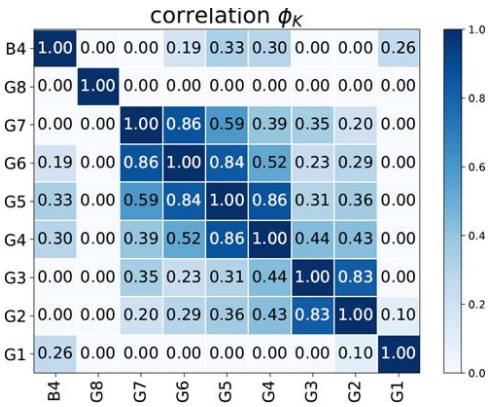

Figure 1. Correlation between greenspace types
(Note: G1: private garden; G2: pocket park; G3: allotment or community garden; G4: neighborhood park; G5: forest park; G6: urban forest; G7: unmanaged greenspace; G8: others; B4: sense of place)

Based on the correlation between greenspace types, the study proposes more inclusive terms to traverse the urban greenspace system, referring to them as small-size greenspace, neighborhood park, multipurpose park, and green corridor. Small-size green space is immediate greenspace smaller than 1 ha in size, including street trees, green building design, and community park. Neighborhood park is located within the community at 10 to 15 minutes walking distance and provides the minimum size of space for physical leisure activities, i.e., 2ha. The multipurpose park includes various spatial features, such as size, location, and volume of vegetation and biodiversity; followingly, various activities are possible in this type of greenspace. A green corridor is the urban greenspace system, constructing the most significant part of urban nature and providing the highest level of biodiversity.

VI. CONCLUSION

Greenspace is obtaining growing attention as a critical asset for urban daily lives to promote quality of life and sustainable urban management. However, it is a complex idea to define the greenspace and its place image with concrete terms of words. The study ventures into human and nature interaction in different types of greenspace by adopting a scoping review as a method to synthesize the previous greenspace discussions. The study confirms that greenspace place image refers to the sense of place developed by human associations in the types of greenspace; greenspace types can be presented with more inclusive perspectives, i.e., small-size greenspace, neighborhood park, multi-purpose park, and green corridor, traversing the entire urban greenspace. Along with the suggestion of greenspace categorization, the study claims that exploring greenspace from the destination-promoting lens is left for future studies.

APPENDIX: 100 REVIEW PAPERS

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