Mapping urban tourism issues: analysis of research perspectives through the lens of network visualization

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Abstract

Purpose – *The purpose of this study is to identify research perspectives/clusters in the field of urban tourism (city tourism) in narrow sense and tourism cities (cities and tourism) in the broader sense to examine the complex relationship through the optics of science mapping. This paper believes that the existing qualitative assessments of this field can be experimentally verified and visualized.*

Design/methodology/approach – *First, the key conceptual dilemmas of research perspectives in urban tourism are highlighted. Based on the Web of Science (WOS) Core Collection and the VOSviewer (computer program for visualizing bibliometric networks), the data will be analyzed. Clustering is used to evaluate information retrieval (inclusivity or selectivity of the search query), publication patterns (journal articles), author keywords, terminology and to identify the respective cities and author collaborations between countries.*

Findings – *Terminological specificities and their contextuality (authors' preferences) are elaborated, as the topic is studied by authors from different disciplinary fields. Compared to other specific tourisms, urban tourism includes geographic terms (variations of city names) and terms with different connotations (travelers, visitors). Recent Spanish (also Portuguese) linguistic/geographic contexts are noticeable and a strong presence of WOS Emerging Sources Citation Index papers. Research perspectives are represented in the network of clusters of connected terms. If the search is based on a narrower sense of strict urban tourism, then tourism-business topics predominate. If tourism and cities are less closely linked, socio-cultural and environmental-spatial perspectives emerge, as does tourism/cities vulnerability (climate change and health issues).*

Research limitations/implications – *The construction of a search syntax for the purpose of retrieval is always marked by compromises, given different terminological usages. A narrow search query will miss many relevant documents. On the other hand, if the query is too general, it returns less relevant documents. To this end, this paper tested queries on three different levels of inclusivity or selectivity. More consistent use of terms would benefit authors in the field of urban tourism when searching for references (information retrieval) and, as a consequence, would allow better integration of the field.*

Practical implications – *This study provides a practical method for evaluating cities and tourism in combining the expertise of an information scientist and a sociologist. It points out numerous caveats in information retrieval. It offers an overview of publishing just prior to the outbreak of Covid-19, thus providing an opportunity for further comparative studies.*

Originality/value – *This study is the first to examine urban tourism using such a method and can serve as a complement to the existing systematization of qualitative approaches. The findings are consistent with numerous qualitative assessments of weak the research interconnection between the specifics of cities and tourism in terms of broader socio-spatial processes. However, the study suggests that such research linkage is increasing, which is noticeable in relation to issues of social sustainability (e.g. overtourism, Airbnb and touristification).*

Keywords *Bibliometrics, Social change, Urban tourism, Science mapping, Social sustainability, Cities*

Paper type *Research paper*

1. Introduction

The issues of the specificity of *urban* within the *tourism* and the specificity of *tourism* within the *urban* domain have been widely discussed in tourism studies, urban studies and other

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fields of the social sciences. The purpose of this study, however, is not to continue the thematization and discussion on these specificities but to examine matters concerning information retrieval in the research field of *urban tourism (city tourism)* and *tourism* and *cities*. We start from the assumption that the existing qualitative analyzes assessments of this field of research can also be verified experimentally thereby complementing conceptual discussions and findings. It might be meaningful to observe how divergent approaches and different uses of terminology behave at the level of aggregate data analysis through visual presentation.

According to numerous analytical observations, the evolution of research dedicated to *urban tourism* is accompanied by a questioning of its development toward greater coherence and maturity. Here, we focus on those who thematize urban tourism as inherently multidimensional; as an industry (business), a socio-cultural phenomenon (practice) and a specific geographic setting (in spatial and environmental terms). This is not only a question of epistemological but also of etymological coherence. In fact, it is understandable that evaluations and self-criticisms are reflected, to a large extent, by those who study tourism and cities in general. Hand in hand with this goes the broader trend toward diversity in tourism practices themselves, reflecting the de-differentiation between tourism activities and other social domains (Cohen and Cohen, 2019).

1.1 Theoretical background

In tourism studies and in the social sciences in general, diverse approaches can steer in both directions: rarely toward interdisciplinary networking and more often in the direction of problematic fragmentation that hinders the progress of distinct but coherent disciplinary epistemologies. Although their emphasis may be different, this is overall a consistent supposition of authors (Selby, 2003; Taillon and Jamal, 2009; Tribe and Xiao, 2011; Darbellay and Stock, 2012; Balietti *et al.*, 2015). Indeed, researchers deploy various approaches, epistemologies and methodologies and also use diverse terminologies (Fainstein and Judd, 1999; Hoffman *et al.*, 2001; Gospodini, 2001; Bellini *et al.*, 2017; Romero-García *et al.*, 2019). The differences can already be detected in the uses of terms with which the authors operate, but which often explain related or similar concepts: urban tourism domain, approaches, perspectives, types, topics and sub-themes. The published works are scattered across different academic networks and disciplines.

Within a simple semantic framework, "urban tourism is best defined as an overlap area between a number of adjectival tourisms" (Ashworth, 2009, p. 208), but is clearly not like other "adjectival" tourisms (Ashworth and Page, 2011). As Ashworth points out, this definition does not cover the much broader relationship between cities and tourism, but only a narrow one. From a certain research perspective, it depends whether the focus is either on the issue of *urban (city, town)* or on *tourism* [1]. Definitions are inevitably delineated by an author's primary disciplinary affiliation, e.g. geography, sociology, economics, etc. (Edwards *et al.*, 2008).

In exploring the tourism-business topic, the "urban setting" is more likely to play an "adjective" role to achieve the desired business effect but less likely so when, for example, research focuses on urban sustainability due to the impact of tourism activities.

As a specific feature of *urban tourism* studies, one would expect a strong integration of tourism studies with urban studies. In accordance with the above we assume, that the most permeating research framework should be the relationship between cities and tourism, which is complex and would ideally require a good knowledge of the urban field by tourism researchers and vice versa. However, what does the actual research coexistence between the two look like? Various assessments focus in particular on the critique of the fragmentation or insufficient integration of the broader knowledge of the relationship between cities and tourism in the wider context of social and cultural dynamics, which

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involves long-term processes of globalization (Pearce, 2001; Ashworth and Page, 2011; Pasquinelli, 2017). An example of this is a three-decade-old and repeated observation by Ashworth (1989, 2003, 2012). According to him, both tourism studies and urban studies much too often pay no necessary attention to each other. This annoyance explains the lack of understanding of the special role of cities within the tourism or the place of tourism within the form and function of cities. He interprets the narrowness of approaches or the lack of tourism/urban causality as a "paradox," "imbalance," "indiscipline" or "double neglect." Often the reference to this particular argument by other authors allows a conclusion that a considerable agreement on such assessments remains relevant to date, at least as a tool of exploration. In recent years his arguments and those of others have even gained in weight with "paradoxes" or apparent contradictions on a larger scale in two opposite directions as indicated above: growth and differentiation of tourism practices in cities and de-differentiation between tourism and other social domains. The conflict or at least issues, in the relationship between the day-to-day operation of cities and tourism-related activities, is intensifying (Colomb and Novy, 2016). However, these are clearly only a part of the emerging phenomena, and long-term social changes in general, in particular, in mobility patterns and Spatio-temporal arrangements affecting cities, such as travel, leisure or home-and-away residency (Sheller and Urry, 2006; Füller and Michel, 2014). In conjunction with these socio-spatial dynamics, there is a significant increase of research, especially critically oriented, linking various aspects of tourism with urban sustainability in different contexts, from the environmental, housing, spatial planning to mobility/travel patterns (Bianchi, 2009; Cohen *et al.*, 2015; Hall, 2015; Bauder and Freytag, 2015; Hall, 2016). We depart from our particular investigation with the assumption that research on urban tourism should go beyond the "adjective" by strengthening the pervasive link between the urban (city) and tourism, and the linking of both with wider social and environmental processes.

In light of the above, the question arises as to what the terms urban and tourism actually mean when the adjective urban and the noun tourism are put together, especially when it comes to finding reliable sources in databases used by researchers. How, then, are the dilemmas raised in the study of urbanity and tourism reflected in terminology? Although heterogeneous and occasionally volatile and ephemeral terminology is only part of the problem of fragmentation in researching the phenomenon, it can help shed light on its nature. For example, insights into bibliographic databases reveal a recent "buzz" of new keywording such as overtourism, antitourism, post-tourism and new tourism in relation to various problems between tourists and urban residents or between the tourism industry and urban management (Jansson, 2018; Jovicic, 2019; Perkumienė and Pranskūnienė, 2019; Šegota *et al.*, 2019). Can this development, both semantic and topical, be quantitatively assessed? Before formulating our research questions, we present selected works that have dealt with tourism using tools of quantitative methodology. Indeed, our study has used the expertise of both an information specialist and a sociologist.

