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The image of the digitally reproduced city on Instagram: Case of Izmir City Centers

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Abstract

Social media, which changes the way that we perceive our physical surroundings, currently corresponds to a tool that has the power to reshape the image of the city in the digital environment through a digitally reproduced city. Visual-based social media platforms play a significant role in the process of reshaping and reproduction. The current study aims to research and understand the layers of the digital image of a (digital) city, as reflected and reproduced on social media, firstly through a content analysis on Instagram. For this purpose, we collected samples of the images/videos posted between May and July 2021 in Konak and Bayraklı, the existing and prospective city centers of Izmir. Secondly, we surveyed social media users who previously had physical and/or digital experience of these city centers. With this sample data, we proposed a new categorization to understand the digital image of the (digital) city in a parallel way to the classical Lynchian theory. In the end, it was seen that, in the digital realm, there is a digital city that needs to be defined and categorized according to its peculiar characteristics, and the image of this city is user-generated whose process evolves (inter)subjectively through different categories.

Highlights

- The study investigates the layers of the digital image of Izmir city centers as reproduced on Instagram, with a content analysis.
- The analysis shows that the examined city centers are user-generated and their images evolve subjectively through various categories.
- The study proposes a new categorization for understanding the digital image of the (digital) city, consisting of the following categories: spine, symbol, niche, stroke, adversity, and antipode.

Keywords

City image; Social media; Reproduction of urban space; Digital space; Subjectivity.

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Instagram'da dijital olarak yeniden üretilen kentin imgesi: İzmir Kent Merkezleri Örneği

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Öz

Fiziksel çevremizi algılama biçimimizi değiştiren sosyal medya, günümüzde dijital ortamda yeniden üretilen kentler aracılığıyla, bu kentlerin imgesini yeniden şekillendirme gücüne sahip bir araca karşılık gelmektedir. Görsel tabanlı sosyal medya platformları bu yeniden şekillendirme ve üretim sürecinde önemli rol oynamaktadır. Bu bağlamda mevcut çalışma, öncelikle Instagram temelli içerik analizi yoluyla, sosyal medyada yansıtılan ve yeniden üretilen (dijital) kentin dijital imgesinin katmanlarını araştırmayı ve anlamayı amaçlamaktadır. Bu amaçla öncelikle, İzmir'in mevcut ve gelecekteki kent merkezleri olarak tanımlanan Konak ve Bayraklı için, 2021 Mayıs ve Temmuz ayları arasında Instagram'da paylaşılan görüntü/video örnekleri derlenmiştir. İkinci olarak, daha önce bu kent merkezlerinde fiziksel ve/veya dijital deneyime sahip olan sosyal medya kullanıcılarına bir anket uygulanmıştır. Söz konusu verilerle, klasik Lynch kuramına da koşut olarak, (dijital) kentin dijital imgesini anlamaya yönelik yeni bir kategorizasyon sistemi önerilmiştir. Çalışmanın sonucunda ise, dijital ortamda, kendine özgü özelliklerine göre tanımlanması ve kategorilerine ayrılması gereken bir dijital kentin var olduğu anlaşılmış, bu kentin imgesinin kullanıcılar tarafından oluşturulduğu ve bu sürecin farklı kategoriler aracılığıyla öznesel (ve özneler arası) olarak evrildiği görülmüştür.

Öne Çıkanlar

- Çalışma, Instagram'da yeniden üretilen İzmir kent merkezlerinin dijital imgesinin katmanlarını içerik analizi yoluyla incelemektedir.
- İncelenen kent merkezlerinin kullanıcı tarafından oluşturulduğu ve imgelerinin çeşitli kategorilerle öznesel olarak evrildiği görülmüştür.
- Çalışma, (dijital) kentin dijital imgesini anlamak için omurga, sembol, niş, vurum, olumsuzluk ve karşıtlık kategorilerinden oluşan yeni bir kategorizasyon önermektedir.

Anahtar Sözcükler

Kent imgesi; Sosyal medya; Kentsel mekânın yeniden üretimi; Dijital mekân; Öznesellik.

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INTRODUCTION[1]

The rise of the information age in the late 20th century offers a new understanding of studying urban environments through the lens of digital technologies, especially on social media. Advent in the utilization of location-based and visual-based social media platforms has started reproducing the city image as well as a digital city. However, the discussions and research on the existing components of this image and how they are reproduced in the digital environment remain limited in the current literature. The recent studies are mostly based on the spatial practices in urban environments under the impact of booming digital technologies such as the use of locational information to examine space utilization (Shen & Karimi, 2016), the effects of digital technologies on public space (Abdel-Aziz et al., 2016), and the process of urban transformation in the information age (De Falco, 2019). While some analyze city image in the digital age, they often cling to Lynch's (1960) physical environment lens. The perspective toward understanding the digital image of the cities formed in the digital environment with a special emphasis on the representations on social media still waits to be discovered in content.

In the digital age, ICTs (Information and Communication Technologies) inevitably affect the perception of places because of their power on socio-physical changes (Al-Ghamdi & Al-Harigi, 2015). Huang et al. (2021) investigates whether social media are eligible tools that can be used to analyze city perception. However, according to Al-Ghamdi & Al-Harigi (2015), the represented urban image through diverse locative-based online platforms took legibility to a new dimension. It can also be confusing for the perceiver because there is no solid division between true-lie and real-fake. Correspondingly, the reflection of the meaning and identity of the urban space or the experience can be developed "distortedly" in the digital space (Al-Ghamdi & Al-Harigi, 2015).

By examining the geo-tagged photos on social media, Liu et al. (2016) asserted that there are incomplete parts left in the theory of city perception which covers "traditional urban indicators" and "subjective perceptions" of the user. Peng et al. (2020) also explained that the information age differentiates the concept of the city perception which is characterized by the physicality of the urban space beforehand. Parallel with Liu et al. (2016), however, Peng et al. (2020) claimed that subjective perception became prominent with the booming utilization of platforms that embodies geo-tag features in their interface, because the image of the city varies from person to person and this subjective approach comes from the individual's social environment and status, previous experiences, and cultural backgrounds.

Social media allow people to reflect on what they experience through images, words, and videos that are attached to a particular location through locative media, which can be explained as the convergence of location-based services and technologies bridging the in-between space, between physical and virtual worlds (Yılmaz & Kocabalkanlı, 2021). Mitchell (2003) emphasized the

[1] A detailed version of this article is partially available in the Master's thesis prepared in the Department of Architecture at Yaşar University, titled "The Image of the City on Social Media: Izmir Konak and Bayraklı City Centers" (Acar, 2022).

importance of locative media as their capability to attach data "to specific spatial and temporal settings." They allow people to relate information to a particular location by recording the relationship between the shared content and locations and conveying them to the relevant space in the digital network (Mitchell, 2003). Liu et al. (2020) emphasized that geo-tags not only give spatial inputs, but they also accommodate data consisting of the "contextual and semantic information," which can be explained as the verbal explanation of a particular area, the expression of the viewer of the geo-tagged space, activities, and perceptions. Whoever shares their feelings or preferences about a place on social media in the form of photographs, comments, etc. allows the birth of a new "sensor of multi-dimensions for the city" (Peng et al. 2020). Correspondingly, with the introduction of subjectivity on the scene, it has been understood that the classical city image theory is incomplete (Peng et al. 2020). According to Peng et al. (2020), social and cultural meanings that are integrated with the city users' daily activities play a great part in the city image construction.

Furthermore, Motamed & Mahmouidi Farahani (2018) denoted that the facility of archiving photographs on social media platforms can allow people to display a particular place that is worth remembering in the future. It is a location-based case study in Melbourne, and the data were collected from different social media platforms which are visually oriented ones associated with locations (Flickr, 500px, and Instagram). In four steps the content analysis was conducted by Motamed & Mahmouidi Farahani (2018), which includes image finding, categorizing the images, coding, and analysis. They emphasized the evaluative image of the city in terms of people's preference to share or not to share places. Therefore, it is a significant source, which shows that the city image is user-generated in the digital age.

