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Social Media and Popular Places: The Case of Chicago

Kheir Al-Kodmany†

Department of Urban Planning and Policy, University of Illinois at Chicago, USA

Abstract

This paper offers new ways to learn about popular places in the city. Using locational data from Social Media platforms platforms, including Twitter, Facebook, and Instagram, along with participatory field visits and combining insights from architecture and urban design literature, this study reveals popular socio-spatial clusters in the City of Chicago. Locational data of photographs were visualized by using Geographic Information Systems and helped in producing heat maps that showed the spatial distribution of posted photographs. Geo-intensity of photographs illustrated areas that are most popularly visited in the city. The study's results indicate that the city's skyscrapers along open spaces are major elements of image formation. Findings also elucidate that Social Media plays an important role in promoting places; and thereby, sustaining a greater interest and stream of visitors. Consequently, planners should tap into public's digital engagement in city places to improve tourism and economy.

Keywords: Social media, Iconic socio-spatial clusters, Popular places, Skyscrapers

1. Introduction

1.1. Sustainability: A Theoretical Framework

The concept of sustainability continues to be of paramount importance to our cities (Godschalk & Rouse, 2015). Planners, architects, economists, environmentalists, and politicians continue to use the term in their conversations and writings. Sustainability is "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). Concisely, this definition resonates the root meaning of the word "sustain," which is to "provide with nourishment" or to "keep going," as defined by Merriam-Webster Dictionary (Merriam-Webster.com). Therefore, sustainability emphasizes the long-term implications of all human activities, and it presumes that resources are finite and that we should use them conservatively and wisely.

Sustainability offers a comprehensive framework represented in its three conceptual pillars (the social, economic, and environmental) or the "3Ps" of people, profit, and the planet, where: "people" represents community well-being and equity; "profit" represents economic vitality; and "planet" represents conservation of the environment (Owen, 2009). Sustainability provides bridges among these three pillars. This research focuses on the bridge between the social and physical environment and the role of Social Media in connecting them together. That is, Social Media popularizes public places and generates interest among people to visit them, thereby, exploiting the social energy of the city (Fig. 1).

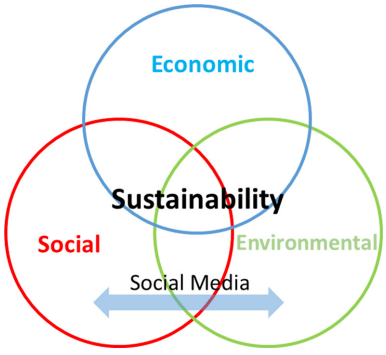


Figure 1. The three spheres of sustainability. Social Media as a bridge between people and physical space.

1.2. Gathering the Popular Image

Scholars have employed diverse research methods to learn about the city's popular image. For example, Kevin Lynch pioneered the concept of "imageability of the city" by conducting survey questionnaires and utilizing maps that helped people to express their perceptions of cities and places. Interestingly, Jack Naser has expanded on Lynch's imageability research by proposing the concept of "urban likeability." He conducted empirical research that posed questions and displayed photographs to learn about what people liked and disliked of specific elements of the built environment. Other researchers have used Visual Preference Surveys (e.g., Henry Sanoff) by asking the public to rate images via slide shows in a real-time session or virtually by using online surveys. Some scholars

†Corresponding author: Kheir Al-Kodmany
Tel: +312-413-3884; Fax: +312-413-2314
E-mail: kheir@uic.edu

have used collections of postcards of a city to learn about how the popular image is constructed and how the public perceives the most popular places (e.g., Alvin Boyarsky; Kadar & Gede). Widely known William H. Whyte conducted meticulous direct observations of public spaces and utilized cameras and video techniques to record these observations.

Today, as Social Media is becoming increasingly popular, it offers new ways of learning about people's interaction with the built environment through studying the photographs they record and upload. Importantly, many digital photographs contain geo-locational information, such as longitudes and latitudes or street addresses. Currently, many cameras and smartphones can acquire positional information with the built-in GPS module or based on WiFi routers or GSM (Global System for Mobile communications) cell information (Li et al., 2017). When photographs from these devices are shared online, their locational data are also shared and can be read by other users to determine the locations where the photographs were taken. Alternatively, if photographs do not contain locational information, users can manually add geotags to pictures while uploading them to photo-sharing sites (Li et al., 2018; Lieberman, 2017).

