Article

Toward User-Generated Content as a Mechanism of Digital Placemaking—Place Experience Dimensions in Spatial Media

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Abstract: Spatial media bring out new forms of interaction with places, leading to the emergence of new ways of embodying the experience. The perception of place and its dynamics of change has been multiplied by the emergence of digital platforms, which create many and varied representations of place in spatial media. These representations are dependent on the digital platforms' ecosystem, formed by platform-specific mechanisms of digital placemaking. The study applied text mining techniques and statistical methods to explore the role of user-generated content as a digital placemaking practice in shaping place experience. The online reviews were collected from Google Maps for 23 places from Poznań, Poland. The analysis showed that place experience is described by three dimensions: attributes, practices and atmosphere, or place practices that most closely reflect the specificity of a place. The place attributes blurred the boundaries between their digital images, whereas the atmosphere dimension reduces the diversity and uniqueness of the place. In conclusion, user-generated content (UGC) as an element of the process of digital placemaking increases place awareness and democratizes human participation in its creation, yet it affects its reduction to homogeneous information processed through mechanisms operating within a given digital platform.

It is evident that place in the digital era cannot be understood as a hybrid of the real and virtual worlds. As Rzeszewski accurately noted [11] (p. 27), "digital representations in social media have

1. Introduction

Nowadays, the dynamic development of information and communication technologies is treated by geographers as an essential factor of space production [1], contributing to the densification of the urban environment by mediated digital information [2]. Thanks to new technologies, the dynamically changing world also impacts the digital transformations of society. Through the use of spatial media in which information is constituted in a geographical context [3–6], contemporary societies operate in multiple, diverse spaces. Human digitalized life is filled with digital information and data, personalized through lines of codes and algorithms [7]. Spatial media generate diverse forms of spatialities, through which new contexts of production of space emerge. They also act as a mode of creating, sharing, and gathering information, which make humans both consumers and producers of digital content [6]. Thus, human experience of the material world derives not only from physical presence, but also from spatial media, which change both the material and symbolic perception of places and affect the ways in which people find and interact with them. Evans and Pergn [8] (p. 3) point out that "spatial media actively reconfigure the way that users are embodied in space through changes in their behavior and changes in how they seek out information about place". Moreover, spatial media and their usage patterns are entangled within everyday social practices [8].

Graham [9] pointed out that there is a digital dimension of places beyond their materiality. This dimension is composed of many digital layers, which include user-generated content. Therefore, today's places emerge via both material and virtual social processes [10].

the power to alter the meaning and perceived fabric of material environments, through visualization and naming". These diverse digital representations of places replicate the possible experiences of humans who interact with them through selected online platforms. Understanding the exact ways in which places emerge in the digital era requires an understanding of the mechanisms by which these representations are formed and how they consequently impact the attitudes and behaviors of users. These mechanisms can be described as digital placemaking practices, which can be seen as a nexus of digital practices and practices related to space. As Halegua [12] (p. 5) points out, the digital placemaking practices take the forms of "re-placing the city", which could be described as "the subjective, habitual practice of assessing and combining physical, social, and digital contexts in order to more fully understand one's embeddedness within urban places and to reproduce a unique sense of place through the use of digital media affordances".

The research presented here attempts to shed light on the rapidly growing influence of spatial media on human relations with a place. It is more important in the age of evolution of numerous digital platforms and giants such as Google, which reshape place-based social worlds. The main goal of the study is to investigate the role of UGC, primarily text reviews, which shapes the digital representation of place as a part of digital placemaking process. The author will seek answers for the following research questions:

RQ1: What dimensions of place experience are expressed by users in online text reviews?
RQ2: Does the digital representation of a place created by UGC differentiate it from others with specific cognitive, emotional, and behavioral components?
RQ3: How do online text reviews as a type of UGC augment the users' experience of place?

In the study, the author will analyze one type of UGC, namely online reviews obtained from the Google Maps platform. Online reviews are a reflection of human experiences, expectations, and preferences. They are the most popular and prevalent form of UGC, which is also an important source of information for other users. Research in this area seems to be very important, especially from the perspective of gaining insight into how online reviews influence user behavior. Understanding of these mechanisms might also lead to increased awareness about the ways in which digital platforms manipulate information.

1.1. Place and Spatial Media in the Digital Era

The production of space and socio-spatial transformations in the digital era have been examined in a series of studies since the early 1990s [13]. In 1991, Henri Lefebvre [14] argued that space is socially produced through social and material practices constituted as the time and place dependence from instruments of power and everyday practices. In this approach, space was constantly being formed and reproduced at the level of perception, experience, and imagination. The process itself has both its material and symbolic dimension, embodied in human emotions, values, and meanings ascribed to space. According to Jalowiecki [15], "people produce their space by shaping certain forms of it and it has become the material frame of life, conditioning in turn human behavior through the quantity, quality and availability of places in which they can satisfy their needs". The Lefebvrian theory also emphasizes the role of information and communication technologies as a mediating force in the social production of space and as an instrument of domination of abstract space and alienation [14,16,17].

As Leszczynski [1] pointed out, digital technologies generate new forms of spatialities such as hybrid spaces and net localities [18–21], digital shadows and augmented realities [22], code/space or coded spaces [23,24], mediated spatialities [6], and atmospheres [25,26]. Digital technologies are instrumental for the emergence of these forms of spatialities and new ones, connected with the dynamic growth of devices and software. They also offer a deeper understanding of the place and the re-configuration of interactions with it [27]. Thus, digital technologies have been widely recognized by geographers as an essential part of the experience of place, mediating the relationship between physical and virtual spaces and technology use [28–32]. Firth and Saker [33] point out that they significantly impact people's experience and engagement with the spacer around them. This experience is augmented by the convergence of information and spatiality through spatial media, which enable the creation, sharing, and gathering of digital information [4,6,34], the use of which meshed up with everyday social

practices [8]. Leszczynski [4] lists examples of spatial media: (1) location-based review and discovery platforms, (2) location-based social networks, (3) crowdsourcing mapping platforms, (4) spatial APIs, (5) geosocial applications, and (6) mobile media—both software and devices.

Today's spatial media move information apart from material carriers [3] mediating communication, interactions, and the experience of place throughout the screen and taking it beyond. Moreover, spatial media participate in the creation of new spatialities through the intersection of spatial content, digital technologies, and socio-spatial practices [35]. Spatial media can also be a tool of power and control. As Thatcher [34] points out, through them "individuals both make themselves and are made known to others, to corporations, and to political and legal bodies". This is all the more noticeable in connection with the rise of digital platforms, which do not rely only on human-made data, but also on data produced by the technology used at a given moment, i.e., our location, search history, or webpage browsing traces. The aims are usually to personalize—through algorithms and codes—the content subsequently delivered to us within a given digital platform, leading to our attunement to place by making devices change their experience [8].

To summarize, places are fluid, inhabited, and subjective spaces constituted by both material and digital processes, shaped by time, space, and information [9]. In this context, a place is treated as an assemblage of different layers consisting of interactions between humans, technology, and place. Finally, places are constantly changing and this change is a unique part of their experience [12,36]. The ability to interact with the place via spatial media in the movement according to Farman [37] generates a new sense of place among its users. The perception of place and its dynamics of change has been multiplied by the emergence of digital platforms, which are creating multiple, diverse representations of place in spatial media. Furthermore, in the digital era these experiences are more plentiful due to the digitally mediated sense of place which are forms of digital placemaking.