1.2 Empirical background

Although urban tourism has not been specifically examined, other aspects of tourism have received attention also in quantitative studies, often referred to in the informetric literature as bibliometrics, scientometrics, science mapping, research evaluation and the like. Most such studies have investigated bibliographic data, for example, researchers, countries or journals. Different textual issues have also been addressed, for example, disciplinary structure and categorization of tourism (Benckendorff and Zehrer, 2013; Park *et al.*, 2016). Köseoglu *et al.* (2016) and Okumus *et al.* (2018) who investigated many different tourism-related sub-fields thus emphasized that quantitative bibliometric methods should complement the qualitative and theoretical reviews.

Tourism-related bibliometric research frequently used science mapping and visualizations which facilitate the evaluation of "big data" or large corpora of documents which would be

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difficult to evaluate only in a qualitative way. We identified only a few tourism-related bibliometric studies where urban tourism and cities and tourism, was detected. However, it was never addressed on its own, except for the study by Musavengane *et al.* (2019) where urban tourism was tackled in a specific setting of sub-Saharan African cities. Estevão *et al.* (2017) noticed urban tourism, in terms of co-citations, in the cluster of marketing and tourism management. Galvagno and Giaccone (2019) placed it close to creative tourism. It was identified among the keywords in tourism journals (Wu *et al.*, 2012). Visualizing tourism by countries, Shen *et al.* (2018) also noticed urban tourism although only in the context of competitiveness with rural tourism.

With regard to the data sets, citation databases Scopus and Web of Science (WOS) are usually used. WOS, for example, in the bibliometric analysis of urban sustainability (Fu and Zhang, 2017) or Scopus in a review of overtourism or destination branding (Nilsson, 2020; Dioko, 2016). Sometimes, both citation databases are used, for example, in the aforementioned study by Musavengane *et al.* (2019) and in mapping tourist mobility (Chantre-Astaiza *et al.*, 2019). Such bibliometric studies present some limitations for the social sciences, where research is disseminated through different publishing avenues (especially books) (Hall, 2005). Google Scholar could also be used, but still lacks better quality control. Visualizations and mapping of database records can be conducted with several tools. VOSviewer has been identified as having, in general, the highest diffusion (Pan *et al.*, 2018) although other programs have also been used, for example, CiteSpace in a study on tourist mobility (Chantre-Astaiza *et al.*, 2019) and Pajek in a three-level co-citation analysis of innovation in tourism (Gomezelj-Omerzel, 2016). Additional examples from the literature will be presented in methodological and experimental sections.

1.3 Research questions

Taking into account the issues motivating the research field of tourism on the one hand and urban processes on the other, we want to test these relationships quantitively. The aim is to identify the main research agendas (research perspectives) and interpret the relationships based on journal publication patterns and authors' choice of terminology.

We would like to determine a search query (search statement) that optimizes the terminological landscape (research field contextuality) as this influences bibliographic exploration. The constraints of a more limited (or broader) search query need to be explored as an important factor in the retrieval of information. By testing queries at different levels of inclusivity, we aim to answer the questions that motivated our study: How are analytical dilemmas in the relationship between tourism studies, urban studies and other academic disciplines reflected in the authors' choice of publication venues (journals)? Can some evolution in time be detected, as well as some particular characteristics of publications identified on the basis of links and shared references? A further and main goal is the identification of research perspectives based on textual data (authors' choice of terminology in titles and abstracts). As such terminology can be highly scattered, specific developments can perhaps be revealed by examining author keywords and terms that have emerged only in the most recent period. Finally, we wish to explore some features of a geographic nature. Which are the most important cities in tourism research and how are the countries linked by author collaboration (co-authorship) on a time scale? The limitations of such empirical studies will also be addressed.

This research thus aims to complement the existing theoretical assessments of urban tourism (cities and tourism) with an empirical analysis based on a complex computer visualization program designed for the purposes of science mapping. As far as we know, such an approach to the assessment of urban tourism has never been attempted before.

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2. Materials and methodology

2.1 Choice of research material (database)

Citation databases Scopus (Elsevier) or Web of Science (WOS, Clarivate Analytics) are commonly used in visualization studies. Our pilot based on article titles ("urban tourism" or "city tourism") found high similarity between Scopus and WOS Core Collection in recent years. WOS was used more frequently because it has been around for much longer. WOS was chosen for this study because of its categorization (WOS Categories) and inclusion of a much longer time period, as well as the recent introduction of a new index. We used to research and review articles mapped to three established citation indexes (indices): Social Sciences Citation Index, Science Citation Index Expanded (SCIE a.k.a. SCI-Expanded) and Arts and Humanities Citation Index. An aim was also to investigate the impact of the recent expansion of WOS by the Emerging Sources Citation Index (ESCI). This ESCI Index was introduced in 2015, and has already been used in the studies of tourism (Köseoglu *et al.*, 2019).

2.2 Construction of search syntax

A key procedure was to create a query (Boolean search syntax or Search statement) of concepts and terms related to *urban tourism* in a narrow sense and *cities* and *tourism (tourist cities)* in a broader sense. *Town(s)* [2] were also included. Many terms have too many connotations and meanings are not used consistently by the authors. This makes it difficult to find them on uniform principles. For example, *travel* and *cities usually* refer to the commuting of the "local populace" [3] although travel can also be considered a social practice in its own right (e.g. "new-nomadism") (Cohen *et al.*, 2015).

A few examples of many titles not related to *cities* and *tourism*, using "applicable" terms:

- Living (in) *cities* of the past: time *travel* in second life.
- Cordon toll [. . .] network of two *cities* [. . .] *traveler* route and demand responses.
- Factors affecting adolescents' use [. . .] *leisure* time [. . .] *city* of Vienna.
- Informant-provided *leisure* constraints in six Taiwanese *cities.*
- *Visitor* inflows and police use of force in a Canadian *city*.
- Home *visiting* among inner-*city* families.

To compensate for search noise, only such *tourism*-based concepts (*tourism, touristic, tourists* . . .) that are sufficiently focused and unambiguous could be used. As the specific term *urban tourism* returns only a few hundred records, we tested several queries: a narrower query (NQ) with *urban/city tourism* in a narrower (more strict and focused) sense and then two increasingly extended queries representing the concepts denoting *tourism* and *cities* in less closely connected contexts (up to and including 2018). The contexts are referred to as NQ, broader (BQ) and general (GQ) queries (Table 1). In the database, search terms in the singular (e.g. *city*) also return the plural (cities) and vice versa. The BQ may seem somewhat lengthy, but a shortened "tourist cit*" would have yielded other meanings (for example, *tourist citation*), so the terms with more restricted meanings were included in the query.

For each of the data sets (NQ, BQ and GQ) we provide an example of contexts:

2.2.1 Narrower query. Title: Making sense of the square: Facing the touristification of public space through playful protest in Barcelona.

Abstract: Drawing from assemblage thinking, this article explores the complexity of *urban tourism* conflicts. The case study of [. . .].

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Table 1 Number of records retrieved by the three search queries (TS = occurrence of terms in either title, abstract or keywords; TI = occurrences in article titles)

Query	*Records*
Narrower query (NQ) *TS* = ("urban tourism" OR "city tourism" OR "town tourism")	383
Broader query (BQ) *TS* = ("urban tour*" OR "city tour*" OR "town tour*" OR "tourist city" OR "tourist cities" OR "tourist town*" OR "touristic city" OR "touristic cities" OR "touristic town*" OR "tourism city" OR "tourism cities" OR "tourism town*") OR *TI* = [(tour OR touris*) AND (city OR town OR urban)]	1,356
General query (GQ) *TS* = [(urban OR city OR town) and touris*]	7,362

Author Keywords: assemblage thinking; [. . .] *urban tourism conflicts*.

2.2.2 Broader query. Title: The What, Where and Why of Airbnb Price Determinants.

Abstract: Breakthrough changes in the rental market [. . .] *cities* selected as case study [. . .] *tourist* area [. . .] with previous studies.

Author keywords: Airbnb; price determinants; *touristic cities* [. . .].

2.2.3 General query. Title: Residents' perceptions and attitudes towards future *tourism* development A challenge for *tourism* planners.

Abstract: This paper aims to present the results of a quantitative [. . .] residents consider that tourism [. . .] development of the *city* [. . .].