Ergo, the Internet is an incredible source of photographic collections of places and researchers have been attempting to exploit these imageries. For example, Snavely et al. (2008) attempted to detect spatial patterns and build mathematical models of people's use of photographs on the Internet. Likewise, Modsching et al. (2008) used GPS tracking data to trace the activity areas of tourists, identifying the most visited hubs and paths in the German city of Görlitz. Interestingly, Girardin et al. (2008) measured tourist activities in the Province of Florence, Italy, between 2005 and 2007 from photographs uploaded to Flickr.com.

Similarly, Shoval et al. (2011) tracked the day trips of tourists based in different hotels in Hong Kong, using 3D bar-diagram representations of tourist activities on the map. Pettersson and Zillinger (2011) combined GPS tracking and questionnaires to gather information on tourists' experiences in relationship to their movements at sport events. Ganesh (2014) studied photograph sharing over multiple Social Media platforms, describing the spread of photographs along links in a social network as a social cascade. Capistrán (2016) studied mobile photography and social networks while Kia-Keating et al. (2017) used photographs on Social Media to support community-based projects. A recent online article, titled "The Most Popular Cities on Instagram in 2017" revealed the most *Instagrammed* cities, indicating travelers' favorite destinations with the following order: New York City, Moscow, London, São Paulo, Paris, Los Angeles, St. Petersburg, Jakarta, Istanbul, and Barcelona.

2. Applied Methods

In order to learn about people's perception of popular places in Chicago's Downtown, this research started by gathering locational data from major Social Media platforms, including Twitter, Facebook, and Instagram in 2017. The data was shared by these companies with an agreement that it would be used for a single purpose of learning about the locations of taken photographs and their collective spatial patterns. Therefore, locational data indicated where people took their photographs that they uploaded to Social Media platforms. Geographic Information Systems visualized locational data by creating "heat maps" that displayed "socio-spatial" clusters, representing areas that were most photographed. Participatory field visits were conducted later to validate these places, and

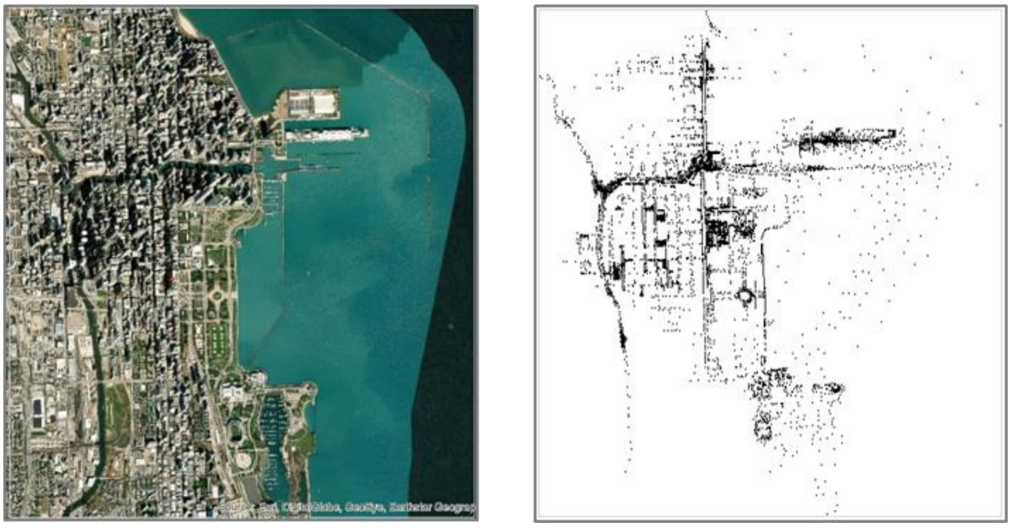
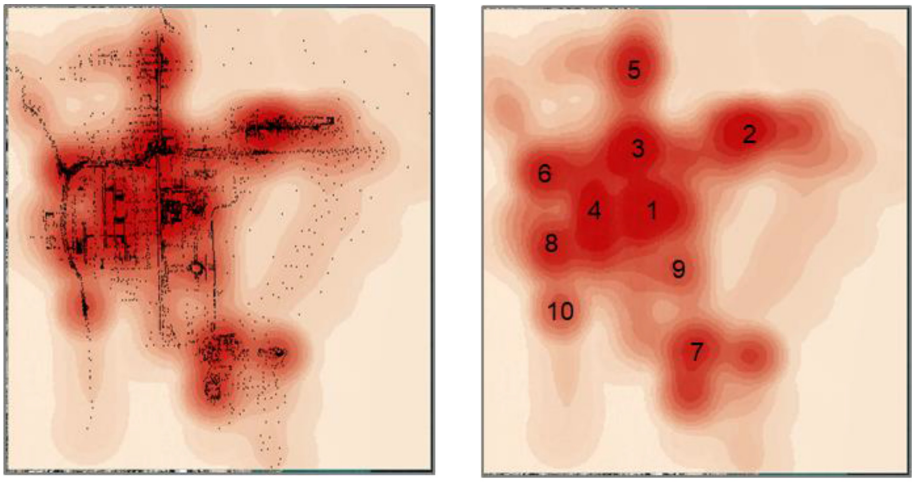