1.2. Digital Placemaking

Placemaking is a broad concept used in many contexts and for this reason it is difficult to provide its precise definition [38]. However, there are two main streams of its understanding in literature—formal or informal spatial practices leading to the democratization of spatial planning aiming at the redevelopment of place and, on the other hand, the social process of making the place meaningful by human actions affecting the place experience [39–42]. It is, therefore, on the one hand, a process of bringing transformation to public places through small projects involving the local community in action that will respond to their needs and strengthen the connections between people and places. However, this process is not only a set of tangible practices, and it is more than physical design of the places. As Pierce et. al. [43] (p. 54) point out, it is "a set of social, political and material processes by which people iteratively create and recreate the experienced geographies in which they live". These processes together constitute the place assemblage, which "serve to connect heterogeneous elements and draw them together into conversation, to produce and maintain a particular coherence" [41] (p. 573). Due to the use of spatial media, this assemblage is more plentiful since the place experience is augmented by digital layers. The "digital" in placemaking is connected to "the use of digital media in cultivating a sense of place for oneself and for others" [12] (p. 16), emphasizing the intersection of both embodied and digital practices in everyday life [44,45].

As indicated above, in the digital era the place emerges through its diverse digital representations, multiplied by the emergence of digital platforms. These representations are formed by platform-specific digital placemaking mechanisms. For example, Wilken an Humphreys [27] illustrates these mechanisms on Snapchat as "focused around venue-based advertising interaction and the data market opportunities opened up by journey-based digital interactions" which are performed by human engagement in digital placemaking practices—filters and lenses, snap map, venues, and context cards. Furthermore, Lingel [46] brings a case of social media that can be characterized by different ideologies resulting from how a particular digital platform was designed. Moreover, it is the platform algorithm that determines what content will be visible to us and what content will be hidden, creating so-called restrictive filter bubbles [3].

Therefore, digital placemaking mechanisms are considered here as human- and datadriven processes mediated through spatial media and resulting in reshaping places under the conditions of digital platform ecosystems. It is both a positive process in terms of shaping digitally mediated sense of place, performing self-identity and a negative emphasizing of inequalities, relations of power, place control and struggle, especially with regard to data availability and visibility.

1.3. User Generated Content as a Part Digital Placemaking Mechanism

The emergence of UGC is related to the evolution of Web 2.0, which has changed the paradigm of communication and interaction between users and different Internet platforms. The consumer of information has also become its producer, which both opened up new possibilities of creating and making content available to other users and filled the web with unstructured, huge amounts of data, which have become the focus of interest for researchers from many disciplines [47,48]. In particular, it has become an important component of urban UGC research due to its impact on people's relationship with place through crowdsourced data [49], as well as its influence on building place image.

UGC can be freely accessed by any users; they are not created as part of commercial activities and contain a dose of personal endeavor. Examples of UGC include blogs, forums, open collaborative encyclopedias, tweets, podcasts, digital images, videos, online reviews, etc.—made available to the general public. Online reviews as one type of UGC have become part of the experience of places by creating their digital representation throughout expression of self-attitude towards them. The literature indicates that such experiencing of a place through UGC triggers a motivation to visit it [50], affecting subsequent behavior towards a place and within it. These behaviors resulting from UGC are constructed through cognitive, affective, and conative components [51]. Thus, on the one hand, we can identify a positive impact of UGC on the place experience, while on the other hand, we may deal with a kind of predisposition to perceive the place already only through the prism of its digital representation. However, UGC, a definitely digital practice, could be associated with spacerelated practices such as documenting presence in a place, increasing place awareness, performing self-identity, placing oneself in space, or gathering digital information about places. Such UGC could be considered a mechanism of digital placemaking, whose role is to combine and augment material world experiences and imaginations about places within digital place representations.

1.4. Text Mining Approaches to UGC Analysis

Text mining is a technique that explores unstructured, large datasets that can be extremely time-consuming for manual analysis [52–54] to identify previously undiscovered knowledge, relationships, and patterns in the analyzed texts, as well as their resulting visualization [52,55]. This is a well-known technique in UGC research, especially information shared within online reviews [56]. As a result, based on text mining analysis, we can identify themes that occur in shared content on the basis of a more general categorization, verify how these themes have changed over time [57], or conduct sentiment analysis.

Text mining is primarily used to understand users' attitudes and experiences with the subject of the review, for example, brand, product, place, or service [55]. For this reason, it is frequently used in tourism, management, marketing, and social sciences. However, recent studies have had some limitations. As for place experience, research text mining approaches, in spite of studying very large datasets, analyzed UGC considering usually homogeneous group of places. Several studies have analyzed the UGC of restaurants [58–61], hotels [62–65], theme parks [66,67], and tourist attractions [68–70]. In the study to mitigate the bias associated with the analysis of a single category of place, a smaller dataset was used, but one that referred to a wide and divergent range of places.

2. Materials and Methods

In the study, to answer the research questions, the author used Google Maps data which cover users' reviews of selected places. The study was carried out in the city of Poznań, Poland, in line with the author's expert knowledge of this place. As the study was conducted upon a collection of diverse, most-reviewed places and relied on the data from a worldwide internet

platform, its outcomes could be referenced to general and broader spatial and social processes in the digital era. The author also addressed ethical issues associated with the use of data which could be connected to private information of review authors. First of all, the author used only the opinions and reviews of users relating to specific public Internet profiles linked to the activity of public places. The author did not collect personal and sensitive data of the users of the analyzed portal. Any personal data that appeared in the database were anonymized to prevent identifying a person in the dataset. The collected data will not be made available to third parties due to the possibility of tracing informants' identity by use of a full text search on the quotes. Therefore, the publication will not contain literal quotes or cited fragments of opinions or reviews of Google Maps users, but only conclusions resulting from their analysis or, if necessary, the author will paraphrase the reviews. Figure 1 illustrates each step of the study.
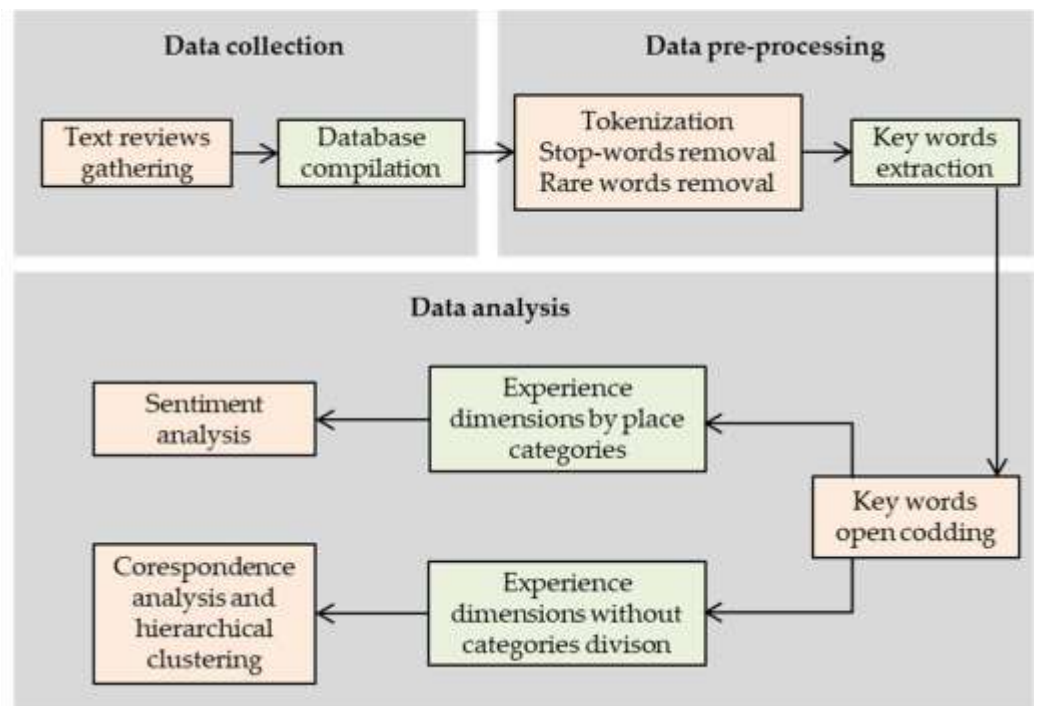

Figure 1. Proposed research framework.