Author keywords: Perceptions; *Tourism*; Impacts; Residents; Porto; Overtourism.

2.3 Analysis of article-growth and article distribution by Web of Science indexes and journals

The data were verified at the end of 2019. Growth was assessed for the past 20 years (there were very few earlier articles). Visualizations were conducted on the entire corpus (up to and including, 2018). The distribution by journals usually conforms with power laws according to which a large proportion of articles are published in a few so-called core journals (mapped to core WOS categories) while many other articles are scattered over many occasional journals (decreasing exponential ratio). Such patterns are evaluated by the eponymous Bradford's law (Bradford, 1934) which has been tested by many authors, and is theoretically represented as $1{:}n{:}n^2$. In visualizations, we assessed possible connections among journals through the number of shared references and average publishing year.

2.4 Visualization program

The maps and clusters in this study were created using the program software VOSviewer (2019 version 1.6.10) with its default settings. There are several similar visualization programs, but VOSviewer has been the most commonly used in recent years (Pan *et al.*, 2018). These programs are designed to analyze various bibliometric entities. VOSviewer was developed primarily for bibliometric analysis and is good at presenting visualizations of co-occurrence networks, for example, co-occurrence links between terms (Bascur *et al.*, 2019), which was the main methodology in our study:

1. Using VOSviewer, we created the following maps/figures: Maps based on text data (Figures 5 to 7. Type of analysis: co-occurrence. Units: title and abstract fields).

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2. Maps based on bibliographic data:
   - Journals (Figures 3 and 4. Type of analysis: bibliographic coupling/unit: sources = journals).
   - Author keywords (Figures 8 and 9. Type of analysis: co-occurrence/unit: author keywords).
   - Co-authorship based on country of affiliation (Figures 11 and 12. Type of analysis: countries).

In the network visualization, items (units of analysis) are represented by a label (terms) and a circle, where the size reflects the weight of an item. An "item" is a general term for each unit under consideration, which is included in different thematic visualization maps. In our case, the items are terms in article titles and abstracts, journals, author keywords and countries of co-authorship.

When the items are related to each other, they are arranged in clusters by color. The strongest relationships (co-occurrence or the number of documents in which they occur together) are represented by lines. The procedure is explained in the manual (van Eck and Waltman, 2019). In the overlay visualization (bibliographic coupling of journals, co-occurrence of author keywords, co-authorship), the maps reflect the average year, starting from early average years (blue color palette) to recent years (red color).

2.5 Clusters of article terms and topics by author keywords

Terms in titles and abstracts (maps based on text data) were visualized by way of co-occurrence. Terms were arranged in clusters according to the relatedness of terms. Generic terms from structured abstracts (such as *aim*, *material and results)* were excluded as were the generic terms *article, paper, research, study*.

Author keywords (maps based on bibliographic data) were presented using overlay visualization in which the keywords are highlighted according to the average year of occurrence of a keyword.

2.6 Identification of the cities

The identification of principle cities was carried out in the WOS database itself. First, all terms were downloaded from the text data maps into an experimental auxiliary database. Then, the city names were identified. These cities were then ranked according to their frequency in WOS. Some disambiguation was necessary (for example, Cordoba in Spain vs Cordoba in Argentina). Different linguistic forms were also checked (for example, Beijing vs Peking).

2.7 Co-authorship of papers (by country of an author's affiliation address)

The last two maps were visualized by co-occurrence using clusters. Relatedness was determined by the number of co-authored documents (co-authorship links). The resulting country network shows the strength of co-authorship links between authors from different countries. The elements are displayed and connected by an overlay visualization, with the maps reflecting the average year of contributions from a country.

3. Findings and discussion

3.1 Progression of articles on urban tourism as reflected by publications and Web of Science indexes

Figure 1 shows articles retrieved with NQ and BQ query (Table 1). The growth of records is similar in both queries and has intensified after 2015 with the introduction of ESCI (Emerging

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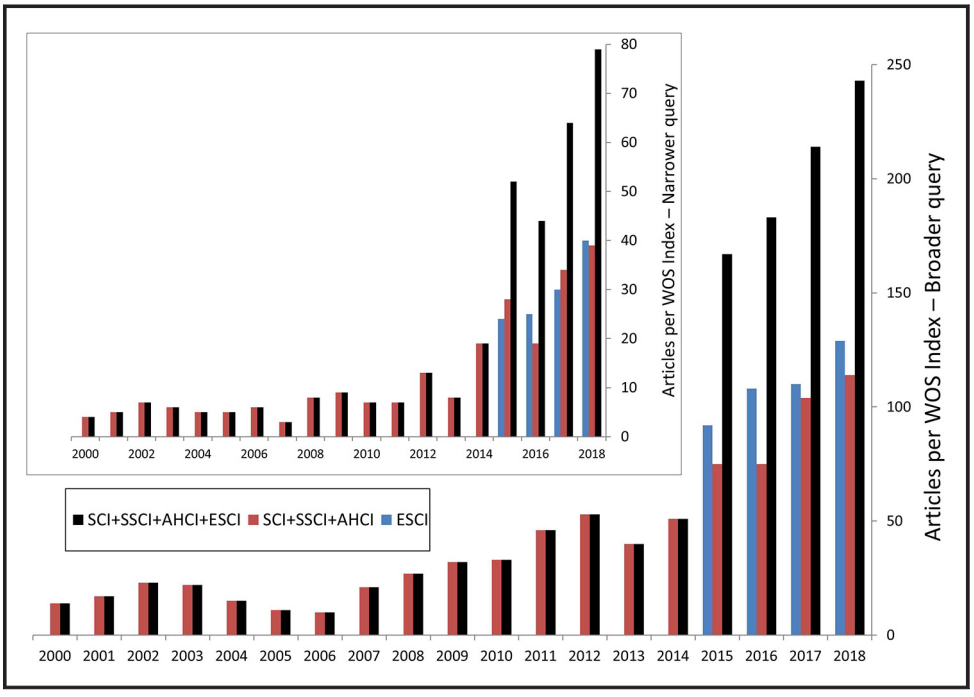
Figure 1 Articles between 2000-2018 in the four WOS indexes retrieved with Broader query (main figure) and Narrower query (inset)



Sources Citation Index, WOS). This share is 50% for and up to 53% in the BQ. At the same time, only 9% of the total WOS records were attributed to ESCI in 2018.

The aim was to test the assumption of "paradox" and "imbalance" in the interconnectedness of narrower urban tourism studies and urban studies in general (see Introduction). The findings that follow can only be tentative, as they depend on the categorization used by the individual journals, the author's choice of publishing and the editorial policies of the journals.

Journals are mapped to different WOS categories. With the exception of the journal *Sustainability*, four other main journals are all mapped to the category of *Hospitality Leisure Sport Tourism (HLST)* (Figure 2, right inset). Although the articles are scattered across journals in many different WOS categories *HLST* is the principal category in this field. In retrieval with the NQ, half of all articles were mapped to *HLST*. This share was someway lower when articles were retrieved with BQ but the principal journals were nevertheless the same (Figure 2, left inset). The category *HLST* is followed by the categories which indicate spatial topics, *Urban Studies* being the most important, followed by *Regional Urban Planning*. However, none of the five most important journals were mapped to such categories. We also conducted an exploratory overview of authorship. Among the many authors, only a couple of them published at least two articles in *HLST* journals and *Urban*-related journals. Thus, the connections between the principal authors in the two journal groups are weak. We may also mention *Environmental Sciences* which covers aspects of the environment as related to natural sciences while the category of *Environmental Studies* is designated as pertaining to social sciences. From the categorization of the journal *Sustainability*, we infer that these classifications are not strictly defined. The *environment*-related categories are thus important, however, most such articles are mapped to the journals *Tourism Management* and *Sustainability* which is also evident in Figure 2 (right inset).