By utilizing the text mining technique, Wong & Qi (2017) searched how individuals can evaluate the image of a place through verbal content. They collected data from Tripadvisor between the years 2005-2013, as specified by the word "tourism attributes" in Macau (China) and concluded that the image of a particular place can evolve and change through the experiences, perceptions, and consequently the comments of the individuals over years (Wong & Qi, 2017). This study provides a great insight into how subjectivity can change through the years. Similarly, Nowacki & Niezgoda (2020) denoted that travelers have the power to establish an image by making an examination on Tripadvisor via the comments written by tourists and visitors to understand the travel destination selection according to the re-created image of the city. They used text mining technique to illustrate mostly used words in Tripadvisor and the users' opinions about a particular city. Moreover, sentiment analysis has also been utilized in the work to reveal the impact of positive and negative comments (Nowacki & Niezgoda, 2020).

Boy & Uitermark (2017) considered the effect of social media representations on urban space utilization. Their study is dependent on a location-based case study in Amsterdam to examine how this city is reconstructed through Instagram. Boy & Uitermark (2017) revealed that Instagram users take a role in the beautification of everyday life and advertise such places that are related to the notions as exclusive and sophisticated. Therefore, the study demonstrated that users constitute "claim space" which has "symbolic value" (Boy & Uitermark, 2017). To justify this assertion, Boy & Uitermark (2017) examined the macroscopic and microscopic data, and to collect microscopic data, they set some interview questions and apply them to Instagram users. Moreover, they collected Instagram photographs that contain the user information and the perception of that

specific user. In macroscopic analysis, they tried to understand the relationship between different Instagram users through the posts which have location information (geo-tag) (Boy & Uitermark, 2017). Accordingly, the subjectivity of the active Instagram users excludes some parts of the city and embraces only a few hotspots which can be defined as chic (Boy & Uitermark, 2017). Therefore, an important criticism is the subjectivity of social media in the city image construction due to its constitution of inequality between different spaces.

As is summarized in the review, the previous studies are mainly focused on discovering how social media affects the image of the physical city in the digital realm—that is, while the physical city refers to the context of final statement, digital platforms are undertaken as the tools to analyze the physical city. Furthermore, they also show that subjectivity is an important factor affecting the design and perception of the image of the city on social media. We may also claim that social media users refer to an invisible layer of the posts with photographs and comments shaping the image of places in reality. However, the literature is in lack of the studies focusing on the digitally reproduced city and its image created, again, digitally. Through the posts, users can construct a new image that is formed both subjectively and intersubjectively in the digital environment to address the digital reflections of the physical city. These reflections may be powerful enough to act independently from the physical rules—which leads us to an understanding of the possibility of a digital city construction on social media. Examination of the posts and the thoughts of the users, therefore, may help us comprehend the reasons for preferences and design of the city image in the digital environment. Therefore, the focus of this study is the analysis of the layers of the digitally reproduced city image on social media via the posts and thoughts of social media users. It aims to understand the components of the digital city and its image by considering subjective manipulations/curations. The study examines the images of Konak and Bayraklı as the existing and prospective city centers of Izmir, through a sample-data collection on Instagram as the most used image-based social media platform in Turkey (DataReportal, 2022). It is also aimed to discuss the users' perceptions about the components of the image of a digitally reproduced Izmir on Instagram by introducing a new Lynchian—and visual-based—categorization logic to read the digital images of the (digital) cities.

DATA AND METHODOLOGY

The methodological scope of the study comprises two phases: 1- Content analysis to understand and categorize the visual data on Instagram, 2- Online survey with social media users to support the visual data. The decision of making a visual-based content analysis on social media was taken after realizing the limited perspective in the literature review of the previous studies. We also conducted an online survey to learn the thoughts of the online inhabitants in their digital habitat. The stages of the data collection and analysis are given in detail in the consecutive sections.

Content analysis

We limited the data collection of the visual content with a timeline spanning between May 2021 and July 2021, which refer to two important temporal axes to understand the public and individual activities: The month of May in Izmir generally embraces the entertainment activities like the spring

festivals celebrated multi-culturally during several consecutive days—the most popular of them is Hıdrellez Fest covering picnics and sometimes a kind of procession in-between Konak neighborhoods. And specific for the year 2021, July was also added into the analytical scheme since, in Turkey, the 1st of July in 2021 corresponded to the first day of the normalization period after a long lockdown due to the Covid-19 pandemic. Therefore, both the social rituals of spring festivals and the first days of the new life after pandemic could be covered in the data package of the analysis.

To examine the digital reflections, Konak (existing center) and Bayraklı (prospective center) were chosen for collecting the sample data on Instagram since they are the proclaimed city centers of Izmir. They are the hubs that bring the city users together, provide them the opportunity to communicate, and work as transfer points for the city. Furthermore, Bayraklı is pointed strategically in the master plan as the prospective city center by the Izmir Metropolitan Municipality in 2003, since it is a port district open for development and covers the newly built skyscrapers as the business center of Izmir, as also announced on the news websites (Figure 1) (Çelebi, 2018).


"Gelecekte İzmir'in bir numarası olacağız"
'We will be Izmir's number one in the future'

03.01.2015, 00:00

Bayraklı mayor Hasan Karabağ stated that they have done important work on the branding of the district and said, 'Bayraklı will be the number one settlement area in İzmir in the future.
Pointing out that Bayraklı, with its 23 districts and a population of 305 thousand, is bigger than many provinces, President Karabağ said that there have been visible changes in the district since 2009.
Karabağ assert, 'We have become an exemplary district from cleaning to social and cultural activities, from green areas to parks. Everyone is talking about Bayraklı. The heart of tourism and trade will beat in Bayraklı district. The skyscrapers of Bayraklı and tourism projects in the Turan region are discussed. In the future, Bayraklı will be the number one settlement in Izmir as the new city center.'

Figure 1. Bayraklı's development on a news site (translation by authors) (Yeni Asır, 2015)

In the analysis of the visual data on Instagram, the photograph and video posts of Konak were followed by the most frequently used geotags "Konak," "Alsancak," and "Konak Pier"; and for the posts of Bayraklı, the mostly preferred geotags covered "Bayraklı," "Bayraklı coast," and "Bayraklı skyscrapers." The collected data covered 950 Instagram accounts; 798 belong to regular people, and 152 refer to business or institutional accounts. The first type of accounts has an average of 1K followers, while the second type has more reaching out to a minimum of 4K and a maximum of 334K followers—and none of the personal accounts belongs to an influencer. Therefore, the second type may have the power of influence their followers and other social media users. Out of 718 posts in total, we chose 241 images in May (156 for Konak and 85 for Bayraklı). In July, there was a remarkable increase in the number of posts: 477 images were chosen (390 for Konak and 87 for Bayraklı)—the posts with explanatory tags and descriptions were preferred in the selection process. Here, we may refer to Figure 2 to summarize the frequently posted visual contents.

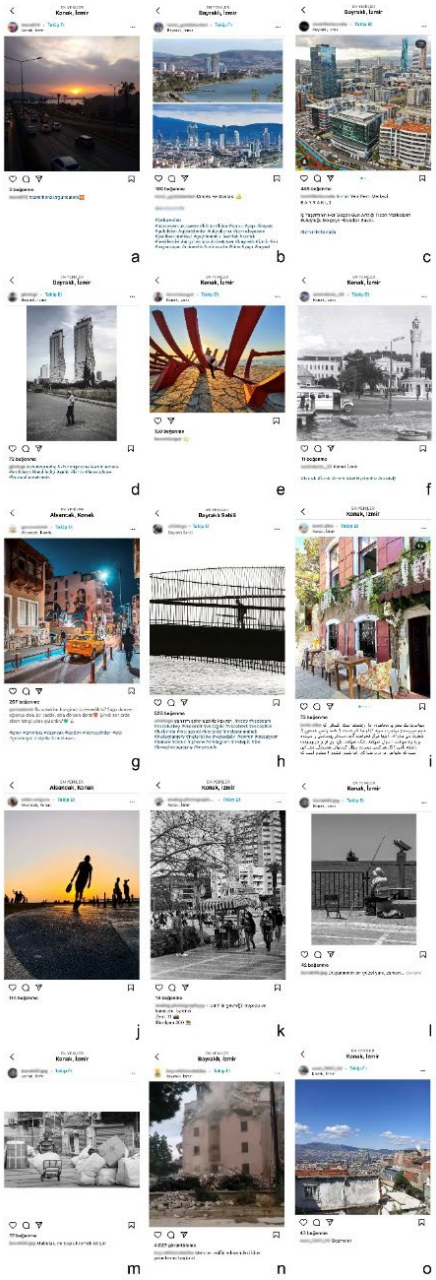

Figure 2. Posts with frequently and differently shared contents on Instagram based on the geo-tags of Izmir city centers, Konak and Bayraklı

After examining and comparing these images, we came up with a new categorization proposal after Lynch, which is given in detail in the "Findings".