2.1. Data Collection and Categorization

The first step of data collection was the selection of places for the study. Review data were extracted for the 23 places most frequently rated within their category. Reviews were obtained in July 2021 and were collected by an online web crawler. The prepared database included the reviewer's username, place name, user rating, average rating, text review, photos, and the link to the review. The acquired data contained 191,222 reviews, of which 31.78% (60,759) were text reviews. The collected reviews were written in Polish. The results and examples of reviews were finally translated for the purpose of publication. Data were extracted for four functional categories of places: shopping, gastronomy, outdoor and recreation, and history (Table 1).

Table 1. Places selected into the analysis within context of functional categories.

Place Categories	Place Names	ID
shopping	Malta Mall	S1
	Avenida	S2
	Possnania	S3
	Old Brewery	S4
gastronomy	La Ruina & Raj	G1
	Matii Sishi	G2
	Manekin	G3
	NaPiwek Pub	G4

	Whiskey in the Jar	G5
	McDOnalds	G6
	Cybermachina	G7
	Citadel Park	O1
	Jan Kasprowicz Park Sołacz	O2
outdoor and recreation	Park	O3
	Old Warta Riverbed Park	O4
	Woodrow Wilson Park	O5
	Zamek Cultural Centre	H1 H2
	Porta Possnania ICHOT	H3
	Museum of the History of Poznan	
history	National Museum in Poznan	H4
	Old Market Square in Poznan	H5
	The Royal Castle	H6
	The Imperial Castle	H7

The division was made for the subsequent analysis and was based on data from Google Maps referring to the functional features of a given place. Despite many differences between places within one category, they were classified together to represent malformation in Google Maps place classification. The main assumption of the study is that places are not only differentiated in relation to more general categories, but they differ in relation to one another within these categories. The two-stage study described below was designed to reveal the mechanisms of digital placemaking through UGC.

2.2. Data Analysis

The study applied text mining techniques using WordStat 9 and RStudio. Text mining was used to identify those attributes of the selected places that affect their overall experience created by UGC. In the first phase of the analysis, the author performed data pre-processing consisting in tokenization, stop-words and punctuation removal, text transforming into lower case letters, and rare words removal—words with frequency less than 100 occurrence. These words, according to a series of tests conducted by the author, have little or no contribution to the process of analysis and were not relevant to the results of the study. After this part of research, the study proceeded in two stages. The first involved a categorization and analysis of the most frequent words within the places categories (Table 1). Categorization embraced coding of individual words to identify patterns of the theoretical experience dimensions—cognitive responses, behavioral engagement, and emotional responses. Each word was analyzed in the context in which it appeared in the review and then classified to the broader components and finally into the main categories—place experience dimensions. Manual coding of extracted words from text reviews was chosen primarily because the context of the entire review was important. Therefore, it was not possible to use automatic coding in this study.

The second stage of the study was a similar analysis with the division of places into individual categories. In this case, the classification of individual words followed a correspondence analysis (CA) within each dimension of place experience. CA was carried out to study correlation between occurrence of high-frequency words and selected places. Through the use of CA, we can indicate the strength of the relationship between categories of data, making their subsequent classification less biased. Then, using Ward's criterion, hierarchical clustering was carried out to determine the natural distribution of places based on similar characteristics. This method was chosen for two reasons: in this method, the number of clusters is not a priori imposed by the researcher and it is based mainly on the data, and secondly in the literature it is considered as a complementary

method to CA. As Murtagh and Legendre note [71], "Ward's method applied to the output of a correspondence analysis, i.e., to the factor projections, implies equiweighted observations, endowed with the Euclidean distance." This part of the study was performed using the RStudio Factoshiny package.

The final part of the study aimed to identify the sentiment and emotions linked with a place. Sentiment analysis was conducted via lexicon-based methods by the Rstudio Syuzhet package [72]. The author compared the results of sentiment analysis using the Syuzhet dictionary, which has the most extensive structure, with the average rating from Google Maps of the analyzed places, while emotion classification was carried out using the NRC dictionary [73,74].

3. Results

3.1. Dimensions of Place Experience

The analysis conducted on the basis of theoretical aspects of experience (cognitive, emotional, and behavioral–conative components) helped the author to build a framework of place experience, described in three dimensions: place attributes, place practices, and place atmosphere. These aspects were chosen based on the notion of the place and its components identified by Relph [75]—physical setting, meaning, and activities. Thus, the cognitive aspect is primarily related to the physical setting and its perception, the emotional aspect is the meanings ascribed to places and the emotions that are associated with them, and the behavioral aspect is the human activities in a particular place. Certain specific components can be identified within each dimension that contributes to them (Table 2):

- place attributes are mainly physical and functional characteristics, infrastructure, services, attractions, and natural resources;
- place practices refer to activities and time;
- place atmosphere describes people and users, emotions, climate and mood, unique place image and a genius loci.

Table 2. Components of place experience dimensions.

Place Experience Dimension	Experience Component
Place attributes	physical characteristics functional characteristics infrastructure services attractions natural resources
Place practices	activities time
Place atmosphere	people/users emotions climate and mood unique place image genius loci

An example pattern of context word coding is shown in Table 3.

Table 3. High-frequency word coding in review context example.

Place Experience Dimension	Theoretical Dimension	Exapmles of Words in Text Review Context
Place attributes	Cognitive responses	"Big shopping center. There are many shops and restaurants. A large selection of clothes and good food at gastronomic points. I recommend to everyone!" "Old trees, a pond with a bridge, a modern playground, silence despite the proximity to the center of Poznan"

	Cognitive responses descriptors	"Big shopping center. There are many shops and restaurants. A large selection of clothes and good food at gastronomic points. I recommend to everyone!" "Old trees, a pond with a bridge, a modern playground, silence despite the proximity to the center of Poznan"
Place practices	Behavioural engagement	"A great place for a long walk and relaxation" "Great place for shopping with free parking great restaurants and also a cinema""Perfect place for walking, running, cycling, sightseeing."
Place atmosphere	Cognitive responses	"The perfect place for a date in a cozy atmosphere and excellent food." "Currently, the most pleasant place on the night map of Poznan. Great atmosphere, nice people and professional waiters that knows its entire offer."
	Emotional responses	"Lovely place. Atmospheric tenement houses painted like in a fairy tale. For this tourist attraction at 12 the goats hit each other with horns and a bugle call is played." "It is a pity that it is a bit neglected, but it is beautiful in winter and in the summer"

Table 4 presents a detailed classification of high frequency terms within the adopted theoretical dimensions as well as the categorized place experience dimensions. Each of the indicated dimensions of the place experience has individual and disjunctive characteristics, which will be described in this part of the article. To demonstrate the most frequently used words and their relevance in a given category, the top five frequently used words will be presented. Characteristics of place attribute dimensions relate primarily to cognitive components. The nouns and their descriptors were related to the description of the physical, functional, or infrastructural characteristics of the place. The context in which the words occurred was devoid of emotional load. The shopping category was characterized mostly by such top frequency words "gallery" (4207), "center" (3482), "nice" (2941), "large" (2348), "parking" (2089). Gastronomy category by "service" (2445), "good" (2041), "delicious" (1902), "tasty" (1217), "pancakes" (932). Outdoor and recreation by "park" (2419), "nice" (1587), "good" (569), "center" (506), "large" (477). History by words "nice" (1676), "worth" (1348), "market" (1031), "old" (977), "town" (824). It was found that 39 out of 178 total words in this category, 21.9% of the words describing the attributes, were repeated within at least two categories. The users focused primarily on describing the appearance of the place and its main attributes and attractions. The place attributes aspect was associated also with the overall image of the site, available services, and infrastructure such as transport and accessibility. Natural resources of open public places were also defined.

Table 4. Dimension of place experience divided into place categories.