Figure 2. Left Map shows an aerial view of Downtown Chicago. Right Map shows locations of uploaded photographs to Social Media sites.



1. Millennium Park and Maggie Daley Park, 2. Navy Pier, 3. Magnificent Mile Gateway, 4. Inner Loop, 5. Water Tower Area, 6. River Confluence, 7. Museum Campus, 8. Urban Giants, 9. Grant Park, 10. River City

Figure 3. Left Map shows locations of uploaded photographs while applying Kernel Density method. Right Map illustrates the identified socio-spatial clusters.

Google maps and architectural literature were used to gather more information about these socio-spatial clusters. Field visits to the identified clusters engaged 200 participants who were asked to photograph their favorite views that they would upload on Social Media. They were also asked to offer remarks about these places and the role of tall buildings in shaping them.

3. Findings

The generated heat maps identified 10 major popular areas, including: 1) the Millennium Park and Maggie Daley Park, 2) Navy Pier, 3) Magnificent Mile Gateway, 4) Inner Loop, 5) Water Tower Area, 6) River Confluence, 7) Museum Campus, 8) "Urban Giants," 9) Grant Park, and 10) River City. As explained earlier, filed visits and literature review assisted in describing these places. Intensity of uploaded photographs indicated the most popular places, illustrated in Figs. 2 & 3.

3.1. The Millennium Park and Maggie Daley Park

The Millennium Park. It is a 24.5-acre (10 hectares) public space located in the Loop Community. The spatial layout of the park follows an "imageable urban room" structure, a concept, which was initially promoted by Daniel Burnham and Edward Bennett for their design of the Grant Park in 1909. As such, the park contains 12 major "urban rooms," including the AT&T Plaza and Cloud Gate Sculpture, the Crown Foundation, the Jay Pritzker Pavilion, the BP Pedestrian Bridge, Lurie Gardens, the Boeing Galleries, the Chase Promenade, the Exelon Pavilions, the Harris Theater for Music and Dance, the McCormick Tribune Plaza and Ice Rink, the McDonald's Cycle Center, and the Wrigley Square and Millennium Monument (Gilfoyle, 2016; Kent, 2011).

The study's participants liked how the park contains a great variety of entertaining elements including attractive open spaces, spectacular public art pieces, iconic pavilions, splendid gardens, and seasonal art displays. They also liked the small "urban room" concept and how the park's relatively intimate places profoundly engage all the senses and consequently compensate for the highly developed downtown area. In addition, these distinct spaces convey a strong design identity to the park.

The Maggie Daley Park. Maggie Daley Park (MDP) is located immediately east of the Millennium Park. The layout of this graceful park features a winding spine that cuts diagonally through the space, dividing the park into two parts; a southeast section that contains the Play Garden and a northwest section that contains the Rock-Climbing Walls and the J.B. and M.K. Pritzker Family Ice-Skating Ribbon. The survey participants expressed appreciation to the park's curvilinear and intricate topography that contrasts well with the city's flat and gridded character. They noted how tall buildings offer a sense of enclosure to these parks (Fig. 4).