Online survey

The survey questions were constructed to support the content analysis and figure out the reasons and effects of the appearance of these visual contents on Instagram which has the potential of reproducing the digital city and its image for Konak and Bayraklı. In the questions, we also mentioned the categories derived from the content analysis on Instagram. The survey was conducted with 303 social media users with an online questionnaire covering the question types

with multiple choices, yes/no, and open-ended (Tables 1, and 2). The survey link was shared on different social media platforms and accounts (mainly Twitter [currently X] and Instagram) by the snowball sampling technique, and users with physical or digital experience with these centers participated.

Table 1. Multiple choice questions

Questions (with 7 choices)	a.	b.	c.	d.	e.	f.	g.
Q0. Please indicate which age group you are in.	13-17	18-24	25-34	35-44	45-54	55-64	65+

Questions (with 6 choices)	a.	b.	c.	d.	e.	f.
Q1. Have you been disappointed with the atmosphere of a place you visited after seeing it on social media? If yes, which deception technique do you think was used?	Perspective	Filter	Size	Other	I've not	-
Q2. If you were to take photos in the city center of Izmir, which district/neighborhood would you prefer?	Konak Clock Tower	Kordon	Bayraklı Skyscrapers	Bayraklı Coast	Other	-
Q3. Which places in Izmir do you think are shared the most on social media?	Coastline	Squares	Recreation Area	Skyscrapers	Izmir's Silhouette	Other
Q4. Are the comments about the atmosphere of a place more important to you or visuals?	Visuals	Comments	-	-	-	-
Q5. What comes to your mind when "the city center of Izmir" is mentioned?	Konak	Bayraklı	Other	-	-	-
Q6. How is the identity of Izmir city center reflected on social media? What events in these places do you have the chance to see on social media?	Festivals	Celebrations	Human Scapes	Accidents	Urban Problems	Other
Q7. In your opinion, if there is to be a new city center in Izmir, where do you think it should be?	Konak	Bayraklı	Other	-	-	-
Q8. Where was the city center in Izmir before?	Konak	Bayraklı	Other	-	-	-
Q9. Which of the following are the visuals that directly reflect Izmir's urban identity?	Skyscraper/s	I love Izmir Sign	Clock Tower	Sculpture on Gündoğdu Square	Sculpture on Cumhuriyet Square	Other
Q10. Which of the following urban image categories do the images you come across on social media fall under?	palms, clock tower, lanyard, etc. (Symbol)	repeating images, Kordon view, sunset, skyscrapers (Spine)	reverse photos, skyscrapers vs. slums, etc. (Antipode)	earthquake, flood, pandemic, etc. (Adversity)	photos in front of a particular street, shop, building, etc. (Niche)	objects and activity-based photos, bomb cookie, bagel (Stroke)

Table 2. Yes/No and open-ended questions

Questions	a.	b.
Q11. Do you share the photos of the place you took on social media by using a filter?	Yes	No
Q12. Do you search for the related visuals and comments from social media platforms before you visit a place?	Yes	No
Q13. Do you think you can experience spaces through photographs on social media?	Yes	No
Q14. Do you think social media can reflect the spaces as they are?	Yes	No
Q15. Do you use location tags when sharing the spaces/places you visit?	Yes	No
Q16. Does social media have an impact on the recognition of the new city center?	Yes	No
Q17. Do you think the repetitive visuals (Kordon, Bayraklı coast, etc.) on social media create the image of the city?	Yes	No
Q18. Do objects and activities (sunflower seeds, bomb cookies, walking along Kordon, etc.) create the image of the city?	Yes	No
Q19. Which kind of verbal content (hashtags, location tags, frequently used words, descriptions, etc.) do you generally use while sharing the places on your social media account?		
* Q19 is aimed to be an open-ended question which gives idea about the verbal expression of subjectivity and collectively produced city image on social media.		

FINDINGS AND EVALUATIONS

Findings of the content analysis

The guiding light of this research was the classical five-partite categorization of Lynch (1960), however, in this initial step of the analysis, we figured out that the Lynchian categories to read the image of the physical city do not fit for reading the layers of the digital image of the (digital) city. For example, the Lynchian landmark is not just a landmark when its photograph is posted on Instagram; it is transformed into an image symbolizing/marking not only the city of Izmir but also "living in Izmir," which is the demonstration of the conditions of a particular way of existence. The digital image of the city is reproduced on Instagram based on subjective preferences pointing out personal living manners. Through our analysis, we identified six distinct categories for interpreting this image, and Table 3 presents the distribution of posts according to their corresponding categories.

Table 3. Categories and numbers of posts

Categories	Numbers of posts
Spine	289
Symbol	223
Niche	122
Stroke	64
Adverse	17
Antipode	3

As shown in Table 3, the most shared content type covered the ones with a visual layer in the background or foreground pointing out the natural or urban characteristics of the city (Figures 2a,

2b, and 2c). In this way, a digital inhabitant can grasp the beauty or modernity of the city at first glance and have an idea about the natural or urban characteristics through these photographs, which construct a continuous rhythm referring to a "spine" while showing these characteristics. Therefore, in this group, we may include landscape or urban-scape photographs such as the views of the sunset, seascape, city silhouette, promenades, and skyscrapers.

The other frequently shared content refers to the marks/symbols of "living in a specific city" (Figures 2d, 2e, and 2f). For instance, the photograph of the historical Clock Tower is not posted only to show the image of Izmir but also the image of living in Izmir. In that sense, we figured out that the limits of these posts aiming to show "living in Izmir" can be enhanced in a way to cover the other important city symbols utilized with the same purpose: the Statue in Gündoğdu Square (historical), the Statue in Cumhuriyet Square (historical), ship skeleton statue in Konak, skyscraper/skyscraper groups (close-up) (modern), the pavement with wavy pattern in Kordon (decorative), "I love İzmir" sign (decorative), palm(s) (natural), 1st National public buildings (architectural), and amusement parks (social). This group of visual content refers to the "symbol" of living in Izmir.

The other frequently posted group covers the spatial photographs taken in front of a shop, on a street corner, in a park, etc. (Figures 2g, 2h, and 2i). For these visuals, we may claim that the content is not only related to the streetscape but also "being in" that very street corner, in front of that somehow important shop, or in that naturally beautiful park. That is, those elements are mostly utilized as the "background" components to point out the user's "niche" preferences of living in the city with its architectural and urban faces.

The fourth group corresponds to the objects and activities specific to the city identity (Figures 2j, 2k, and 2l). They are mostly given together with the spine photographs in the background. The gevrek (a type of bagel), boyoz (a type of pastry) and egg, bomba (a type of donut), kumru (a type of sandwich), tea at sunset, a drink in the (spine) landscape, eating sunflower seeds, swimming, dancing, playing sports, and having fun are among the frequently seen contents combined with the image of Izmir on Instagram. They are striking at first glance with an image of a recognized object or activity as part of the city's identity; therefore, we categorized them under the title of "stroke".

Another group emerges with photographs or videos of negative events having "adverse" effects such as an earthquake- and flood-scapes, slums, pollution, urban breakdown, and poverty (Figures 2m, and 2n). They work as the negative version of the spine photographs and affect the image of the city adversely. Their aim is to show the malfunctioning parts of the city. These visuals are not city-specific, however, because the big natural forces (like the earthquake in Izmir on 30 October 2020) are remembered with their places, the image of the city in the digital environment becomes coded with those unpleasant memories.

In the final group, we may refer to the reverse or opposite imaging photographs (conflicting concepts/situations), which may not be seen frequently, however, when posted, they took great attention to the image of the city (Figure 2o; only the permitted one could be given here). These impressive "antipode" photographs combine the slum areas, for example, with the modern

architecture of the city such as a slum house in front of a skyscraper, or an unhealthy environment with the beauty of nature such as an unclean space with the sunset at the background.