In the interpretations of categories, a limitation applies. Namely, WOS categorization and disciplinary orientation of journals do not always correspond very exactly (Boyack *et al.*, 2005;

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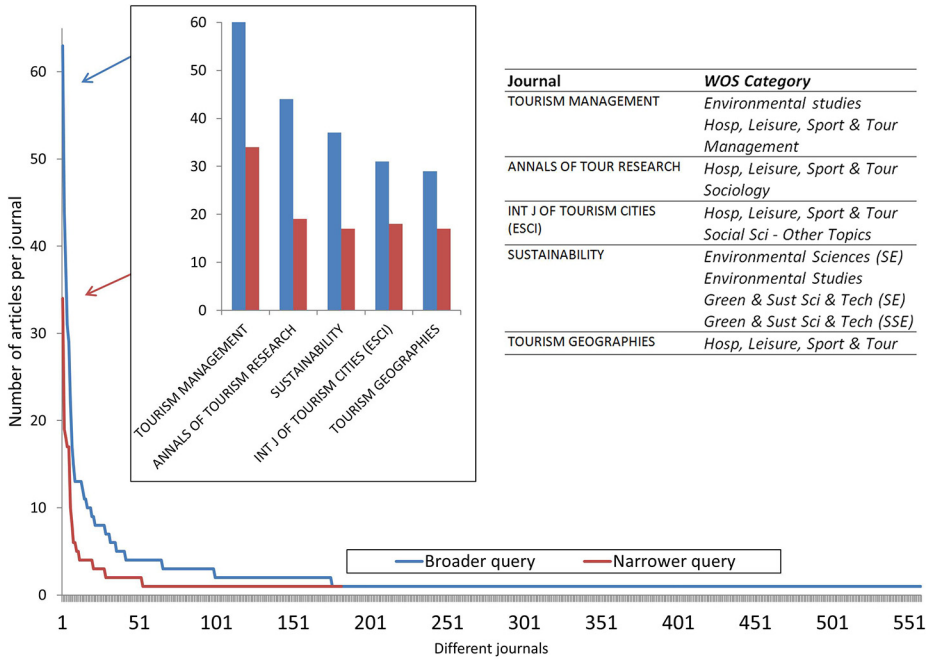
Figure 2 Main part: exponential decrease of articles per journal



Journal	WOS Category
TOURISM MANAGEMENT	*Environmental studies* *Hosp, Leisure, Sport & Tour Management*
ANNALS OF TOUR RESEARCH	*Hosp, Leisure, Sport & Tour* *Sociology*
INT J OF TOURISM CITIES (ESCI)	*Hosp, Leisure, Sport & Tour* *Social Sci - Other Topics*
SUSTAINABILITY	*Environmental Sciences (SE)* *Environmental Studies* *Green & Sust Sci & Tech (SE)* *Green & Sust Sci & Tech (SSE)*
TOURISM GEOGRAPHIES	*Hosp, Leisure, Sport & Tour*

Notes: Left inset: Five principal journals. Right inset: Web of Science categories mapped to five principal journals (Narrower and Broader query)

Leydesdorff and Bornmann, 2016; Bartol *et al.*, 2016). This wide assignment of categories can also be seen in the right inset of Figure 2 where principal journals are mapped to a variety of categories, although the *HLST* category prevails. It seems a kind of a universal canopy for tourism studies of different kinds. For example, very similar principal journals were also identified for the topic of rural tourism (Lane and Kastenholz, 2015; Hocevar and Bartol, 2016).

An important volume of urban tourism (cities and tourism) studies, therefore, gets published in the "generic" *HLST* journals. This "touristic emphasis" then prevails although many dimensions of urban tourism are inherent particularly to cities (and society issues). Many authors dealing with tourism in the cities may thus fail to notice that such tourism involves, in particular, urban space and its very specific (societal) characteristic. The importance of "the urban" thus remains unnoticed or indeed dismissed or perhaps remains perceived as yet another "adjectival" variant. We may speculate: although there do exist many *Urban*-category-related journals, the authors seem to favor touristic categories (journals). The issues of the author or editorial motivations, however, would require an analysis on its own.

The distribution of journals follows the patterns of an exponentially descending curve (Figure 2, main part): a few principal journals (among several hundred) published an important segment of all articles, but soon a long tail of journals with very few articles follows. The five principal journals are, however, identical in both queries (left inset in Figure 2). Such Bradford-like patterns have already been observed (Barrios *et al.*, 2008).

Figures 3 (NQ) and 4 [4] (BQ) show the average year of articles (by journals) and links based on the number of references that these journals share (bibliographic coupling) which suggests that these journals are (cognitively) related in terms of content (Yuan *et al.*, 2015). The two principal journals *Annals of Tourism Research* and *Tourism Management* were important in this field already a decade ago (purple colors). The strong early average links between these two journals (cf. *Annals of Tourism Research* and *Tourism Management*) can be attributed to

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Figure 3 Links between journals established on shared references (bibliographic coupling) and average time of published articles (Narrower query)

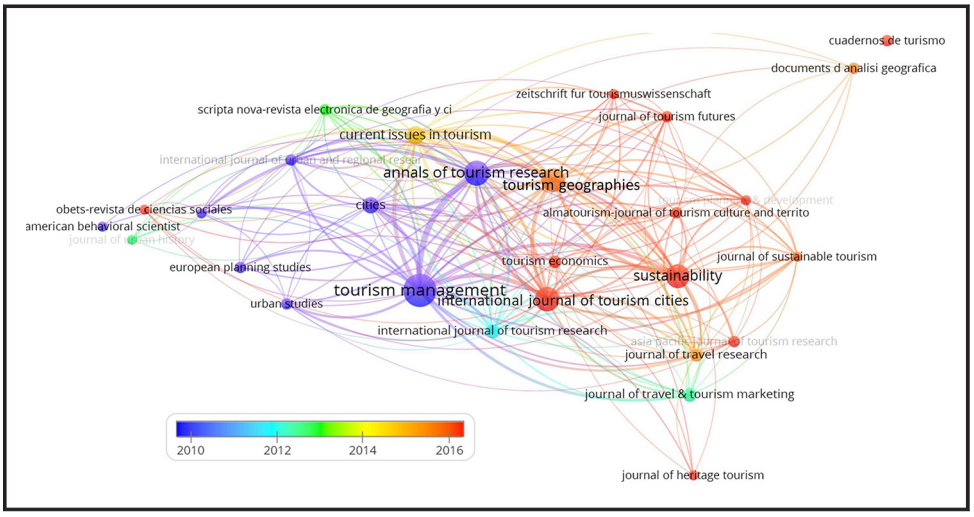
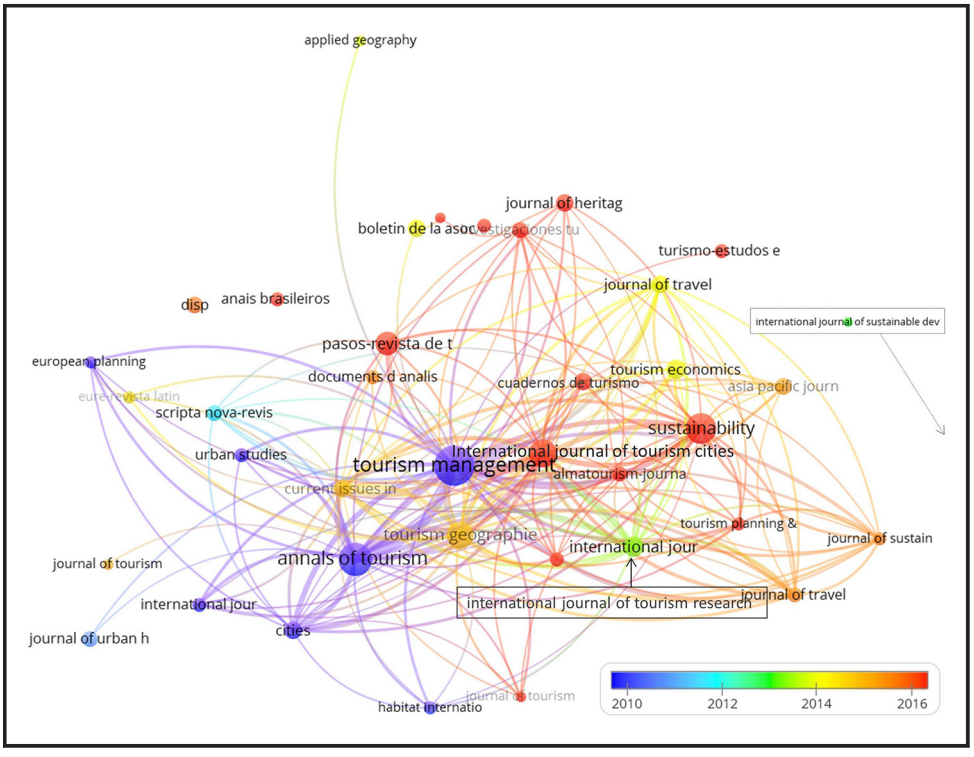


Figure 4 Links between journals established on shared references (bibliographic coupling) and average time of published articles (Broader query)



the fact that the topic of our study was not as intensively researched at that time and was primarily approached by researchers contributing to these two journals. Almost 40% of all such articles were published in these two journals before 2010. These were, in fact, already established tourism journals. Some of the newer journals discovered in our study are still quite "young." Moreover, cities and tourism have recently become quite strongly associated with sustainability issues. Therefore, many more journals are now attracting the attention of authors as a publication opportunity, including journals published in other languages.