3.2. Navy Pier

The Navy Pier is a 3,000-foot-long pier that was built in 1916. It is one of a pair proposed for the lakefront in Daniel Burnham's Plan of Chicago of 1909 (Bachrach, 2010). The survey participants liked the great variety of shops, amusement, and recreational areas of this 50-acre pier. They also liked the Crystal Gardens, a two-story spaceframe that houses a children's museum and a botanical garden as well as the Ferris Wheel, a giant device



Figure 4. The Millennium Park and Maggie Daley Park. These two parks create the most popular place in the City of Chicago. Participants noted how tall buildings offer a sense of enclosure to these parks.

echoing the original that dominated the 1893 World's Columbian Exposition. Participants enjoyed taking photographs of the Navy Pier while having the city skyline in the background (Fig. 5).

3.3. The Magnificent Mile Gateway

A stunning agglomeration of historic skyscrapers along the DuSable Bridge creates a Grand Gateway to the Magnificent Mile. These are the Wrigley Building, Tribune Tower, LondonHouse Chicago, and 333 North Michigan Avenue. This spectacular cluster of skyscrapers has helped to define spatially one of America's most dramatic urban places (Bruegmann, 2012). What participants liked in particular is that the design of these buildings consistently follows a classical architectural style. Indeed, the cluster is reminiscent of buildings of the "White City" at the World's Columbian Exposition of 1893 (Smith, 2006; O'Gorman, 2003). The survey participants appreciated the fact that all these buildings have consistently distinctive bases, shafts, and tops, contributing to urban design coherence featured in this area. Additional buildings, such as the Equitable Building (1965) and recently the Trump Tower (2009), have further strengthened this spatial urban node. The 1920 DuSable Bridge centers the place and adds beauty, significance, and drama. In particular, participants liked the way a cluster of historic tall buildings creates a remarkable gateway to North Michigan Avenue (Fig. 7).

3.4. Inner Loop

Within the inner Chicago Loop, the study identified three sub socio-spatial clusters that are created near the Daley Plaza, the Chase Plaza, and Federal Plaza, respectively.



Figure 5. Navy Pier. Participants enjoyed taking photographs of the Navy Pier while having the city skyline in the background.



Figure 7. Magnificent Mile Gateway. Participants liked the way a cluster of historic tall buildings creates a remarkable gateway to North Michigan Avenue.

Daley Plaza. A remarkable spatial node is located near the Loop's epicenter. It is created by the clustering of important tall buildings including the Richard J. Daley Center, City Hall, James R. Thompson Center, and Grant Thornton Tower. The survey participants expressed appreciation to the diverse architectural styles that buildings represented, including classical, international, late modernism, and post modernism. Most importantly, they liked that the Daley Plaza offers a major outdoor urban space that attracts good part of the city's residents and visitors. Enriched by programmed social and cultural activities, the Daley Plaza is a grand public space, performing as the heart and soul of the Loop.

Chase Plaza. About two blocks south of the Daley Plaza, the study identified another sub socio-spatial cluster that comprises the Chase Center flanked by Inland Steel Building, One South Dearborn east, and 55 West Monroe (Xerox Building). These buildings center on the Chase Plaza. The survey participants liked a number of attractive elements of the plaza, including its spacious sunken space, large fountain, clock tower, public art, and lush landscaping. They explained that the Chase Plaza forms the Loop Oasis.

Federal Plaza. About two blocks south of the Chase Plaza there is another intriguing socio-spatial cluster created mainly by the Chicago Federal Center Complex, Monadnock Building, and Marquette Building. Like the discussed earlier clusters, this spatial node offers splendid contrast of distinct architectural styles. Participants liked how the historic, heavy masonry Monadnock building contrasts with the nearby modernist Miesian architecture of the Federal Complex. Importantly, the spacious plaza that centers the complex is a place for numerous civic activities, including social, political, cultural, and entertaining, which draw masses of people who enliven the space. Overall, the participants felt that these plazas offer respite from the stressful, busy Loop (Fig. 8).

3.5. Water Tower Area

Along the Magnificent Mile, a prime cluster of remarkable buildings is located between the Chicago Water Tower and One Magnificent Mile Building. Vertical malls draw in masses of visitors and ignite socio-economic activities in this place. The survey participants liked how this spatial node is characterized by a blend of historic, modern, and ultra-modern buildings, which certainly make this cluster one of the unique places in the city. In addition, open spaces and plazas humanize the place, and extensive landscaping and seasonal public art make it further attractive and enticing. Among the key buildings and structures of this cluster are the Chicago Water Tower, Water Tower Place, Park Tower, 875 North Michigan Avenue (popularly known as the John Hancock Center), 900 North Michigan Avenue, Palmolive Building, and One Magnificent Mile (Fig. 9).