Place Experience Dimension	Theoretical Dimension	High Frequency Words
	Shopping	
Place attributes	Cognitive responses	access, advantage, area, boutiques, brands, building, car, cafes, centre, choice, coffee, cinema, clothes, court, entrance, facility, floor, gallery, gastronomy, goods, information, mall, object, offer, parking, points, prices, range, restaurants, room, selection, service, shops, stores, toilets, transport, underground, variety, zone

Place Experience Dimension	Theoretical Dimension	High Frequency Words
	Cognitive responses descriptors	available, bad, beautiful, big, clean, close, closed, cool, delicious, difficult, downside, easy, empty, expensive, fantastic, fast, fewer, fine, free, good, great, hard, high, huge, lack, large, largest, located, long, lots, modern, nearby, new, nice, number (of sth), open, paid, perfect, plenty, poor, pretty, quick, small, special, super, taste, typical, wide, worth
Place practices	Behavioural engagement	buy, choose, drink, eat, food, leave, looking (for sth), pay, relax, rest, shopping, sit, spend, trip, visit, waiting, walk, work
Place atmosphere	Cognitive responses	architecture, art, atmosphere, attraction, children, climate, crowds, customer, decor, design, entertainment, family, friends, inside, interior, location, people, place, public, pity, size, space, style, time, traffic, travellers, impression
	Emotional responses	amazing, atmospheric, comfortable, connected, convenient, excellent, favourite, friendly, fun, impressive, interesting, love, organized, pleasant, spacious, unique

Gastronomy

Place Experience Dimension	Theoretical Dimension	High Frequency Words
Place attributes	Cognitive responses	bar, beer, burgers, cheesecake, class, coffee, cuisine, dinner, dishes, entrance, flavour, food, fries, location, long, meal, meat, menu, order, pancakes, portions, premises, prices, pub, quality, queue, restaurant, ribs, sauce, selection, served, service, soup, space, steaks, sushi, table, thai, whiskey
	Cognitive responses descriptors	affordable, average, bad, big, cheap, cool, delicious, disappointed, dry, excellent, expensive, fast, free, fresh, full, good, high, large, mega, new, nice, perfect, quickly, small, super, sweet, tasty, worth
Place practices	Behavioural engagement	drink, eat, reservation, waiting, visit
Place atmosphere	Cognitive responses	atmosphere, climate, customer, decor, friends, interior, music, people, rock, staff, waiter, waitress, place
	Emotional responses	amazing, atmospheric, beautiful, brilliant, fantastic, friendly, great, helpful, interesting, live, love, original, pleasant, professional, recommend, unique, wonderful

Table 4. *Cont*.

Place Experience Dimension	Theoretical Dimension	High Frequency Words
	Outdoor and recreation	
Place attributes	Cognitive responses	air, alleys, area, arena, attractions, benches, centre, fountain, grass, green, house, military, monuments, museum, nature, palm, park, paths, playground, pool, restaurant, space, trees, water
	Cognitive responses descriptors	big, clean, free, good, huge, large, long, lots, nice, old, open, outdoor, perfect, small, super

Place practices	Behavioural engagement	cycling, picnic, play, recreation, relax, rest, roller skating, run, sit, spend, sports, summer, swimming, time, visit, walk
Place atmosphere	Cognitive responses	children, dog, family, friends, history, people, place
	Emotional responses	beautiful, cool, fantastic, great, historical, ideal, interesting, lovely, peace, pleasant, quiet, recommend, wonderful
	History	
Place attributes	Cognitive responses	area, attractions, audio, bars, beer, building, cafes, castle, centre, cinema, city, clock, events, exhibition, food, gardens, hall, history, houses, information, market, middle, museum, part, point, pubs, restaurants, service, square, story, streets, tenement, ticket, tower, town
	Cognitive responses descriptors	big, closed, cool, free, full, good, highly, interactive, large, lots, modern, new, nice, old, small, worth
Place practices	Behavioural engagement	day, drink, eat, evening, fun, guide, learn, night, noon, observation, sightseeing, spend, time, view, walk, visit
Place atmosphere	Cognitive responses	adults, architecture, atmosphere, children, climate, family, inside, life, people, place, tourists
	Emotional responses	amazing, atmospheric, beautiful, charming, colourful, cultural, fantastic, great, historical, impressive, interesting, lovely, pity, pleasant, recommend, super, unique, wonderful

The first stage of analysis also disclosed that while the practices dimension strongly reveals the relation between expected behavioral engagement within selected place categories to actual activities, as for attributes and atmosphere, a similar relation is no longer so obvious. Different categories of places are described in the same or similar ways, referring to a superficial reconstruction of impressions, recommendations to visit a place or often vague phrases homogenizing and blending significantly digital image of different places. The question of the value and significance of UGC such as reviews in spatial media as a mechanism for digital placemaking becomes crucial. Despite the fact of becoming part of a broader experience of a particular place, review creators may also impact the flattening of their uniqueness within many other places. Therefore, it could unnecessarily expand the domain of participation in creating and exploring such a type of UGC. However, it is important to keep in mind that user reviews on various online platforms are often one of many elements of digital content such us descriptions, images, rankings, ratings or labels assigned to a given location. Therefore, further in-depth analysis of the UGC in spatial media in terms of holistic approach to platform specific components that can take part in shaping place experience dimensions seems justified.

3.2. Correspondence Analysis and Hierarchical Clustering by Dimensions of Place Experience

The next stage of the study was followed by CA and Ward clustering. Taking into account the results of previous analyses, the author explored data in terms of the relationship between selected places and top frequent words used in reviews, divided into place experience dimension. As assumed at the beginning, the places selected for the analysis differ, despite the possibility of assigning them to functional categories. As part of the analysis, differentiation of the places in terms of words used in user reviews was explored. Clustering was conducted to identify places similar to one another in this respect, as well as to indicate how they were mostly described by users. Clusters were built primarily with their core components, in this case the analyzed places and supplementary places, which still had a strong correlation with a particular cluster.

In the case of CA in the place practices dimension, we can observe a relatively strong variation between the studied terms and places (Figure 2). Thus, the dimensions on the presented plots explain only 36.7% of the variance the additional analysis of raw data showed:

- slight differentiation between the shopping and gastronomy category;
- slight differentiation between outdoor and recreation, history and gastronomy categories;
- similarities between outdoor and recreation along with history category.
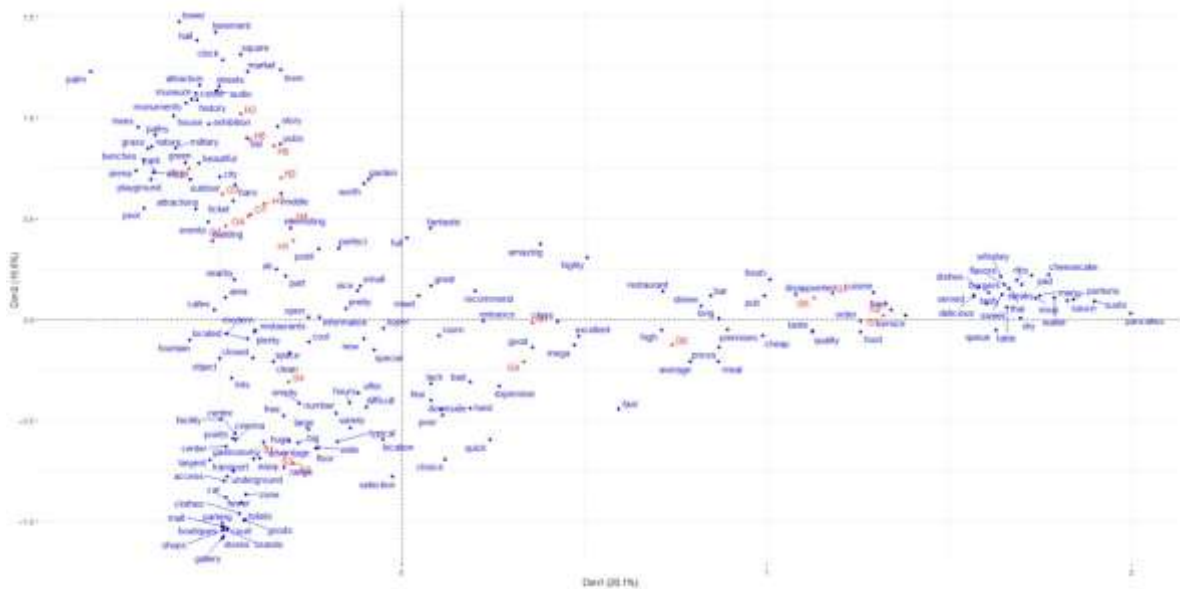

Figure 2. Correspondence analysis of terms associated with place attributes dimension and places selected for the study. Red labels represent analyzed places; Blue labels represent keywords associated with shown at the figure place experience dimension. The *x*-axis and *y*-axis indicate percent of variance explained.