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While the entire WOS database contains only 0.7% Spanish-language articles, the ESCI contains 7.2% of these. Such language-related patterns were also detected by other authors (Huang *et al.*, 2017), for the ESCI index in general. The topic of our study of urban tourism and tourist cities, therefore, plays an important role in relation to this geographic (and to some extent linguistic) milieu. Researchers have raised the question of whether all topics have equal importance in various parts of the world and whether articles have been around long enough to be discovered (Jamal *et al.*, 2008). ESCI journals, already recommended for future tourism research (Mulet-Forteza *et al.*, 2019), have substantially advanced representation of *urban tourism* and *tourist cities*, therefore, offering new possibilities for such "discoveries." The most important ESCI journal now seems to be the *International Journal of Tourism Cities* which has recently become one of the principal journals in this field (Figure 2). This journal has been attributed a central position by computer visualizations (Figures 3 and 4) which indicates strong interdisciplinary links and relationships with other journals. Here we need to point out that the number of articles is not an indication of quality. Given the only recent introduction of ESCI, the impact will only be quantifiable after some time-lapse.

At the end of the journal appraisal, it is worth mentioning that the very recent accents of the non-ESCI journal *Sustainability* and *Journal of Sustainable Tourism* (orange-to-red colors in Figures 3 and 4) corroborate our preliminary reflection on a significant increase in research interest in various aspects of sustainability which evidently applies to tourism and cities as well.

3.2 Identification of research perspectives through clusters of terms

As highlighted above, the common point in the analytical debates is the assumption that urban tourism is a subject area with a growing body of work but with divergent, disconnected and narrowly confined research backgrounds which includes a non-uniform and heterogeneous terminological use. This fragmentation could limit coherence and integration. As highlighted, Ashworth (2003) and Ashworth and Page (2011) address the "paradoxes" in the progress of urban tourism research which results from the researcher's lack of engagement with debates in urban studies along with the wider societal dynamics of globalization and vice versa. Based on links between journals established on bibliographic coupling (Figures 3 and 4), we found that the assumption is not fully justified, especially relating to BQ which is more inclusive. In this section, we therefore further evaluate, through visual analysis of article terms, whether a perceived "paradox" contained in unresolved shortcomings ("imbalances" and "double neglect"), especially in terms of descriptive ("adjectival") rather than inclusive treatment of the urban condition in the conducting of research on urban tourism, could be somehow detected. Many analytical typologies of perspectives, discourses, disciplinary perspectives and bibliographic measurements of urban tourism alone or within tourism studies, in general, have been presented, ranging from generalized binaries to more detailed (Fainstein and Judd, 1999; Yuan *et al.*, 2015) [5]. As we highlighted in the introduction, we focus on those perspectives which thematize urban tourism as inherently multidimensional; as an industry, a socio-cultural phenomenon and a geographic setting.

In the above consideration, it is important to determine how strongly certain research agendas, here analytically represented by article terms, determine a perspective as visualized in clusters. Terms organized in clusters could be considered, on an experimental basis, as perspectives in the above sense. The weaker co-occurrence between the clusters, the more the research is self-sufficient and thus less connected with other perspectives.

For this purpose, we tested three different queries (Table 1). We wanted to find out what the difference between the perspectives is when they are based on a very strict term of *urban tourism* as opposed to more inclusive queries enriched with other applicable terms, for example, *tourism cities* and *cities* together with *tourism.* All visualizations in the following

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three figures present 60% of the most relevant terms (designated by the program) which occur at least 10 times (last column in Table 2).

3.3 Research perspectives through the clusters in the narrower query

This query (383 articles) focused specifically on *urban tourism* (NQ). The program arranged related terms into clusters/perspectives (Figure 5).

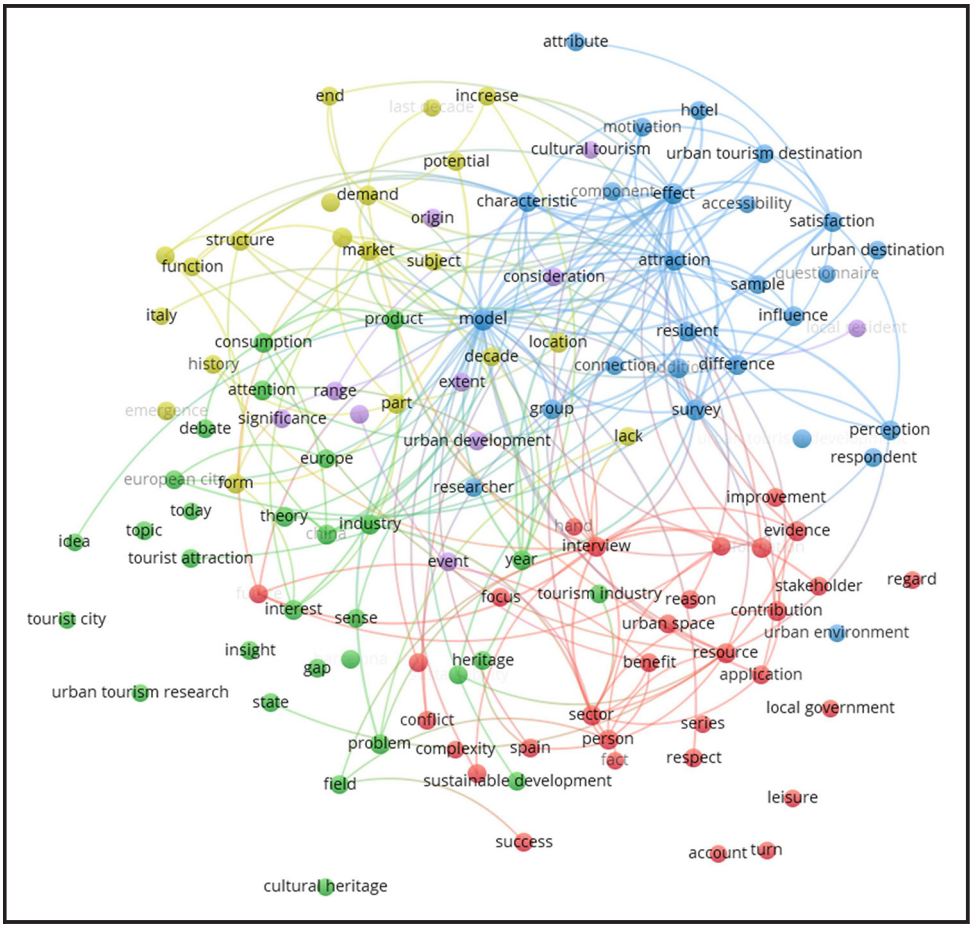
The presentation of at least 10 occurrences per term excluded terms with lower counts. The presented terms are thus more operational in nature. Overall, this narrower corpus is dominated by the empirical "business of tourism" with the city ("urban") existing more in a

Table 2 WOS records by queries

Query	*WOS records*	*Terms under analysis*	*At least 10 occ. (100%)*	*At least 10 occ. (60%)*
NQ	383	8,700	194	116
BQ	1,386	25,0	613	368
GQ	7,362	128,000	3,320	1,992

Notes: Narrower query – NQ; broader query – BQ; general query – GQ

Figure 5 Clusters/approaches of the 60 % of the most relevant terms identified in the titles and abstracts, occurring at least 10 times (Narrower query: based on 383 WOS records and 8,700 total terms)