Therefore, we may summarize our proposal for a new categorization to read and understand the digitally reproduced city image by the visual-based posts on Instagram as "symbol," "spine," "stroke," "niche," "adversity," and "antipode." Examining these categories in the time- and space-wisely analyses may support the main arguments of this study. In this respect, in a time-wise reading, Figure 3 demonstrates the percentages of visuals shared on Instagram in May and July by the new categories. As is seen in this chart, the most shared categories in both months and in each district are symbol, spine, and niche. However, while the Konak district predominates in the symbol photographs, the spine photographs in the Bayraklı district dominate in percentage. For this reason, while Konak creates its own image with autonomous objects, the formation of a spine in Bayraklı and a city silhouette with this spine has started to create the digital image of this region.

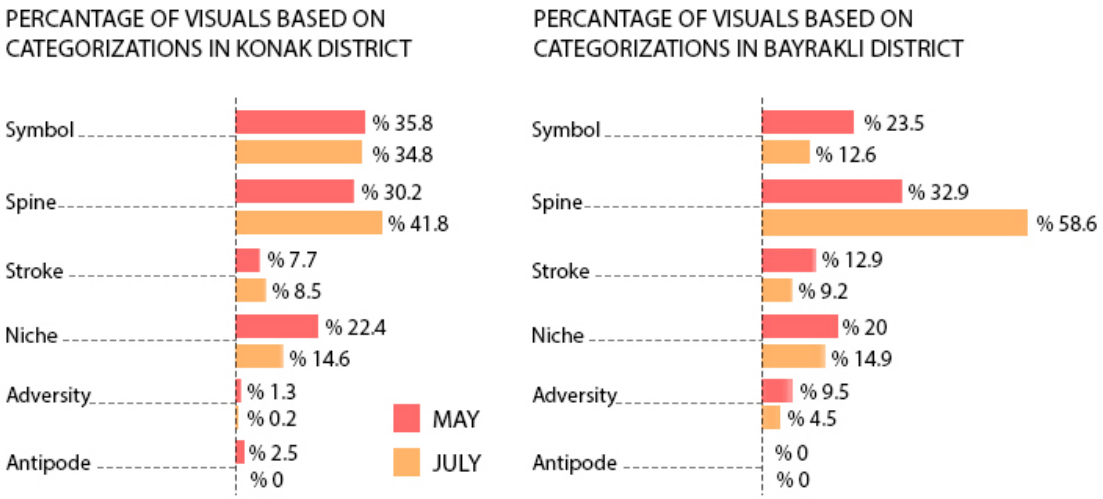

Figure 3. Distribution of the newly proposed categories for Konak and Bayraklı

Figure 4 represents a space-wise reading with the demonstration of both the locations and categories of images shared on Instagram. In this way, which visual category is concentrated in which places and how the city image is determined depending on this distribution can be interpreted. Accordingly, Bayraklı stands out with its spine visuals, while Konak is matched majorly with the symbol category. One of the reasons for this is that Konak has a historical infrastructure, thus, it generally produces symbol visuals with architecturally important elements. On the other hand, the presence of skyscrapers as a changing housing typology in Bayraklı affects the silhouette of this region and creates an image that makes it worth sharing by Instagram users. For this reason, it can be denoted that the spine images are mostly taken here.

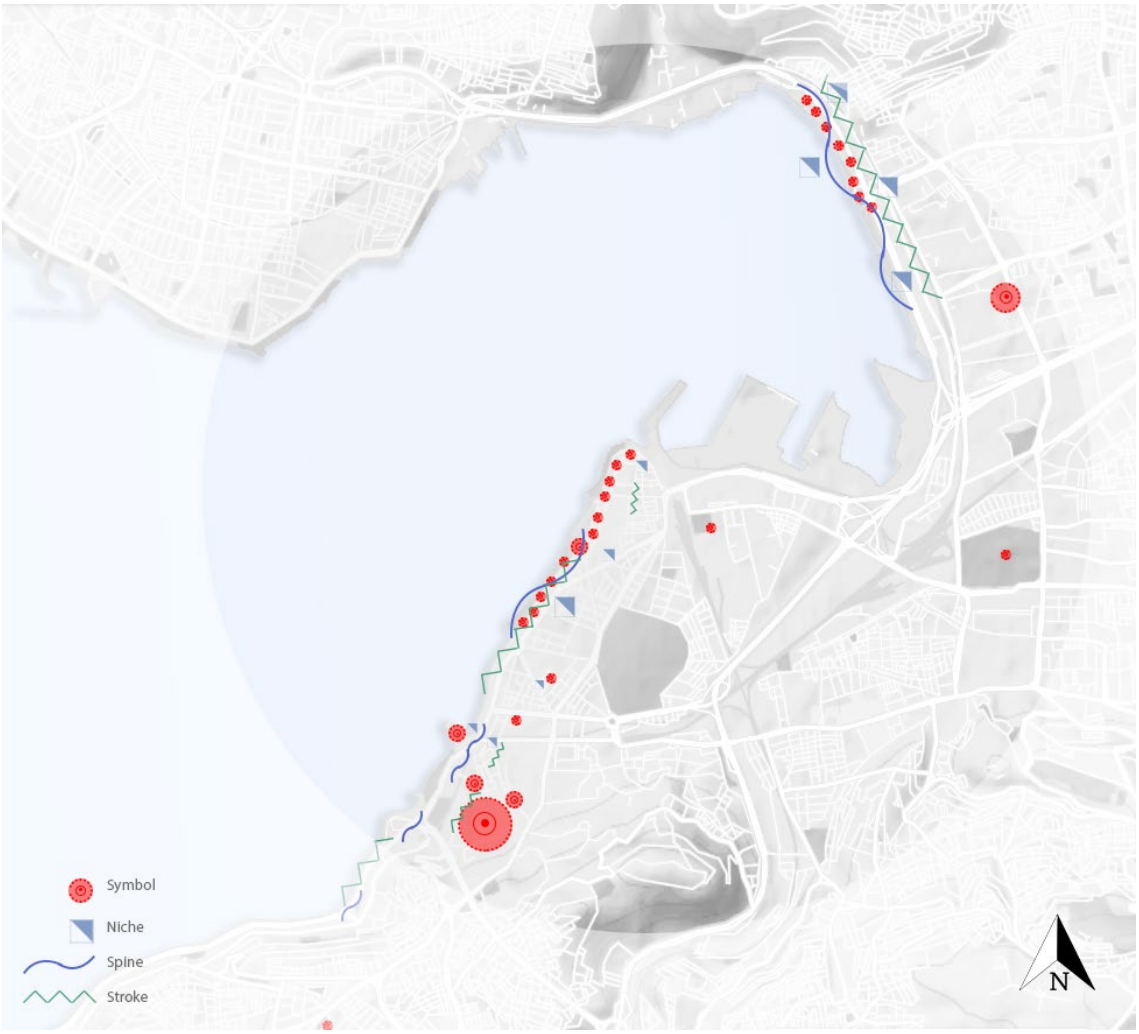

Figure 4. Distribution of categories shared on Instagram by location

Findings of the online survey

The reason for supporting the content analysis with an online survey was to understand the correspondence between the digital image of the (digital) city and user perceptions about this image as well as its relationships with the physical city. Therefore, the questions were designed to understand the unified perception of social media users about the digital image of the digital city that they experience omnipresently. In this framework, the answers for the Q0 reveal that the survey reached majorly the age group between 25-34 (%38.5) and 18-24 (%23) which can be interpreted as the group that may use social media effectively compared to other age groups. Therefore, the mentioned group can be claimed as both the post-sharers and perceivers of the digital city image on social media. Other age distributions are 35-44 (19.7%), 45-54 (11.5%), 55-64 (4.6%), 65+, and 13-17 (1.3%) as shown in Figure 5, which may be relatively reluctant in social media use.