To better visualize the CA results, clustering was performed using Ward's method (Figure 3). The number of clusters was determined taking into account the dimensions that corresponded to at least 80% of the variance. In the place attributes dimension, four clusters were identified.
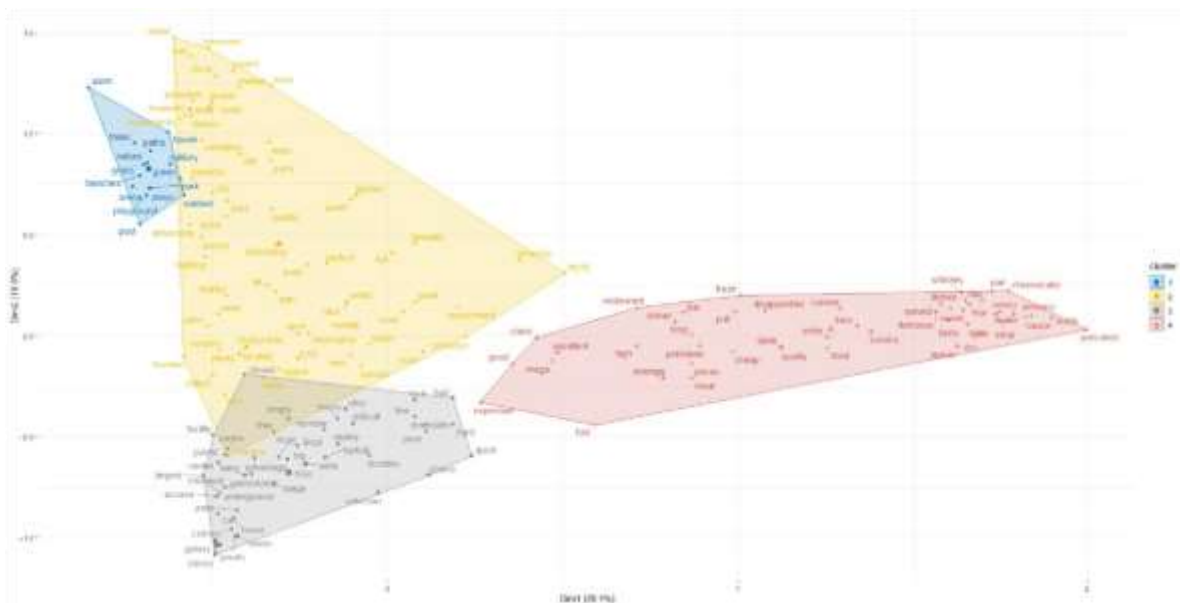

Figure 3. Hierarchical clustering of place attributes dimension terms. The *x*-axis and *y*-axis indicate percent of variance explained.

The characteristics of the clusters in place experience dimensions are summarized in Table 5. As previously mentioned, the most diverse group was the shopping category (Cluster 3),

however with exclusion of Old Brewery (S4) as a core but only a supplementary place. A similar situation can be observed in the gastronomy category (Cluster 4), from which places NaPiwek Pub (G4) and Cybermachina (G7) were subtracted. Cluster 1 is another grouping with places from only one category. It describes the outdoor and recreation category excluding the Citadel Park (O1) and Old Warta Riverbed Park (O4). The most heterogeneous grouping is Cluster 2, which combines places from all categories.

Table 5. Results of hierarchical clustering with regards to core and supplementary cluster places and place attributes dimension terms most related to the cluster.

Cluster Number	Cluster Core Places	Supplementary Places *	Place Attributes	
			Cognitive Responses	Cognitive Responses Descriptors
1	O2, O3, O5	O1, O4	alleys, arena, benches, grass, house, military, nature, outdoor, palm, park, paths, playground, pool, trees	green
2	H1, H2, H3, H4, H5, H6, H7, O1, O4, S4	G4, G7	air, area, attraction, audio, bars, building, cafes, castle, cinema, city, class, clock, entrance, exhibition, fountain, garden, hall, history, information, market, middle, monuments, museum, nearby, object, part, pubs, recommend, restaurants, room, space, square, story, streets, tenement, ticket, tower, town, worth	beautiful, clean, cool, expensive, fast, good, great, interesting, largest, lots, mega, modern, new, nice, old, open, small, special, super, perfect, plenty, pretty

Table 5. *Cont.*

Cluster Number	Cluster Core Places	Supplementary Places *	Place Attributes	
			Cognitive Responses	Cognitive Responses Descriptors
3	S1, S2, S3	S4	access, advantage, boutiques, brands, car, centre, choice, clothes, court, difficult, downside, facility, floor, gallery, gastronomy, goods, location, mall, offer, parking, point, range, selection, shops, stores, toilets, transport, underground, zone, variety	bad, big, closed, easy, empty, fewer, fine, free, hard, huge, lack, large, number (of), typical, poor, quick, wide
4	G1, G2, G3, G5, G6	G4, G7	bar, burgers, cheesecake, cuisine, dinner, disappointed, dishes, flavours, food, fries, meal, menu, order, pad thai, pancakes, portions, premises, prices, quality, queue, restaurant, ribs, sauce, service, soup, sushi, table, taste, whiskey	amazing, average, cheap, delicious, dry, fresh, high, long, sweet, tasty

* Supplementary places are not included into cluster core but still have strong correlation with particular cluster.

In order to understand the logic of changes within clusters, it would be necessary to refer to the characteristics of particular places. The shopping category is built mainly on shopping malls.

However, the Old Brewery (S4) definitely stands out from the other places in this category. First of all, it is a place located in the city center, which has the longest history among other places in this category. The place has changed from a 19th century brewery to a modern, yet tradition-bound shopping mall that is also a center for business, education, and the arts. The place has unique architecture, a reference to the industrial past of the city. The third cluster also refers to Citadel Park (O1), considered to be a monument of history characterized not only by its natural resources, but also historical amenities—cemeteries, museums, fortress, and gastronomic facilities. The Old Warta Riverbed Park (O4) is another park in third cluster. Both places somehow relate to history and also share similarities in distinctive attributes with other places. NaPiwek Pub (G4) and Cybermachina (G7) were not taking part in any cluster core. These places can be considered as supplementary to Cluster 3 and Cluster 4.

Place practices was the dimension with the strongest variability between the analyzed data (Figure 4). In this case, the dimensions indicated on the plots explain 44.2% of the variance, while a deeper analysis of the raw data was required. There was a big variation between all categories, except for history and gastronomy places. In this case, seven clusters were identified (Figure 5).