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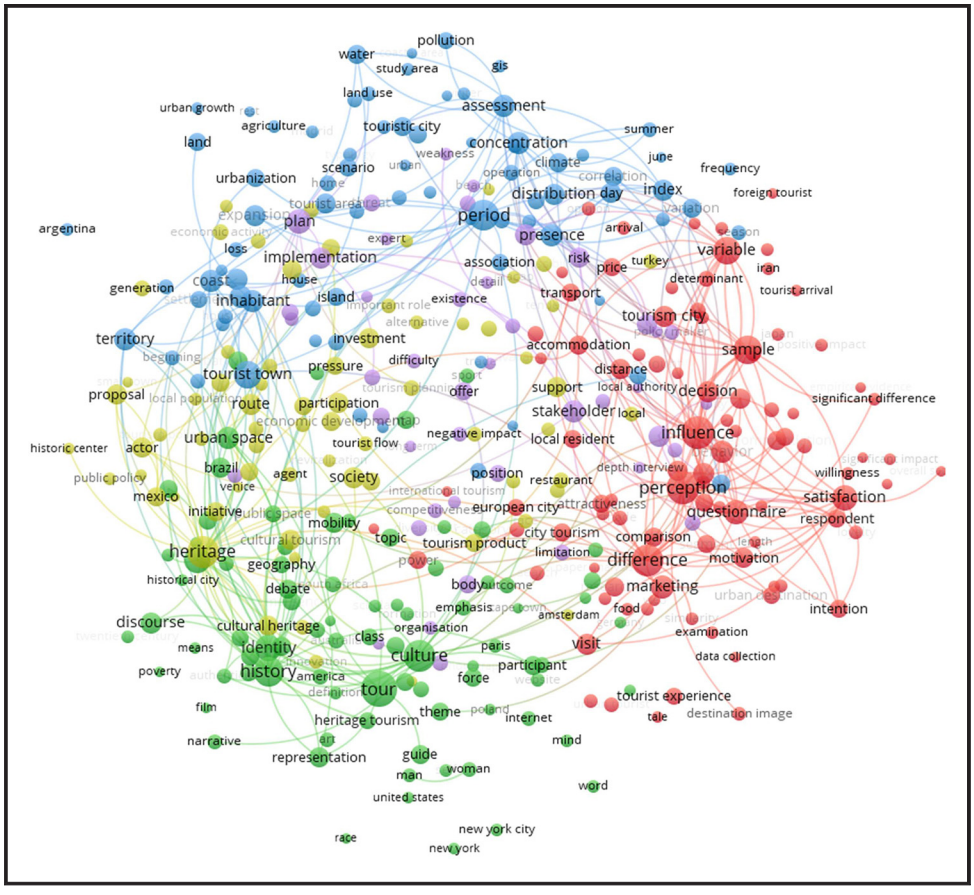
geographic or setting context. Contextual terms are scattered across several clusters. Due to the predominantly author's empirical treatment of the topic, the operational terms, especially those concerning the methods of studying urban tourism (*interview, year, model, effect, survey, demand, range*) are quite distinctive. Such terms occur in all clusters, although in lower counts, due to a low number of articles. Connections between urban tourism and marketing and tourism management were also detected by Estevão *et al.* (2017). Even if the terms may occur in connection with socio-cultural and spatial issues, the occurrences are too small to be identified in the clusters. It seems that authors use a very heterogeneous or non-unified terminology so the clusters are difficult to delineate very exactly. The figures become much more meaningful when larger data sets are available. This will be revealed in the two next queries (BQ and GQ) which are more inclusive and where main research perspectives become evident.

3.4 Research perspectives through the clusters of article terms in broader query

BQ retrieved 1,356 articles. Only the most relevant article terms are presented (Figure 6) [6]. The program identified five clusters/perspectives. The terms are no longer so strongly *urban-tourism*-specific and now also reflect wider issues of *tourism cities*. Two clusters are quite coherent (red and blue). Each cluster contains a specific terminology which is related to research directions represented in that cluster. Two other clusters (yellowish and green) are less distinctly separated and contain terms which are, to an extent, related to both clusters

Figure 6 Clusters/approaches of the 60 % of the most relevant terms identified in the titles and abstracts, occurring at least 10 times (Broader query: based on 1,386 WOS records and 25,000 total terms)



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(*heritage, history, culture [. . .]*). Due to such similarities and strong links, we explain them as one cluster with shared perspectives (yellowish/green). The fewer small (purple) labels are drawn to all other clusters and do not represent a very distinct cluster. According to algorithms, the clusters do not need to exhaustively cover all items in a map. The map thus seems to present three clusters with distinctive features are as follows:

1. Tourism-business cluster/perspective (red) – A.
2. Environmental-spatial cluster/perspective (blue) – B.
3. Socio-cultural cluster/perspective (green/yellowish) – C.

These three clusters of article terms are somewhere in between the "binary" approaches by Fainstein and Gladstone (1997) who specify the political and the cultural and the much more detailed 12 sub-themes-typology (Ashworth and Page, 2011). There are other, detailed studies of approaches in terms of theoretical orientations (Fainstein and Judd, 1999; Hoffman *et al.*, 2001) and more recent, updated discussions (Bellini *et al.*, 2017; Romero-García *et al.*, 2019) about them. Our systematization of approaches or perspectives/clusters is, in terms of content and definition, quite close to a summarized division into three perspectives by Edwards *et al.* (2008): urban planning/governance, industrial and cultural.

3.4.1 Tourism-business cluster/perspective (red cluster). In this cluster, strong network links of article terms can be identified, covering both applied and business-related topics and related to empirical studies, for example, tourist-consumer issues (e.g. *marketing, motivation, perception* and various connotations of *destination*) and research methods (e.g. *questionnaire, respondent, sample).* It exhibits weak network terminological links with other clusters and is very homogeneous; one would describe it as "self-sufficient" and "adjectival." Here we can relate to the findings in Section 3.1 on the progression of articles on urban tourism as reflected by publications, where the journal *Tourism Management* plays a prominent role. Links with other clusters do exist, but a closer look reveals a different research contextuality. For example, the term *accommodation* is located toward the middle of the map and is also linked to other clusters. On the other hand, the term *satisfaction* is located on the perimeter of the map as is mainly focused on business. *Accommodation* issues, therefore, go beyond the business-related aspects and are thus more strongly related to clusters/perspectives B and C than term *satisfaction*, which is mostly related to tourist experience, and perhaps less to the impact of tourism on residents. Focusing only on visitors or only on residents is defined by some authors as "the reductive dualism" [e.g. empowered tourist – disempowered host (Bianchi, 2009)]. The context seems to be linked to the empirical studies in the previous map, which is based on the NQ (Figure 5).

3.4.2 Environmental-spatial cluster/perspective (blue cluster). This perspective shows topics and concepts of the natural environment and physical (built-up) space with links to urban systems in connection with tourism. Structural and functional activities reflect issues such as spatial patterns, morphology, population and natural resources. This is in line with the approaches specified by Gospodini (2001). The cluster seems to be more concerned with the sustainable living conditions of residents under the impact of tourists who are only temporary visitors. The terms somehow suggest a more critical stance regarding tourism activities as opposed to mainly affirmative (or at least neutral) attitudes in the preceding cluster. It also involves time-scaling terms (days/months, seasons). *Period* is thus prominent. As analyzed in the journal section, the queries also retrieved articles in the category Environmental Sciences which are evident (*coast, land, pollution, water*, etc.) and which have weak connections with urban studies in a more confined context of social sciences. Urban areas and tourism are here essentially geographic units (such as districts or precincts). The dispersion of terms suggests that such empirical studies use specific terminologies. One might expect to find various environmental sustainability issues, but the distinct notions of sustainability are more specifically reflected in the next cluster of

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socio-cultural perspectives. According to clustering algorithms, an item may belong to only one cluster – the one to which it is more related – although this does not preclude connections with other clusters.

3.4.3 Socio-cultural cluster/perspective (green/yellowish). The green and yellowish terms are not only close to each other but also intermingle, so that we perceive them as one shared cluster with blurred boundaries between the more empirically oriented and the more qualitative or narrative oriented, for that matter. The empirical research (yellowish) addresses aspects of social issues (*participation, society*). These are dispersed and drawn to other clusters. It also includes the term *sustainable development*, which is not visible because of the overlap with the term *society*. Several authors (Perkumienė and Pranskūnienė, 2019; Capocchi *et al.*, 2019) point out these more recent topics which will also be shown in Figures 8 and 9. It seems quite clear that in this cluster/perspective the concept of *sustainability*, both in the use of terms and in the connections between them, is treated with a different emphasis than in cluster/perspective B. It is not focused on the natural but on the social and cultural "environment" or to put it better, milieu. Qualitative research and theoretical or narrative reflections (green) are more homogeneous and put more emphasis on the cultural-interpretative background (*identity, history, culture*) but may apply to "social issues" and "cultural issues." To illustrate with an example: the noun in singular form *heritage* is yellowish, whereas composite *heritage tourism* is green. We deduce that strong network links here represent analytically related research agendas of tourism in cities and society (or culture) in general. Our deduction, which relates to terminological connections within and between clusters, is consistent with the review of literature on the topic, especially over the past 10 years. It seems that the authors are somehow pursuing a common socio-cultural perspective which includes cautionary, critical and non-positivistic perspectives toward tourism research (Bianchi, 2009; Platenkamp and Botterill, 2013; Colomb and Novy *Eds.*, 2016; Novy, 2019).