3.6. River Confluence

One of the most spectacular clusters of skyscrapers in the city occurs at the Chicago River confluence, where the three branches of the river meet. Among these buildings are 333 West Wacker Drive, 225 West Wacker Drive, 191 North Wacker Drive, River Point, 150 North Riverside, Boeing International Headquarters, Residences at Riverbend, Merchandise Mart, and Wolf Point West. These buildings already create a dramatic spatial node. When Wolf Point East (under construction) and the proposed

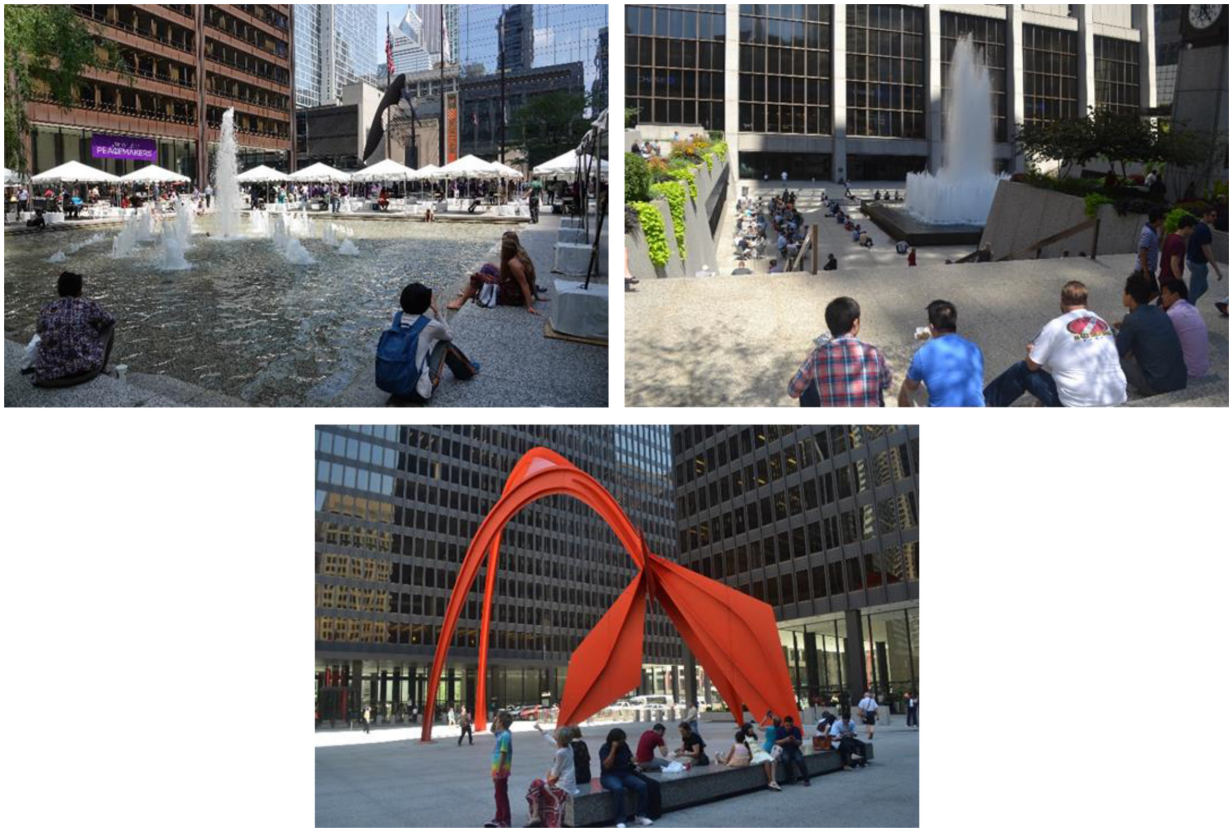


Figure 8. Inner Loop: Daley Plaza, Chase Plaza, and Federal Plaza, respectively. Participants felt that these plazas offer respite from the stressful, busy Loop.



Figure 9. Water Tower Area. Participants noted the presence of numerous landmark structures, e.g. the Historic Water Tower (left), and the John Hancock Center (right).