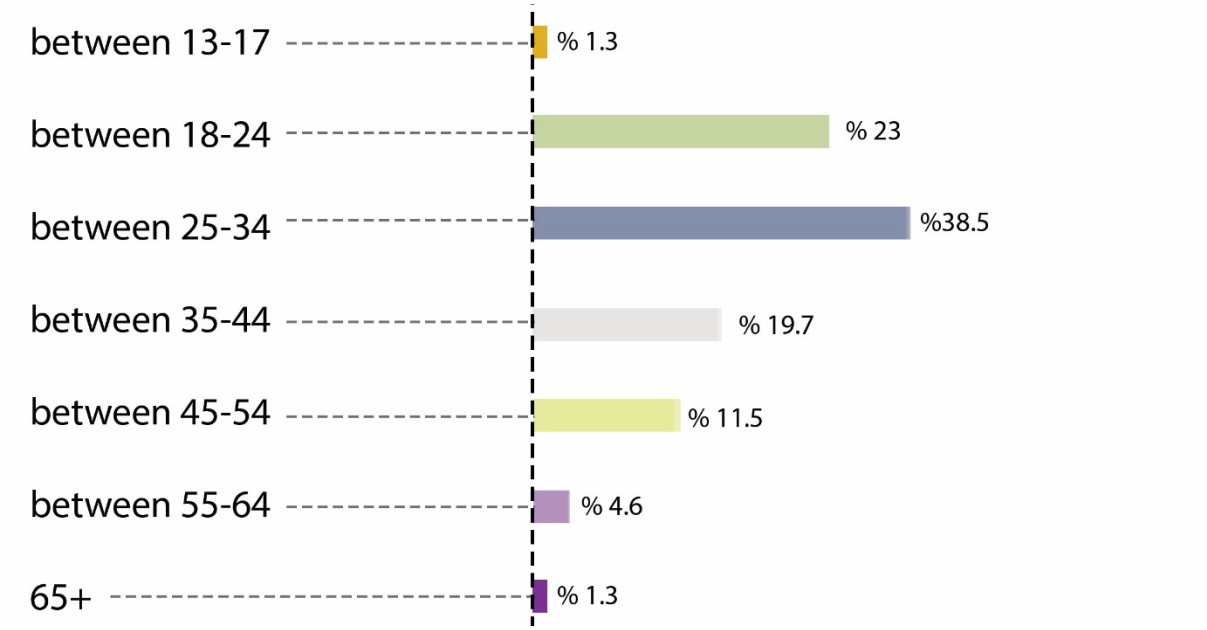

Figure 5. Distribution of the answers given to Q0

According to the answers given to Q1 (Table 1), the survey participants are disappointed when they visit the real place due to the manipulations/curations respectively in the context of perspective (50,5%), filter (44,4%) and size (33,1%) in the posts on Instagram. The other disappointments are mentioned about the changes in time and climate (0,3%), and the genius loci (0,3%). However, 20,1% of the users stated that they did not feel disappointed when they visit the physical space they saw on Instagram. The results show us that the majority of the users could discern the difference between the physical space and its curated image in the digital environment, and unfortunately, while we can follow both negative and positive spatial features in a physical environment, the image of it represented on social media only highlights the positive qualities after users' curations.

The answers to Q2 accumulated on the choice of Kordon (60,5%), which may be related to the spine photographs that are generally taken in this place with a sunset view in the foreground (Figure 6). It also serves as a background for the symbol and stroke photographs (Table 4). The Kordon photographs are followed by the Clock Tower photographs (37,2%, in Konak), Bayraklı coast photographs (12,8%), and Bayraklı skyscraper photographs (8,4%). Parallel to the findings of the content analysis, the results demonstrate that the symbol photographs come next to the spine ones—thus, the symbol photographs correspond to 45,6% in total (with the historical symbol, the Clock Tower, and modern symbol, the skyscrapers), while the percentage of the spine photographs (Kordon and Bayraklı coast) is 73,3%. On the other hand, the ones taken in Konak, as the existing city center, refers to 97,7% of the answers, and the ones taken in the prospective city center, Bayraklı, correspond to 21,2%, which may give an idea about the preferences of the users related to their perception of Izmir image on Instagram: it is generally perceived and constructed with the spine photographs (73,3%) covering both of the existing and prospective city centers but majorly the existing one (60,5%).

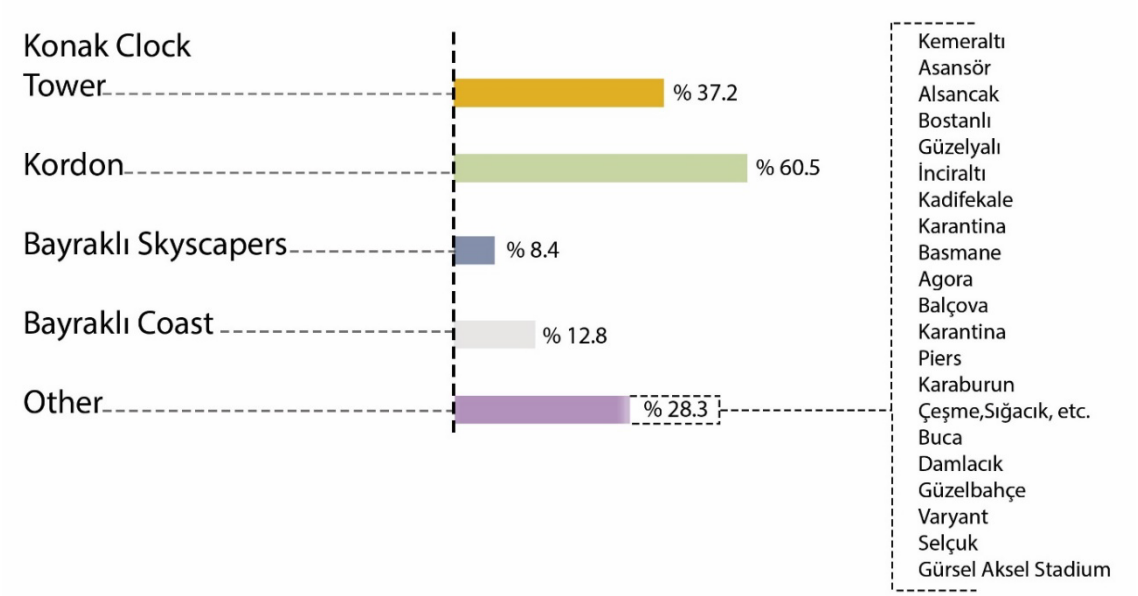

Figure 6. Distribution of the answers given to Q2

Table 4. Distribution of the answers (over %10) according to the proposed categories

Questions	Probable categories
Q2, Q3	1.Spine
	2.Symbol
	3.Stroke
Q6	1.Stroke (with Spine)
	2.Adversity
Q9	Symbol
Q10	1.Symbol
	2.Spine
	3.Stroke
	4.Niche
	5.Adversity
	6.Antipode
Q17	Spine
Q18	Stroke

The answers to Q3 are parallel with the inference we made in Q2: according to the users, the most shared place of Izmir on Instagram is its coast (88%), which, again, shows us that probably the beauty of the sunset on the coast plays a role in the spine photographs and as a background element in some of the symbol and stroke photographs (Figure 7; Table 4). The coast is followed by the posts containing photographs of the squares (33%), the silhouette of Izmir (26,7%), recreation areas (14%), and skyscrapers (9%). As seen in this distribution, there is a competition between the symbol (covering squares and skyscrapers, 42%), and the spine photographs (covering the coast, silhouette of the city, and recreation areas, 128,7%), which was won by the latter by far.