This BQ cluster seems to be a good model for assessing publication patterns and relations among research perspectives in this field the way we perceive and interpret it through the lenses of terminology. The clusters in the selective NQ (Figure 5) were less informative due to the low numbers of terms and narrow search syntax based on the rather restrictive concepts of *urban tourism* and *city tourism*. Now we want to compare these findings with an even "bigger picture": a general query (GQ) based on more openly connected concepts of *urban, city* and *tourism*, where the three distinct perspectives become even clearer.

3.5 Research perspectives through the clusters in the general query

The third and the most inclusive query was based on the occurrence of *urban* or *city* on the one hand and *tourism* (*tourists*) on the other. It presents 1,992 relevant terms (Figure 7). Most of the terms are displayed only by circles while the names cannot be displayed due to overlapping. These even broader pictures now identifies the socio-cultural perspective as one cluster (bottom left). The cluster at the top-left indicates the tourism-business perspective. This clustering shows a fairly similar picture as the clustering in the previous BQ where the socio-cultural terms were weakly indicated as two possibly distinct clusters but did, in fact, intermingle. This picture now shows that these concepts are indeed quite related which corroborates our inference of one cluster of shared perspectives.

Nevertheless, the original assumption of weak links between the perspectives is not fully confirmed, as the precise term *urban tourism* is clearly too narrow and does not cover the many relevant connections between cities and tourism. As we found (Section 3.1), articles are not only dispersed across different journals which are mapped to diverse categories; the authors also use heterogeneous terminology, when they wish to thematize cities in relation to tourism or vice versa. Thus, on analyzing clusters, we can substantiate our original assumption that a non-unified terminology at least partially hampers the integration

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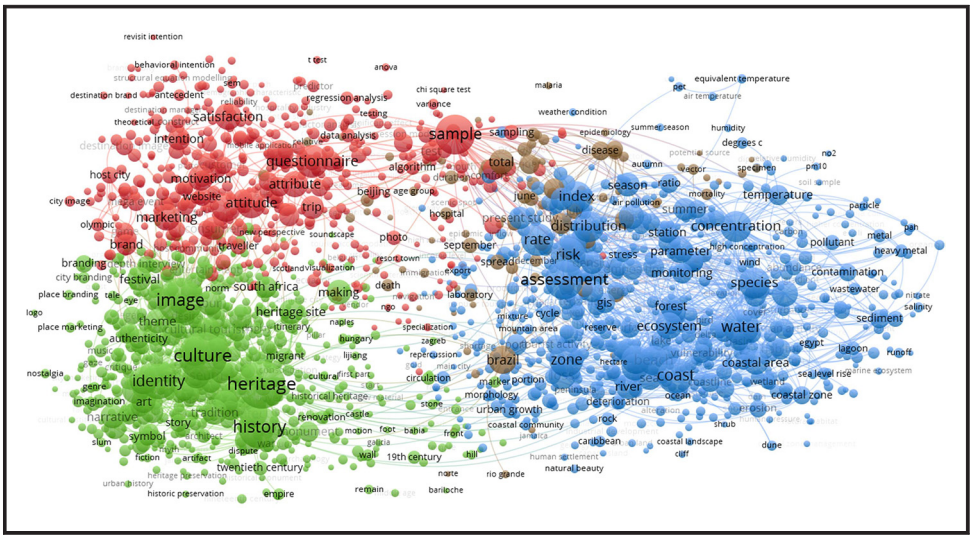
Figure 7 Clusters/approaches of the 60 % of the most relevant terms identified in the titles and abstracts, occurring at least 10 times (General query: based on 7,362 WOS records and 128,000 total terms)



and interconnectedness between perspectives in urban tourism (city tourism or tourism in cities).

Although the environmental-spatial cluster/perspective was already well-defined in the BQ (Figure 6) it is now much more prominent (right side of the map in Figure 7). This cluster is in a clearly separated position with increasingly weak links to the other two clusters. We assume that many articles are no longer very strongly connected with the *city*- and *tourism*-associated topics. Contexts can be multidirectional: the impact of tourism or the impact of other forces on tourism and cities. The term *climate change* alone occurs 119 times (not visible because of the overlap). There are another 200 occurrences of terms based on *climate*.

Interestingly, with this GQ another "approach" (fourth cluster) now appears, which was not present in the previous maps: *tourism* and *health*, in the small centrally located cluster (*disease, epidemiology, hospital*, etc.). The central location indicates some links with other clusters although the links with the environmental issues are stronger. It denotes links between cities, tourism and health, and suggests susceptibility of cities and tourism to climate change and outbreaks of diseases. An important WOS category of such documents is indeed *Public Environmental Occupational Health* although such research is also being published in *Tourism* journals.

Cities and *tourism* may have a weaker role in such articles although they do occur at least in abstracts or keywords. WOS category of *HLST* is still the main category and 9 of the top 10 journals are similarly tourism-related as in the first two more restricted queries.

3.6 Recent specific topics in urban tourism by the evolution of author keywords

The visualization of author keywords complements the existing research perspectives/clusters. Author keywords are the terms which the authors have assigned to their papers and which are then also recorded in databases. Although subjective, keywords reflect an author's attunement to terminology in a given period. Some very recent terms ("hot topics," as indicated by the red color) reflect emerging socio-spatial issues (*Airbnb, sharing economy, touristification*) and are shown in both maps (Figures 8 and 9). The circles are still small, as these novel concepts are not yet very numerous. The very novel *antitourism* or

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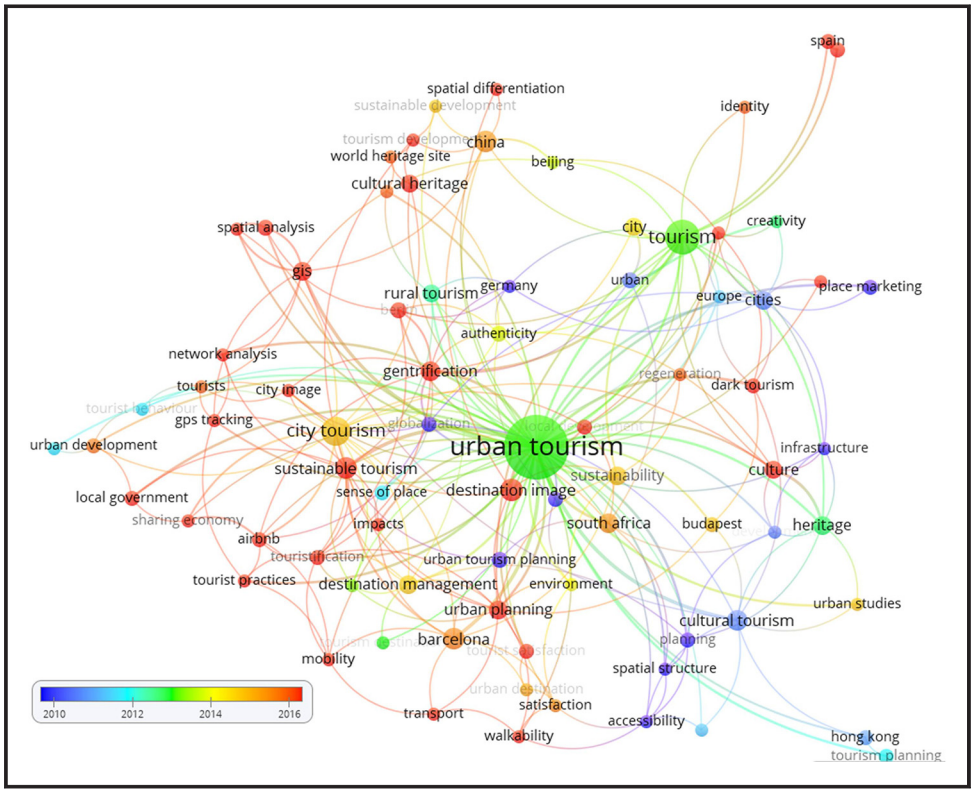
Figure 8 Visualization of co-occurrence and average time of author keywords (Narrower query)



overtourism (also as *anti-tourism* or *over-tourism*) are not shown because the counts are still too low. In 2019, however, there was an upturn. It will, however, take some time for these issues to become established. This is discussed in the last chapter. Some authors may use two separate keywords to describe the context: *tourism+city/cities*. The subjective use of geographic terms likely reflects an author's decision to highlight a particular city.