Wolf Point South are built, these towers will surely reinforce the imageability of this spatial node and redefine the river's skyline. Interesting, Boeing International Headquarters marks the beginning of the South Branch, and Residences at the Riverbend marks the beginning of the North Branch (Fig. 10).



Figure 10. River Confluence. Participants noted the unique sense of enclosure created by tall buildings.

3.7. Museum Campus

On Chicago's lakefront just south of Grant Park is a great concentration of museums and other public facilities. Still just a portion of Lake Michigan in 1910, it was filled with land and developed in accordance with the Burnham Plan of 1909. The campus houses the Field Museum, the Soldier Field, the Shedd Aquarium, and the Adler Planetarium. From this location, participants often placed the city skyline in the backgrounds of their photographs (Fig. 11).

3.8. Urban Giants

At the western side of the Loop, near the South Branch of the Chicago River, an outstanding agglomeration of skyscrapers creates a unique space, the city's spatial signature. There, one finds "Urban Giants" placed along Wacker Drive and its vicinity. Among these buildings are the Willis Tower, 311 South Wacker Drive, and Franklin Center. The 311 South Walker Plaza in conjunction with the area near the south entrance of the Willis Tower is at the epicenter of this cluster. Participants indicated how tall buildings create a remarkable boulevard, the South Wacker Drive (Fig. 12).

3.9. Grant Park

With an area of 319 acres, it is the largest urban park



Figure 11. Museum Campus. From this location, participants often placed the city skyline in the backgrounds of their photographs.



Figure 12. Urban Giants. Participants indicated how tall buildings create a remarkable boulevard, the South Wacker Drive.

in the Loop community, making it a major "breathing" space in Downtown Chicago. The north side of the park was remodeled from 1998 to 2014, creating the Millennium and Maggie Daley Parks, explained in Section 4.1. Museum Campus is a 57-acre (23 hectares) addition to Grant Park's southeastern end, explained in section 4.7. The Grant Park contains performance venues, gardens, artwork, sporting, and harbor facilities. It hosts public gatherings and several large annual events. However, the park's most remarkable features are the Buckingham Fountain and the Art Institute of Chicago.

Indeed, one of the most attractive features of the park is the Buckingham Fountain. Built in 1927 and centering the park, the fountain boasts being one of the largest in the world. It features the iconic Art Deco style and four seahorses surrounding it, representing Lake Michigan's four bordering states. From 8 am to 11 pm, the fountain bursts to life hourly, shooting 15,000 gallons of water through nearly 200 nozzles every minute, thereby fashioning a striking display. After dusk, the water show is accompanied by lights. The fountain was a donation from the Buckingham family (Gilfoyle, 2006). Interestingly, the survey participants often photographed the Buckingham Fountain while having the city skyline in the background (Fig. 13).

3.10. River City

What signifies this residential complex is that it is located at the end of the South Branch of the Chicago River's Architectural Boat Tours. At this point, the boat stops for few minutes to let riders take photographs of the surrounding, including the River City complex. As is the case with Marina City, the River City represents Architect Bertrand Goldberg's vision of creating a "sustainable" vertical neighborhood to reverse the massive flight from the city to suburbs, a trend that prevailed in the 1960s onward. River City comprises multi-family residences along a wide-range of mixed-use functions contained in a 17-story, 60 m (196 ft) -high S-shape tower. Participants were impressed by this "organically designed" residential complex located at the South Branch of the Chicago Rive (Fig. 14).

4. Discussion

With a focus on Downtown Chicago, this study utilized the Internet imageries of Social Media to discover the most popular "agglomeration" of places and buildings. Geographic Information Systems were utilized to visualize their locations and intensity of use and popularity. That is, locational data of photographs taken by the public allowed



Figure 13. Grant Park. Participants often photographed the Buckingham Fountain while having the city skyline in the background.



Figure 14. River City. Participants were impressed by this "organically designed" residential complex located at the South Branch of the Chicago River.

seeing Chicago as a collage of socio-spatial clusters with a defined hierarchy. Direct observations and architecture literature further informed about these clusters. Collectively, the methods employed provided a lens to understanding what people admire and appreciate. It facilitated a new form of urban analysis while revealing the pulse of the city.