Table 6 indicates the characteristics of each cluster. The first cluster was built with gastronomy places category, with the exclusion of NaPiwek Pub (G4) and Cybermachina (G7). Therefore, only restaurants are grouped within this cluster. The second cluster is an accurate representation of the shopping category, which was most related with terms describing it as a place of shopping and loss. The Royal Castle (H6), Porta Posnania ICHOT (H2), and Jan Kasprowicz Park (O2) were separated from other places in individual clusters. Evident here is a very high relation between place attributes and possible activities indicated in the reviews. Jan Kasprowicz Park is one with a "pool", which enables "swimming". The "open" "tower" in the Royal Castle allows users to engage in "observation" and admire the "view". In Cluster 6, mostly performed park activities were described. The most interesting category is Cluster 3, which describes both historic places and pubs. This cluster least indicates any place-specific activities but there is still a very strong relationship between the attributes of these places and the behavioral engagement they evoke.
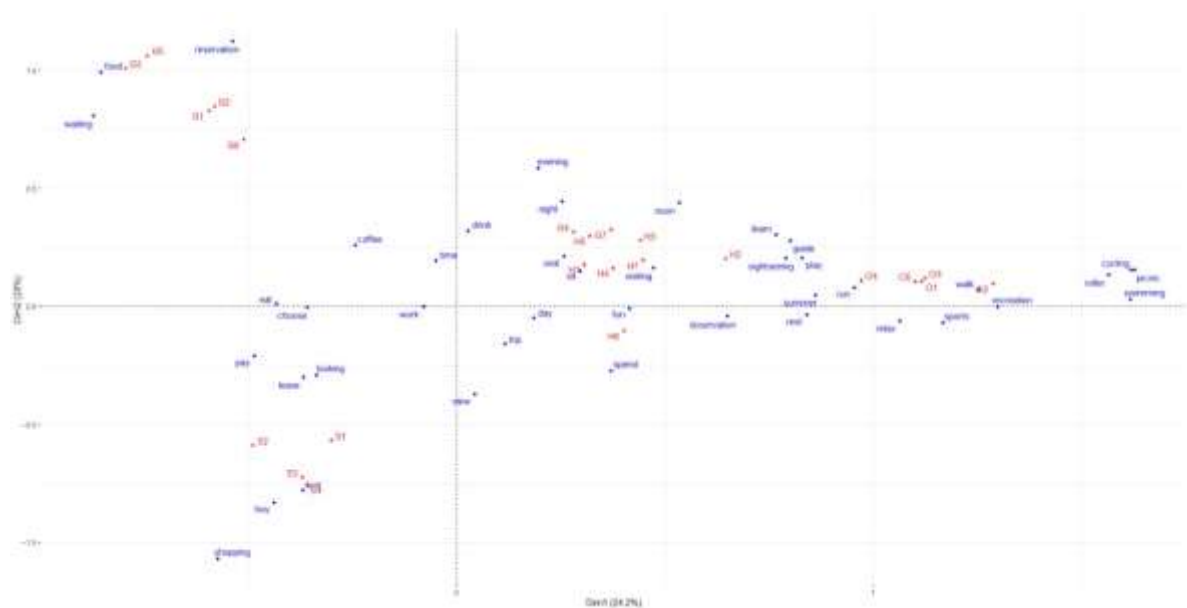

Figure 4. Correspondence analysis of terms associated with place practices dimension and places selected for the study. Red labels represent analyzed places. Blue labels represent keywords associated with shown at the figure place experience dimension. The *x*-axis and *y*-axis indicate percent of variance explained.
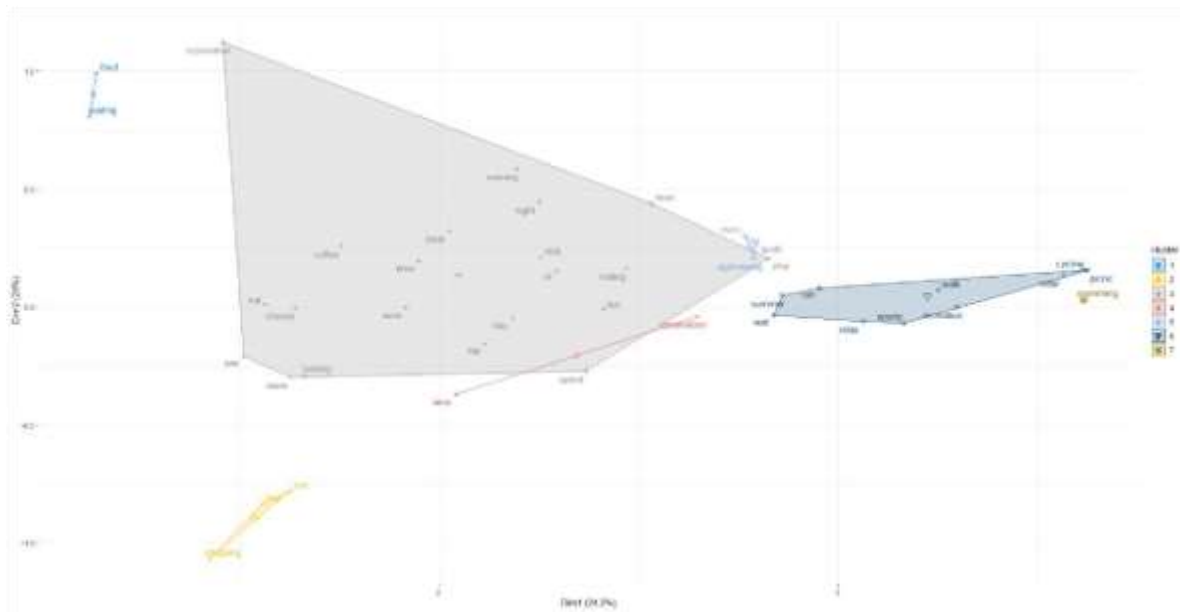
Figure 5. Hierarchical clustering of place practices dimension terms. The *x*–axis and *y*–axis indicate percent of variance explained.

Table 6. Results of hierarchical clustering with regards to core and supplementary cluster places and place practices dimension terms most related to the cluster.

Cluster Number	Cluster Core Places	Supplementary Places *	Place Practices
			Behavioral Engagement
1	G1, G2, G3, G5, G6	n/a	food, waiting
2	S1, S2, S3, S4	n/a	buy, shopping, lost
3	G4, G7, H1, H3, H4, H5, H7	n/a	choose, coffe, day, drink, eat, evening, fun, leave, looking (for sth) night, noon, pay, play, reservation, sit, spend, time, trip, visit, work
4	H6	n/a	observation, view
5	H2	n/a	guide, learn, sightseeing
6	O1, O3, O4, O5	O2	cycling, picnic, recreation, relax, rest, roller skating, run, sports, summer, walk
7	O2	n/a	swimming

* Supplementary places are not included into cluster core but still have strong correlation with particular cluster.