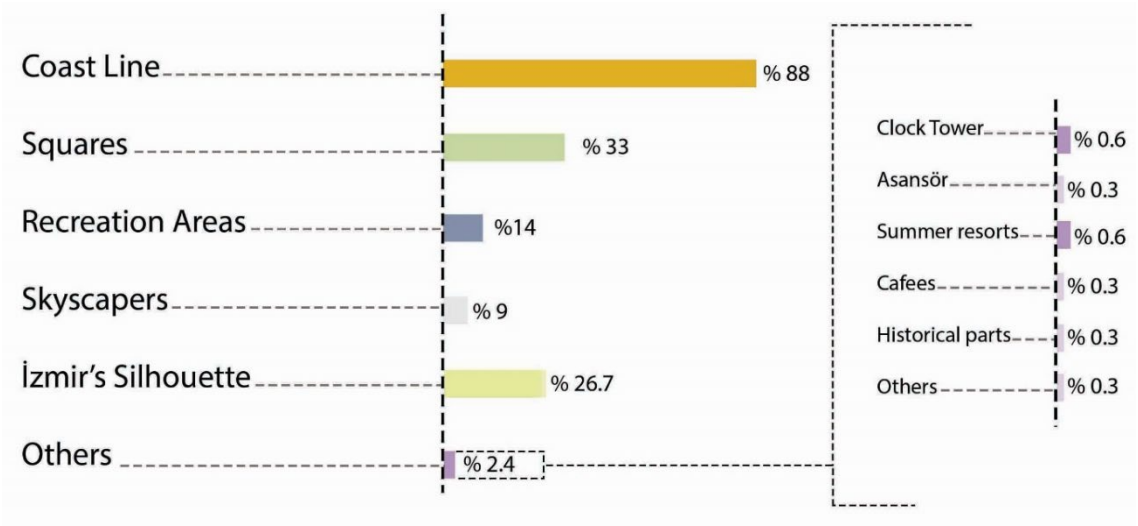

Figure 7. Distribution of the answers given to Q3

In the answers to Q4, it is very clearly seen that the comments (66,6%) are more important than the visuals (33,45) about the atmosphere of a place, according to the participating social media users. Preferring comments over visuals may lead us to the conclusion that the personal opinions and experiences of different users about a place on social media are more reliable. Since users are mostly sure that the images are likely to be curated, they trust the comments of those who previously visit these places and the judgments that these views often combine, while forming an opinion about the places (especially for the ones they have not visited physically before).

The result of Q5 is also noticeably clear about the social media users' preference between the existing and prospective city centers of Izmir: while 86% of the answers stated that it is Konak, only 2,3% of them were recorded for Bayraklı. The other answers cover different options such as Kemeraltı (0,6%, although it is a district connected to Konak) and Karşıyaka (1,2%), but Alsancak (6,6%) comes in second place after Konak, though it is already a neighborhood of Konak, as well. This result may also lead us to another inference that, through the years, Alsancak—like Kemeraltı—has gained its own identity which has separated itself from the other districts with its specific urban culture and nature. Thus, we may also claim that, in the urban context, sometimes there may be constructed a center within a center, by articulating the urban differences of the former from the latter in perception, when we consider especially the digital city image on social media.

According to the answers to Q6 based on events and activities (Figure 8), the digital image of Izmir is most intensely reflected in the human-scape visuals (69,9%, stroke) on Instagram. It was followed by celebrations (55,3%, stroke), festivals (42,4%, stroke), urban issues/problems (38,4%, adversity), and accidents (10,3%, adversity). The other answers are distributed among the choices of sea and gulls (0,3%, spine), beaches (0,3%, spine), coast (0,3%, spine), recreation areas and archaeological sites (0,3%, spine), entertainment and sunset (0,3%, stroke and spine), meetings (0,3%, stroke), historical sites and foods (0,3%, spine and stroke), streets (0,3%, niche), and places for a drink (0,3%, niche). Here one of the participants of the survey also stated that s/he "comes across only the scapes of people walking and having fun, as the urban space is always in the background." This

sentence echoes the result we have already reached by the quantities: in Izmir's case, it is the human-scape shared mostly on Instagram, which was followed by celebrations and festivals. This result may lead us to the conclusion that the stroke photographs are given with the spine photographs in the background (with sea and gulls, beaches, coast, recreation areas, archaeological/historical sites, and sunset—1,8% in total) in the construction of the digital city image of Izmir on social media. On the other hand, the perception of adversity visuals (48,7%) is also high in this distribution—these photographs may also contain the category of antipode having conflicting images together, though they are exceedingly rare in general.

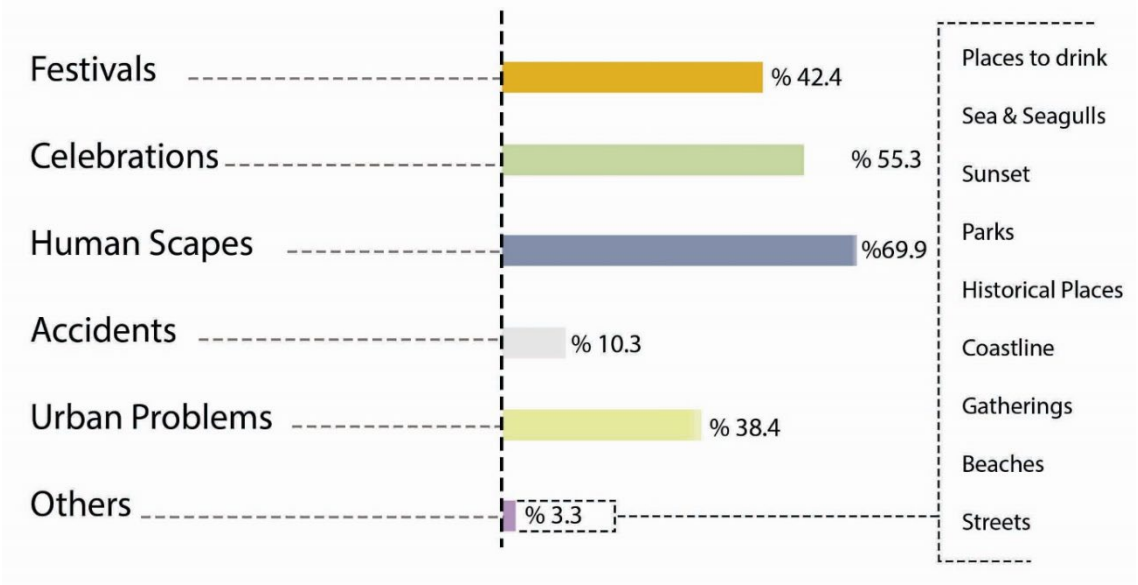

Figure 8. Distribution of the answers given to Q6

The answers to Q7 and Q8 are in parallel with the physical reality: it is confirmed by most of the users that Bayraklı can be the prospective city center of Izmir (44,4%), while it is currently Konak (88,2%). 32,7% of the users also stated that the prospective city center should also be Konak, and the old one was Bayraklı (5,5%)—probably by remembering that Bayraklı also refers to the origin of the historical city of Smyrna (in 3000 BC). Bostanlı (83,3%), Alsancak (2,5%, though it is connected to Konak), Karşıyaka (1,5%), Bornova (0,7%), and Buca (0,7%) were stated as the other possible prospective centers—and it is, again, seen that Alsancak has a different urban image (as if a center) than being a neighborhood of Konak. The subjectivity of social media while constructing the image of the city plays an important role in determining the boundaries and urban qualities even for the centers of the city in perception, which is quite different from the physical reality and common regulations.

Q9 focuses on the users' perceptions of the visuals that directly reflect Izmir's image, and most of the answers fell under the category of the symbol with the Clock Tower (88,8%, in Konak) (Figure 9; Table 4). Izmir Ataturk Monument in Cumhuriyet Square (60,1%, in Konak) and the Republic Tree Monument in Gündoğdu Square (59,4%, in Alsancak-Konak) follow the Clock Tower. "I love İzmir sign" (8,6%, in Kordon-Alsancak-Konak), and skyscraper/skyscraper groups (7,6%, in Bayraklı) come next in the evaluations. As seen in the distribution of the answers, the photographs

of Konak and the places connected to it stand out as the visuals that determine the urban image of Izmir on Instagram; in other words, social media users remember and mention these photographs when the relevant question is asked. By this result, we may interpret that, Bayraklı, as the prospective center of Izmir, has not been sufficiently rooted on social media yet, but of course, it should be added that there is a common perception in this regard. Besides these answers, the users also added some important details which may be classified regarding the categories of the digital image of the (digital) city: coast of Kordon and Güzelyalı with the sea, seagull, ferry, terraces, grass, and sunset (spine); Kültürpark (spine); Asansör (symbol); Agora (symbol); Pasaport pier (symbol); streets of Kemeraltı, Karşıyaka bazaar, and Kıbrıs Şehitleri (niche); and young people sitting on the Kordon's grass areas, houses with flags on national holidays (stroke). None of the users referred to any adversity or antipode images in the survey, which may be interpreted that Izmir's image on Instagram is constructed positively in perception.