Individual landmark buildings and major public spaces in the city of Chicago are already known. However, this study enabled delineating spatial clusters of landmark buildings and public places, amenities, parks and museums; and thereby; offering a new read of city life. Certainly, their collective iconic presence complements their individual beauty. Undoubtedly, these spaces are essential to the sustainability of the city and Social Media is fueling their significance. Perhaps, there is a circular relationship between popular places and Social Media. That is, the more people upload photographs of places, the more popular they become in the mind of people, and consequently, more people want to visit them.

The findings of this study highlight the significant impact of Millennium Park and Maggie Daley Park on

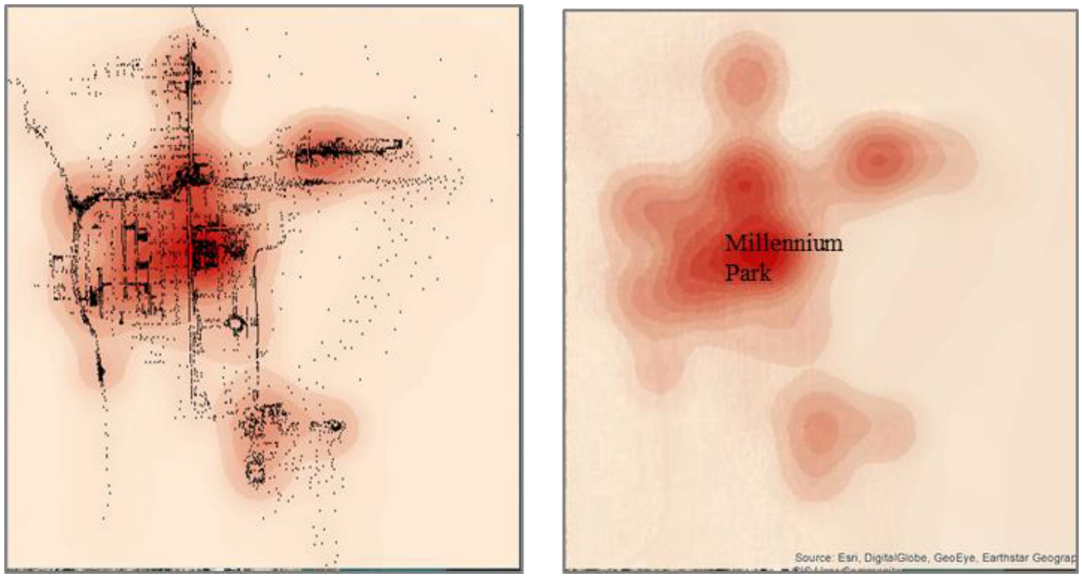


Figure 15. Left Map shows locations of uploaded photographs while applying Kernel Density method with a greater search radius. Right Map illustrates the greater socio-spatial clusters, highlighting the importance of the Millennium Park and the Maggie Daley Park, forming the epicenter of Downtown Chicago.

the city's downtown. First, these two parks are among the most popular, most photographed places. Second, their location is very strategic as they are close to the downtown action, and consequently, they have virtually connected the inner Loop with South Michigan Avenue, the Magnificent Mile, and the Chicago Riverwalk. These parks create a spatial "bubble," as seen in the heat maps, also connecting the Grand Gateway of the Magnificent Mile with the inner Loop. In other words, the Millennium Park and Maggie Daley Park have become the center of gravity for the entire city (Fig. 15).

One of the most notable elements of the Millennium Park is the wonderful transition one experiences from being immersed in skyscrapers to walking into an open green space with lush landscaping, vendors, music, and, most importantly, people. The park is accessible to the public and is free of charge. Aesthetically, the city's skyline (two intersecting rows of spectacular skyscrapers creating an L-shaped edge) hugs the park and functions as a fantastic backdrop. Furthermore, the park's public art pieces, such as the Crown Fountains and the Cloud Gate, are over-scaled in order to provide a spatial transition between the soaring skyscrapers nearby and the "flat" park they reside in (Al-Kodmany, 2017 & 2018).

Interestingly, the Maggie Daley Park's curvilinear and intricate topography contrasts well with the city's flat and gridded character. In a similar manner, the park's cascade of heterogeneous spaces acts as a complement to Grant Park's formal layout (Fig. 4). The organic nature of the park also complements the rigid appearance of the glass, steel, and concrete skyscrapers that surround it, helping to mitigate the overwhelming verticality of these tall structures. The park humanizes the space and the city's skyline works as a spectacular backdrop (Bachrach, 2012).