Place atmosphere was the dimension with the weakest variation between the analyzed data (Figure 6). In this case, the dimensions indicated on the plots explained 42.2% of the variance. Analysis of the data showed no significant variation between the different place categories. The place atmosphere dimension was grouped into three clusters (Figure 7).
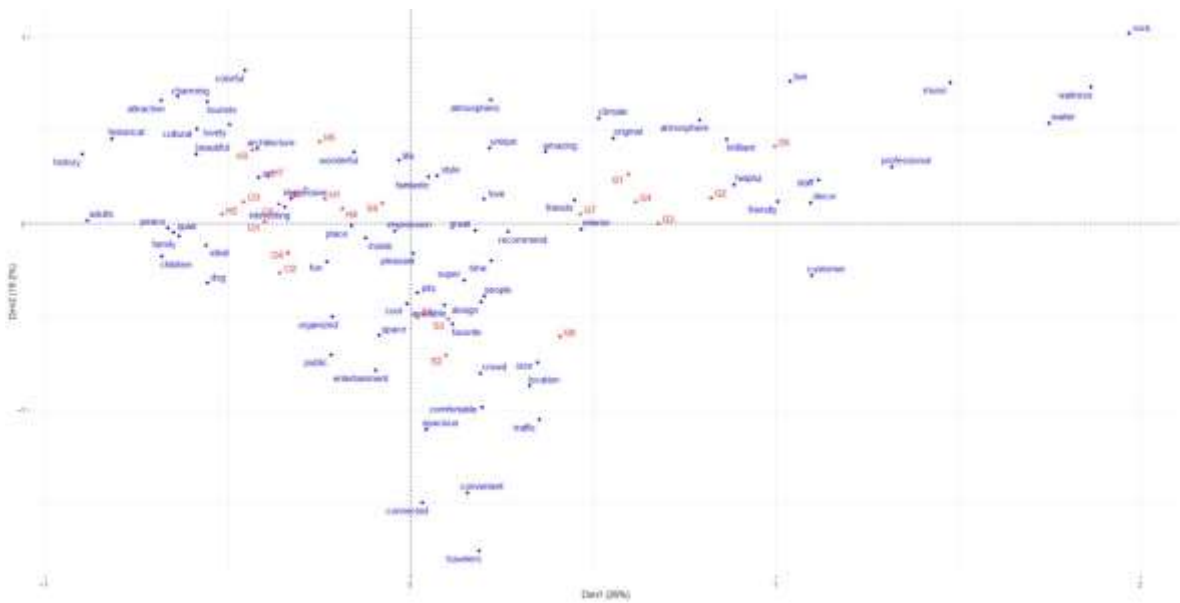
Figure 6. Correspondence analysis of terms associated with place atmosphere dimension and places selected for the study. Red labels represent analyzed places. Blue labels represent keywords associated with shown at the figure place experience dimension. The *x*-axis and *y*-axis indicate percent of variance explained.
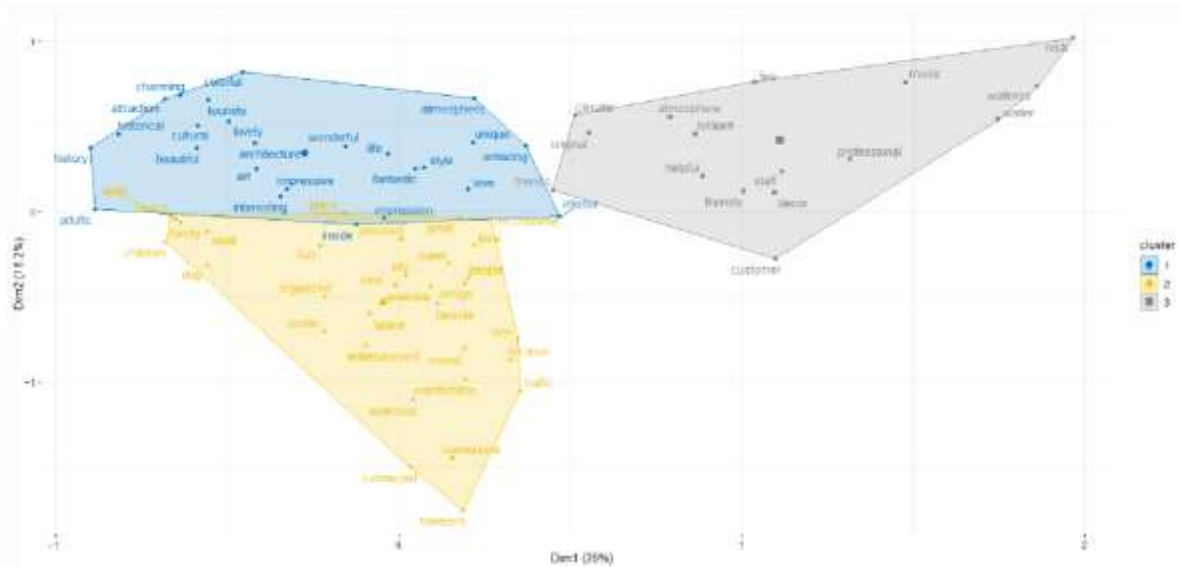

Figure 7. Hierarchical clustering of place atmosphere dimension terms. The *x*-axis and *y*-axis indicate percent of variance explained.

The aforementioned low diversity between individual categories is very well illustrated in the characteristics of individual clusters (Table 7). Cluster 1 and Cluster 3 were built on the basis of some places from the history and gastronomy category. Cluster 3 was characterized by the greatest differentiation from the other clusters, with La Ruina & Raj (G1) and Whiskey in the Jar (G5) restaurants. Despite the many differences between these places, it can definitely be said that they create a specific and original atmosphere, which is emphasized in the cluster terms descriptions. The second cluster refers practically to the majority of the selected places, in a way confirming the previous statement about the lack of connection between the used terms and their actual specificity. Despite the fact that so many different places appeared in the second cluster, their atmosphere dimension in reviews can be summarized using the same terms.

Table 7. Results of hierarchical clustering with regard to core and supplementary cluster places and place atmosphere dimension terms most related to the cluster.

Cluster Number	Cluster Core Places	Supplementary Places *	Cognitive Responses	Emotional Responses
1	H2, H3, H6, H7	H1, H3, H4	adults, architecture, art, children, cultural, family, history, life, peace, place, quiet, style, tourists	beautiful, charming, colourful, fantastic, ideal, impressive, interesting, lovely, wonderful
2	G2, G3, G4, G6, G7, H1, H4, H5, O1, O2, O3, O4, O5, S1, S2, S3, S4	G1, G5	crowd, design, entertainment, inside, people, public, time, traffic, travellers	comfortable, convenient, cool, favourite, fun, great, super, pity, pleasant
3	G1, G5	n/a	atmosphere, climate, customer, decor, friends, interior, live, music, original, professional, rock, staff, unique, waiter, waitress	amazing, atmospheric, brilliant, friendly, helpful, love

* Supplementary places are not included into cluster core but still have strong correlation with particular cluster.

The part of the analysis discussed above indicated on the one hand how place experience is actually reflected in the UGC framework of reviews, and on the other hand indicated how individual, differentiated places are grouped through these reviews. The analysis showed that place experience is described by three dimensions: attributes, practices, and atmosphere. The CA and clustering of the analyzed places and terms within the place experience dimension showed that 'place practices' is the dimension that most closely reflects the specificity of a place. The 'place attributes' blur the boundaries between the digital image of the places, whereas the 'atmosphere' dimension reduces the diversity and uniqueness of the places.

3.3. Sentiment Analysis of Text Reviews

The final step of analysis was to conduct a sentiment analysis and identify the emotional load of analyzed reviews. The results of this analysis were compared with the average rating estimated on the basis of user ratings in the Google Maps service. The analysis showed that the vast majority of the reviews were positive (Table 8). This is also confirmed by the average place rating, which was very high in most cases. The results help to conclude that the examined place experience dimensions in this study were associated mainly with positive reviews. The reviews were mainly characterized by emotions related to joy, trust, and anticipation.

Table 8. Sentiment analysis and emotion classification of online reviews.