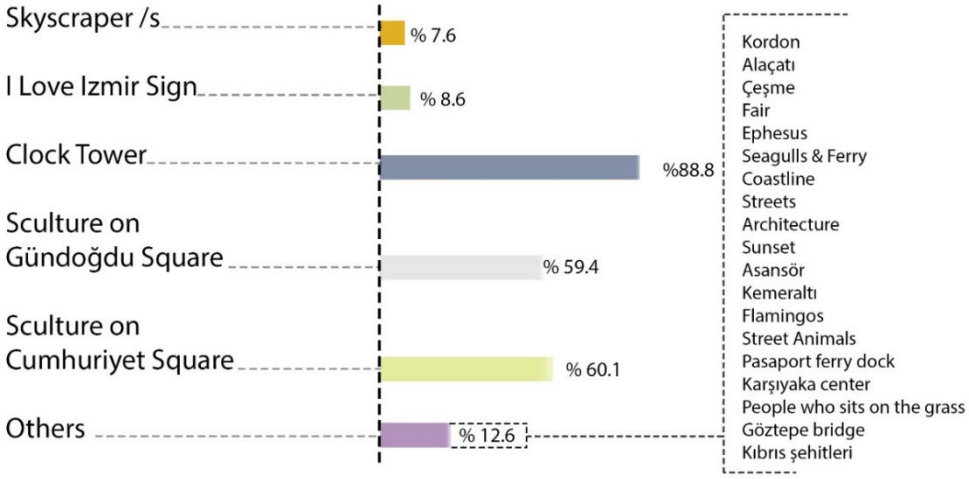

Figure 9. Distributions of the answers given to Q9

Q10 asks about the perception of Izmir's image, this time by referring to the proposed categories (Figure 10; Table 4)—thus, the relationship between categories and photographs has been tried to be established by the users, too: different than the content analysis, the symbol category has the highest percentage (86,7%) by covering the foreground images such as the Clock Tower, specific places in Kordon, and palm trees, which may also be connected to the spine ones in the background. The spine category (54,5%) with repeating images such as the landscape in Kordon, sunset, and skyscraper views comes next to the symbol's rate. Again, different than the findings of the content analysis, the stroke photographs (51,2%) with symbolic objects and habitual activities such as gevrek, bomba, and sunflower seed images were followed by the niche photographs (38,5%) with the images such as a specific corner in the street, and front of a shop or a building. However, like the content analysis, the adversity visuals (15,6%) with the images such as the earthquake, flood, and pandemic-related scapes came before the antipode photographs (15%) with the visuals bringing together the conflicting concepts/situations such as a slum house in front of a skyscraper. Regarding the results, we may claim that the digital image of Izmir on Instagram majorly depends on the symbol and spine visuals which are intertwined with each other very strictly in the case of Izmir.

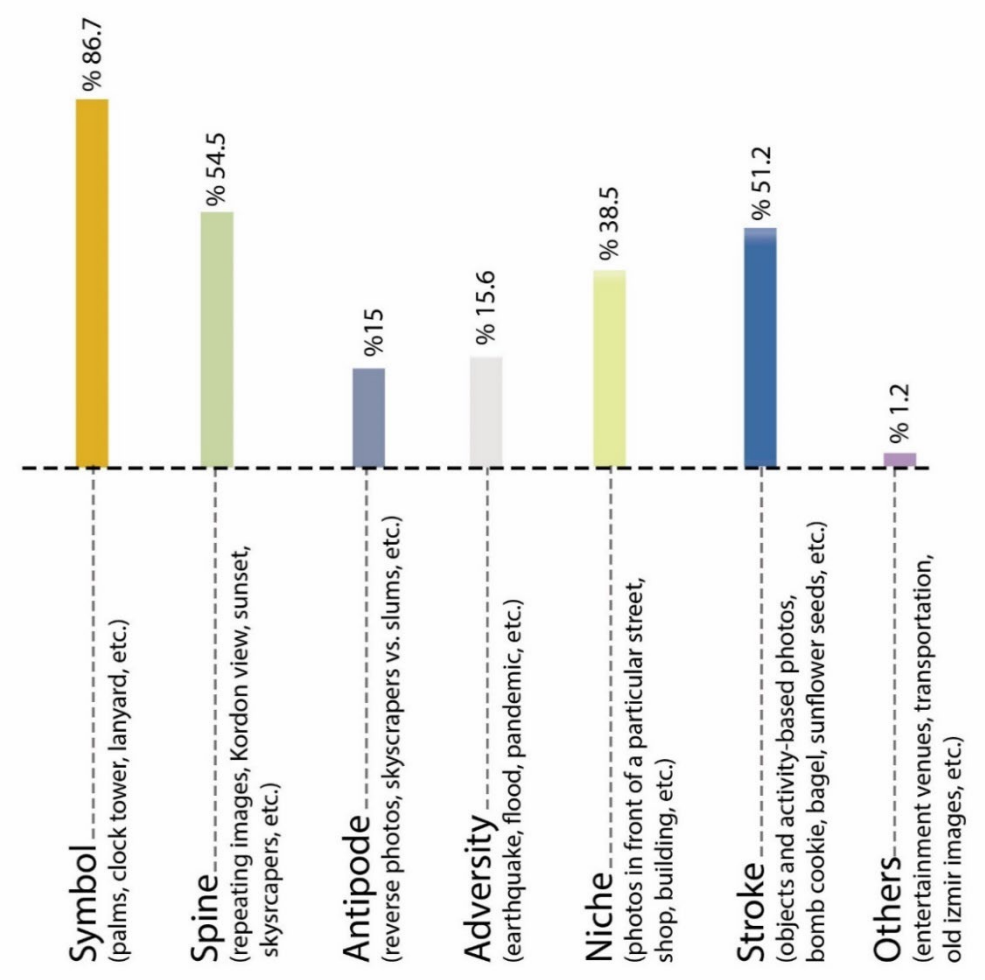

Figure 10. Distributions of the answers given to Q10

When we look at the yes/no questions (Table 2), we see that they are also supporting the above outcomes. In Q11, it is revealed that most of the survey participants (61,8%) share the photographs they took, on Instagram, by applying a specific filter proper to the message that they subjectively prefer to give. But the rate of those who share without using filters is not so less in percentage (38,2%), either. The users majorly (85,1%) stated in Q12 that they search for related visuals and comments from social media platforms before they visit a place physically. For Q13, however, the majority (65,3%) answered that they cannot experience spaces through visuals on Instagram; thus, again, the majority (84,1%) also think for Q14 that social media cannot reflect the spaces as they are. The answers to Q15 majorly (65,6%) correspond that the users prefer to use location tags when sharing the spaces/places they visit. Q16 was answered majorly (78,1%) with the confirmation that social media have an impact on the recognition of the prospective city center, which was also echoed majorly (79,5%) in the answers to Q17 as the repetitive visuals on Instagram create the image of the city (spine) (Table 4). Similarly, the objects and activities (sunflower seeds, bomba cookies, walking in Kordon, etc.; stroke) are found by the majority (83,2%) of the survey participants as the urban potential to create the image of the city on social media, which was asked in Q18 (Table 4). It is also striking that the rate of the stroke images is higher than the one of the spine visuals in creating the image of the city on Instagram for the Izmir case.

The single open-ended question in the survey (Table 2) asks about with which comments (hashtag, location tag, frequently used words, descriptions, etc.) the users share the places on their Instagram accounts. The question was majorly answered by referring to the location tags and hashtags. The stated hashtags by the survey participants covered the following ones: #İzmir, #Cumhuriyet, #SaatKulesi (Clock Tower), #Alsancak, #sahil (coast), #yaz(summer), #tatil (holiday), #CanımİzmirIzmir (dear Izmir), #bellek (memory), #semt (district), #mahalle (neighborhood), #memleket (country), #Smyrna, #city, #architecture, #bw, #exploreizmir, #urbanpalimpsest, #travel, #new, #experience, #faveplace, and #myheaven. Besides, the users also mentioned that they use the following contents in the forms of the hashtag, frequently used words, or descriptions while sharing a post: the names of places; descriptions, and adjectives about the spatial character of places, events, concepts, and feelings; emojis; the historical, geographical, and architectural qualities of places; the Instagram or Twitter (currently X) accounts of the spaces if there are; some quotations from books related to the atmosphere of the spaces; the dates of the photographs taken; criticisms and advice; hypothetical names; short and witty sentences; literary sentences and verses; the graphic comments as hashtags (as defined specifically in the user's memory); location bookmarks for lesser-known places; and iconic images or urban texture icons.