The findings of this study also agree with William H. Whyte's research, which suggested that there is a mutually supportive relationship between high-rise buildings and plazas and open spaces. That is, open spaces provide a "spatial break" for people to gather while high-rise buildings supply the needed density of people to make good use of public places. People who live, work, and visit a high-rise city may feel claustrophobic and open spaces become a place to relax, socialize, and take photographs.

In addition to identifying important socio-spatial clusters in the city, the study highlights the important role of the Chicago River Boat Tours and the Chicago Riverwalk. There are masses of photographs that are taken along the river because of the tours and Riverwalk. Indeed, the path goes through a spectacular canyon of skyscrapers and beautiful places provided recently by the Riverwalk. A special place, as indicated earlier, is the River Confluence where the three branches of the river meet: Main, North, and South. This place has also been photographed extensively.

In the same manner, Michigan Avenue's significance is highlighted by showing a stream of photographs taken along it. There is a major spatial "bubble" that occurs at the beginning of the Magnificent Mile, where Michigan Avenue intersects with the Chicago River. At that spot, a cluster of outstanding skyscrapers (old and new) and special urban artifacts (e.g., DuSable Bridge or Michigan Avenue Bridge) make this spot very special. Another "bubble" occurs at the upper end (Figs. 2 & 3), where

important skyscrapers cluster along historic structures (e.g., Water Tower).

The idea that the whole can be greater than the sum of its parts is particularly apparent in the examined high-rise clusters. While each building makes a unique contribution, Chicago's great skyline is composed of a concert of iconic buildings. Each one is a new piece of this evolving city; enhancing the urban collage and contributing to the urban design experience. This collective work of art forms an elegant record of the city's innovation roots and artistic development. Many of the newly constructed tall buildings offer a fresh, modern style made possible by advances in computer design and improvements in building materials.

5. Conclusions

This paper offers a new way of understanding the role of Social Media in shaping the popular image of Chicago. The study's results indicate that the city's skyscrapers along open spaces are major elements of image formation. The image of some cities is associated with a natural setting or remarkable natural landscape, notably Vancouver, Seattle, Rio de Janeiro, or Kyoto. Other cities are known for the character and beauty of their public parks, plazas, or boulevards; examples include London's Hyde Park, San Marco Piazza in Venice, and the Champs-Elysees in Paris. Using locational data from social media platforms, including Twitter, Facebook, and Instagram, along with imagery from Google Earth, fieldwork, direct observations, surveys, and combining insights from architecture and urban design literature, this study reveals that Chicago continues to be the quintessential skyscraper city. Chicago's skyscrapers evoke strength, simplicity, and history, all qualities deeply embedded in the city's character.

Collectively, Chicago skyscrapers improve the imageability of the city. Michigan Avenue is a powerful example of a commercial path and refined architectural edge. The Chicago River path is a beautiful way to experience the city and its remarkable skyscrapers. The Loop's skyscrapers along public plazas and open spaces make it a quintessential commercial district. Over the past centuries, Chicago has inspired many writers, poets, architects, and city planners. It remains a Mecca of skyscrapers and the pulse of American architecture and urban design. As many cities all over the world rush to construct tall buildings, Chicago remains an essential model to help better integrate skyscrapers in their respective cities.

Interestingly, perhaps there is a circular relationship between Social Media and urban places. That is, by sharing photographs online, photographed placed become increasingly popular, encouraging more people to visit them, take more photographs, and share them again via Social Media platforms. That is, Social Media has the potential to advertise and popularize places, and hence ignite and exploit the "social energy" of the city. This mutually supportive relationship can be examined to improve tourism and economy.

6. Limitations and Further Research

As a disclaimer, this study has some limitations. Due to privacy considerations, the involved Social Media companies refused to provide any information other than locational data of uploaded photographs. All attribute data were removed from the given datasets. Attribute data would have enabled conducting keyword searches. It would have been useful for example to study the public's comments on these photographs to earn greater insights on the examined issues. Future studies may attempt to glean more information from Internet imageries.

In addition, a follow up study should provide an in-depth statistical analysis to the survey findings.

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Credits

All maps and illustrations are by the author. In addition, based on survey findings, all photographs were retaken by the author.

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