Place ID	Emotion Classification (% of total)								Meaningfull Words (% of Total)		Emotional Valence (Syuzhet Lexicon)					Place Averge Rating
	Anger	Anticipation	Disgust	Fear	Joy	Sadness	Surprise	Trust	Negative	Positive	Sum	Mean	Median	Min	Max	
S1	2.93	19.70	2.91	4.65	22.39	6.33	13.53	27.55	15.01	84.99	3243.90	0.75	0.60	−4.00	11.10	4.4
S2	3.77	19.44	4.85	4.95	19.71	5.38	13.89	28.01	21.97	78.03	5135.65	0.63	0.50	−4.60	20.35	4.3
S3	2.84	19.67	2.59	4.46	21.27	5.26	14.39	29.51	15.86	84.14	6964.00	0.76	0.60	−8.60	15.75	4.5
S4	1.41	19.37	1.73	2.28	25.06	4.01	15.84	30.32	8.46	91.54	5231.25	1.00	0.75	−3.15	12.90	4.6
G1	3.80	14.68	4.06	4.79	28.61	6.24	9.20	28.62	21.39	78.61	3326.80	1.56	1.25	−5.90	10.55	4.5
G2	2.55	18.52	3.07	3.88	26.45	4.75	10.05	30.72	14.30	85.70	1480.20	1.76	1.40	−4.35	10.15	4.7
G3	2.37	20.85	2.75	3.30	28.29	3.88	9.58	28.98	16.53	83.47	4735.10	1.36	1.15	−4.15	9.80	4.5
G4	1.57	24.40	2.02	2.40	27.92	3.37	11.23	27.10	10.52	89.48	549.75	1.37	1.00	−1.25	6.45	4.8
G5	3.06	15.71	2.20	3.11	30.93	5.93	8.97	30.09	12.84	87.16	4617.10	1.56	1.30	−3.55	14.75	4.6
G6	4.39	17.92	7.06	6.57	21.01	7.54	8.85	26.67	29.96	70.04	615.30	0.47	0.50	−6.25	7.00	4.0
G7	3.82	23.63	4.55	4.43	23.14	9.29	8.98	22.15	21.07	78.93	526.15	1.08	0.85	−3.65	5.85	4.6
O1	1.93	19.98	1.72	5.90	28.92	6.22	10.40	24.92	11.53	88.47	5660.75	1.05	0.75	−2.75	11.95	4.8
O2	3.48	20.92	2.62	3.21	27.38	5.09	13.54	23.75	14.87	85.13	1157.00	0.88	0.75	−2.35	8.45	4.5

O3	1.56	19.81	1.98	2.21	31.97	5.35	12.28	24.85	9.77	90.23	2366.20	1.05	0.75	−4.20	10.30	4.8
O4	2.42	22.00	2.42	3.63	26.18	4.62	14.96	23.76	12.73	87.27	325.25	1.10	0.75	−1.55	6.65	4.6
O5	3.25	17.93	2.44	3.51	29.28	6.49	12.10	25.00	13.52	86.48	1481.30	0.95	0.75	−2.85	17.35	4.6
H1	2.16	19.82	1.57	4.12	24.14	7.07	11.68	29.44	8.21	91.79	574.45	1.22	0.80	−1.00	6.90	4.8
H2	2.55	20.77	3.03	3.97	19.60	5.61	8.91	35.56	9.94	90.06	2429.00	1.49	1.25	−2.65	8.30	4.7
H3	2.77	17.53	2.20	3.50	33.46	5.56	10.21	24.77	8.63	91.37	2557.75	0.89	0.75	−2.00	20.25	4.6
H4	2.92	20.70	2.57	4.79	22.92	11.31	14.28	20.50	13.37	86.63	1003.00	1.21	0.90	−3.10	8.75	4.6
H5	2.68	16.27	2.62	3.99	33.97	6.40	10.34	23.73	12.65	87.35	5147.85	0.90	0.75	−4.45	11.35	4.7
H6	3.95	18.15	4.12	6.35	22.88	8.13	10.52	25.89	12.71	87.29	1023.35	1.17	0.85	−2.00	8.10	4.5
H7	2.75	16.16	3.12	4.55	27.52	7.76	10.45	27.69	9.87	90.13	2172.85	1.03	0.75	−1.95	6.45	4.7

4. Discussion and Conclusions

The author believes that the study has shed light upon and revealed new knowledge regarding patterns of digital placemaking efforts through the online text reviews. Literature review and research results indicate that UGC augments place awareness and can shape expectations of place experience by creating an effective visualization of the place, especially in terms of place attributes, practices, and atmosphere dimensions outlined in the study (RQ1). Thus, the UGC could augment users' place awareness, primarily in terms of place practices dimension which was found an element of experience that best reflects the specificity of places. The place practices dimension is primarily contingent on place attributes. This dimension is far more responsible for the blurring of boundaries between places. This means that their digital representation is indistinguishable between theoretically diverse places. However, despite this gradual blurring of boundaries, the place attributes dimension indicates the characteristics of a place but in a broader category of them. The place atmosphere dimension is most responsible for flattening the digital image of places, without being an objective reflection of the uniqueness of places (RQ3). Possibly, place atmosphere is the least tangible and most difficult to express element of the experience, so it is possible that reviews cannot fully convey it. As for place practices and place atmosphere experience, we may also be dealing with what could be called a replication of the experience of place (RQ2). As pointed out in the literature review, shared content creates implications for predisposing other users to present similar views, thus replicating information in reviews with little differentiation.

To sum up, on the one hand UGC as an element of the process of digital placemaking increases place awareness and democratizes human participation in its creation, while on the other hand it affects its reduction to homogeneous information processed through mechanisms operating within a given digital platform. Thus, as mentioned earlier, this element of the process of digital placemaking cannot be seen as unambiguously positive. This article shows how the digital representation of a place within the Google Maps platform is shaped on the basis of overall opinions. However, it should be kept in mind that humans in most cases will not have the capacity to fully experience the digital representation due to the amount of data and, on the other hand, its dependence on code and our previous interactions with spatial media. This raises the question of whether, when interacting with a place, we always experience the same thing as other users even within the representation of a place created on the same digital platform? Moreover, it raises the concern of how different digital platforms create their own geographies [76].

Firstly, the author's position was that the UGC in the form of online reviews is an example of digital placemaking practice. These practices show humans to be creators and consumers of digital content, which has become one of the essential aspects of constituting and augmenting the experience of place. In the study context, the place experience and its representation are built by UGC under the condition of mechanisms of the Google Maps platform. Therefore, under these conditions, a place is expressed through the practices of creating, sharing, and gathering digital content via its attributes, practices, and atmosphere which do not always reflect its specificity. Secondly, the study highlights how spatial media engage humans in place experience creation through online text reviews, which provides an insights into "ways in which we (societies) engage, promote, adopt, and most importantly use material technologies is constitutive of the field of social relations: of how we interact, and create and share meaning" [5] (pp. 13). Spatial media bring out new forms of interaction with a place, leading to the emergence of new, democratic

ways of embodying the experience of place. These practices aim, on the one hand, to recreate our attitudes towards a place and, on the other hand, to convey the experience and uniqueness of a place to other users by creating a digitally mediated sense of a given site. Through such practices, the dynamics of a place can be multiplied by its various digital representations. Furthermore, based on digitally built place representation, users could build expectations and perceptions about the place of possibilities for interaction and activity or behavior in the place. The UGC is undoubtedly part of place experience. Thus, humans become a vital element of this experience and part of fluid social/cultural layer of places. The digital image of a place introduces new contexts for understanding this place and its previously hidden meanings.

5. Limitations and Future Research

The current study is not without its limitations, which implies possible further research. Firstly, research was limited to one type of spatial media—i.e., Google Maps. Based on the results, we can assume that the overall place experience dimension in other Google Maps review studies will be identical with the author's findings. However, we should also conduct equivalent studies analyzing UGC in different spatial media, taking into account place experience dimensions revealed in the study. Such an analysis would ensure the exploration of platform-specific ways of building digital representations of places and point out differences between them. Moreover, the analysis should include different forms of UGC. The research could be extended to include analysis of visual content, which can also have a very significant impact on how a digital representation of a place is created and how it is experienced. Another limitation derives from the research design and selection of places for analysis. The study focused on both qualitative and quantitative analysis,

which greatly limited the ability to process large amounts of data. Therefore, it was decided to focus on the analysis of a smaller number of places, which in turn allowed for more in-depth analysis.

Secondly, it should be noted that content producers are definitely a small group of people [77]. This is markedly disproportionate to the high number of consumers who absorb the digital representations that producers create. Given that several studies confirm the influence of UGC on place experience, it would seem important to establish who creates this content and who consumes it in different types of spatial media. Thirdly, with reference to producers and consumers, future research may seek to establish the motives for creating UGC, but above all the impact of expectations created on the basis of digital representations of places in spatial media on subsequent perceptions and behavior in a given place.

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