The preferences demonstrate that social media users utilize textual content to support the visual one by considering its qualities and their experiences about these qualities. There are users who attach importance to the meaning of the text/caption, by which they refer to some literary content in their posts; however, they are the minority in comparison to the ones using only the location tags or the names of the places as hashtags. The fact that the navigation on social media is generally fast, and the time to look at the screen and perceive the image is quite limited may be the reason why texts/captions are used in the shortest form or not preferred at all.

Evaluations

Content analysis and survey of the current study were designed to obtain an integrated idea about the layers of the digitally produced image of Izmir city centers on social media and how they are perceived by social media users. The results of the online survey are mostly supportive of the ones that we draw from the visual-based content analysis. In this framework, the content analysis on Instagram paved the way for us to propose a categorization different than the Lynchian one to perceive the digital city image. Thus, we came up with the symbol, spine, stroke, niche, adversity, and antipode categories to read the images on Instagram, and designed the survey accordingly. Regarding the survey results, we saw that the digital image of Izmir is mostly constructed by the symbol visuals; however, according to the content analysis, it is seen in the limit of the analysis period that this image is shaped mostly by the spine photographs with the spectacular scapes of the city. This outcome is not surprising though, since these categories are always visually intertwined with each other in a figure and ground relationship—which was also stated by the survey participants.

In terms of the event-based reading of the digital city image, it is also seen in the survey results that the human-scape visuals construct this image mostly rather than the festivals and celebrations, or accidents and urban problems. The human-scapes correspond to the stroke category in the proposed categorization, which is in the fourth place in terms of the sharing frequency, in the

content analysis. This shows us that the human-scapes are also urban entities shaping the perceived identity of the city in the digital realm. But, of course, these scapes are generally the foreground images of the spine or symbol backgrounds.

In the analyses, Bayraklı has been recognized as the newly developing city center and central business district of Izmir (since 2003 as declared by Izmir Metropolitan Municipality; Çelebi, 2018), while Konak is perceived as the older and current one. Although this result echoes the physical and administrative realities of the city, an interesting result for the urban identities is also obtained about the perceived scale and boundaries of the districts: it is seen that Alsancak, a neighborhood of Konak, is perceived as a central district rather than a neighborhood. In the perceptions of social media users, Alsancak has its own urban identity making this neighborhood separated from the Konak district to which it belongs. The culture and social living manners diversify in these two settlements, and although their natural characters continue on each other, both their images become central and detached through the years, in perception. Therefore, we may claim that the scales and boundaries of places are determined by their perceived characters rather than the physical and administrative realities, and social media play an important role in this determination.

Moreover, social media have the power of creating biased or exaggerated images of a city, on the perceptions of users. Thus, one of the other important outcomes of the survey is about the deception potential of images on Instagram in terms of the digitally curated identities of the physical spaces. Manipulations on the photographs were found misleading—though the social media users participating in the survey also stated that they are applying specific filters to give messages they prefer. Through the content analysis, too, we may figure out that using a filter is a general tendency in the visual-based world of Instagram. Therefore, it is also obtained from the survey that the comments are more trustworthy than the visuals of a space/place for social media users. The words in the form of explanatory sentences or hashtags work as informative data illustrating the spatial atmospheres, which may lead us to that the digital image of the city is also designed by the textual parts of the visual items on Instagram.

As can be seen in the survey, the images of Izmir city centers are subjectively and intersubjectively constructed. Even if the judgments based on subjective perceptions about places can be generalized to some extent over the frequency of common answers and can be read as a general perception, in such a context, looking at the big picture by setting the criteria that can reduce subjectivity will make it easier to read. For this reason, within the scope of the study, a new categorization logic has been proposed for the digitally perceived image of the (digital) city, being inspired by Lynch's analysis of the physically perceived image of the (physical) city.

CONCLUSION

The outcomes of the content analysis and survey demonstrate the significance of subjectivity as a common factor shaping the digital image of the city on social media. Thus, according to Lefebvre (1991), space is not only produced by its designer or the experience of its inhabitants but also "lived through images and symbols." In this context, social media has become one of the leading digital

tools that can reshape the city's image with variations by allowing subjective interpretations. Social media give an opportunity to "reproduce"—or even "rescript" (Georgakopoulou, 2015)—the urban space by reflecting the experience of the visitors/inhabitants through images that can affect the spatiality as well as the perception of the physical space, in this respect. In other words, they have the power to manipulate the way we understand the genius of the city and may mislead the users of the city (Stodola, 2017; Leaver et al., 2020) by adding different meanings to the urban space. In some cases, the inhabitants may also subjectively define new urban nodes—in Lynch's sense (1960)—serving as the city centers of which roles are generally assigned by the hashtags, curated photographs, and cityscapes to augment perception—as we also see in the results related to the perceived identity of Alsancak neighborhood.

Therefore, this study claims that the digital reflection of the physical city needs to be codified differently than the Lynchian understanding, which addresses mainly the physical codes. The image of the digital city must have its categorization logic based on the qualities of the visual posts on Instagram, and this study proposes a new categorization for the digital image of the digital representation of the city. This new categorization covered the analyses of the visual posts for the Konak and Bayraklı districts on Instagram. The categories are proposed regarding the characters and appearance frequencies of the visual contents: the symbol, spine, stroke, niche, adversity, and antipode categories, in this respect, may be followed in readings of the digital images of the cities on social media.

On the other hand, the new categories are derived from visual-based content, and when seen only through images, they lack the analysis of verbal expressions about the spatial characters of places, events, concepts, and feelings. Social media help us to compensate for this lack of images by offering the possibility of adding captions and hashtags to state sensory feelings and thoughts about the spaces/places, as well. Therefore, if the digital image of the city on Instagram is constructed by different components (visual and verbal), then the context of evaluation of the digital urban image of that city should also change in a way to lead us to an integrated comprehension of the city in the manifold subjective values. Hence, an integrated reading for both the visual and verbal contents on different social media platforms may open new ways of understanding the images of the cities by enhancing the possibilities of proposing new further categorizations.

Even though the categories change, it may only be possible to reduce the complex and intricate organism such as a city to a level of the commonly perceived image by providing a kind of categorization that we see in Lynch (1960) for the physical city. In other words, reducing a city into an image is a hard task, though it is mostly spontaneous. Nevertheless, when the subjectivity of social media is added to this scheme, it becomes harder to filter the perceptions and have a crystallized opinion. This study was an attempt in this way to shed light, at least, on the differences between the characters and perception of the images of the digital and physical cities, to understand our roles in creating the former.

Conflict of Interest Statement | Çıkar Çatışması Beyanı

Araştırmanın yürütülmesi ve/veya makalenin hazırlanması hususunda herhangi bir çıkar çatışması bulunmamaktadır.

There is no conflict of interest for conducting the research and/or for the preparation of the article.

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Ethical Statement | Etik Beyanı

Araştırma etik standartlara uygun olarak yapılmıştır.

All procedures followed were in accordance with the ethical standards.

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Please identify the type of contributions for each author as a statement. The contributions table identifies the type of contributions, which have been identified by the authors previously on the Publication Consent and Copyright Transfer Form.

A. Fikir / Idea, Concept	B. Çalışma Tasarısı, Yöntemi / Study Design, Methodology	C. Literatür Taraması / Literature Review
D. Danışmanlık / Supervision	E. Malzeme, Kaynak Sağlama / Material, Resource Supply	F. Veri Toplama, İşleme / Data Collection, Processing
G. Analiz, Yorum / Analyses, Interpretation	H. Metin Yazma / Writing Text	I. Eleştirel İnceleme / Critical Review

AUTHOR 1: A/B/C/E/F/G/H/I

AUTHOR 2: A/B/D/G/H/I

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