We may tentatively interpret the maps by way of the contextualization of terms. Time analysis and the emergence of author keywords provide only an approximate estimate of the research directions. *Sustainability* (also as an adjective *sustainable*) has been addressed in general *tourism* and *sustainability* studies (Garrigos-Simon *et al.*, 2018). In our case, we assess it specifically in relation to urban tourism. The emerging issues of sustainability were also reflected in journal maps (Figures 3 and 4). Sustainability is gaining importance through contextually-related processes of *gentrification*, *planning* and *mobility*, which is also reflected in emerging topics, such as *sharing economy, Airbnb* and *overtourism* (Bauder and Freytag, 2015; Colomb and Novy, 2016; Perkumienė and Pranskūnienė, 2019; Kadi *et al.*, 2019; Capocchi *et al.*, 2019). Studies of tourism and cities are thus increasingly focusing on various aspects of sustainability, embracing broader social phenomena in the context of urban dynamics: from the environment, housing and planning to mobility patterns (Urry, 2016; Tokarchuk *et al.*, 2017). Looking at the above time-analysis of keywords, one could at least suggest that the problem of "imbalance in focus" or "paradox" (which Ashworth has repeatedly stressed) in the treatment of cities in tourism studies is indeed diminishing. This applies both to the aspect of tourism management and to the critical optics of the impact of tourism on cities and society. Point in the case could be the most frequent reference to Barcelona and even more recently Berlin ("blurred" red above *gentrification* in Figure 8 and to the right of *touristification* in Figure 9), which

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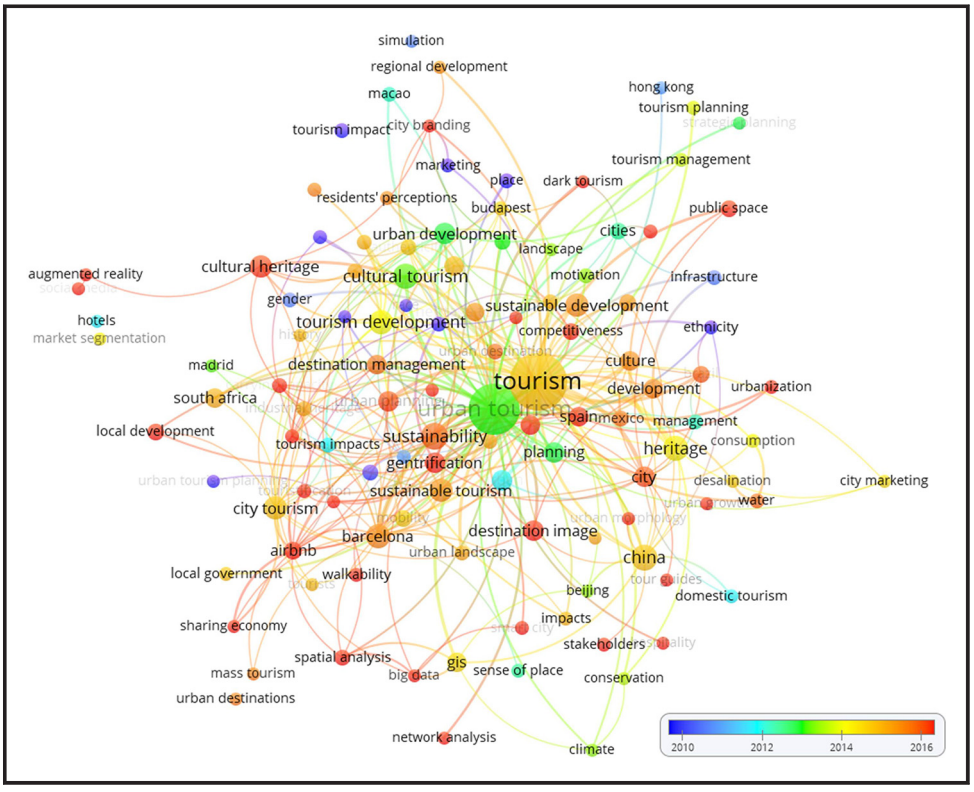
Figure 9 Visualization of co-occurrence and average time of author keywords (Broader query)



illustrates well the many discussions on these sustainability contexts (Füller and Michel, 2014; Hall, 2016).

3.7 Cities as topics of research

Limitations linked with city names need to be highlighted first. Sometimes, the concept of a city is used as an epithet, for example, the city of Valencia, but this is not always the case. The particular *urban-* or *city* terms may not even be used in the abstract when an article deals with a particular city. Such a study can thus only serve as a model as many possibly relevant records cannot be retrieved. We were nevertheless interested which are the principal cities which come about in connection with tourism. A combined procedure was needed to this end. First, all terms from the NQ and BQs were downloaded into a temporary data set. This then required "manual" identification of all cities in the data set. Some disambiguation was essential. Also, different linguistic forms were merged. Then, the analysis of the occurrences was conducted in the WOS itself. The cities were then ranked according to their frequency (Figure 10).

The cities thus identified confirm our findings on the particular role of urban tourism in the Spanish (and to some extent in Portuguese) geographic (including linguistic) context and the role of ESCI journals. While the publishing contribution of some countries in the field of tourism has been previously noted (Yuan *et al.*, 2015), some countries and cities have recently gained a higher presence in this field of research. Thus, geographic and regional effects play an important role in publication behavior. For example, Barcelona appears about six times in the journal *Documents d'Analisi Geografica* (ESCI) which also publishes articles in Catalan. Figure 10 also roughly shows that Europe is the most studied region,

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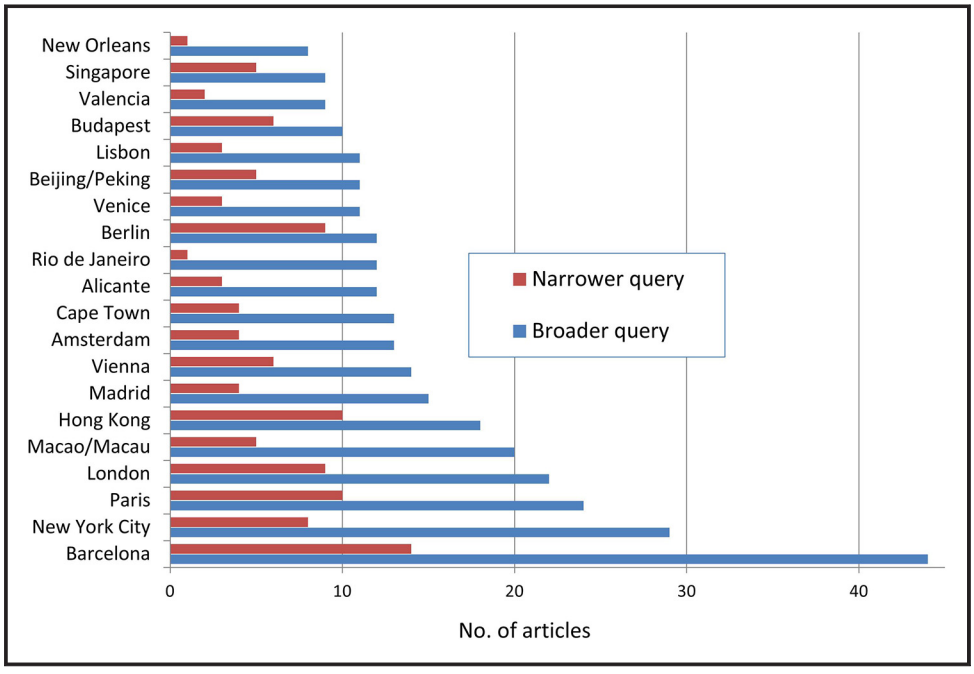
Figure 10 Twenty cities which come about most frequently in WOS in relation to urban tourism (cities and tourism)



followed by Asia and the Americas. Similar geographic patterns (research regions) have also been found in VOSviewer-based visualizations of mobile technologies and smart tourism (Dorcic *et al.*, 2018).

The particulars and implications of geographic terms are not so evident in other "adjectival" tourisms, for example, in adventure tourism or rural tourism. However, in investigating the cities the very names of certain cities have a retrieval impact on *Mexico City* (sometimes only as *Ciudad de Mexico*), *NY City* and *Cape Town.* The *City of London* denotes a particular area in London. Some "city names" may refer to an entire territory or a country (*Hong Kong, Singapore*). The name of *Beijing* (official Chinese Pinyin Romanization) is used almost without exception, although the now old-fashioned English exonym *Peking* still crops up (frequently in clear-cut phrasal contexts, for example, Peking opera, Peking duck). However, sometimes only the "international" English names are used (Vienna for Wien, Venice for Venezia, etc.).

This emphasis is important because it highlights the need for a unified terminology in the development of a disciplinary field. Awareness of this kind of limitation is also important for researchers and authors, especially when it comes to retrieval in databases.

3.8 Co-authorship of papers by country of an author

The counts of cities as topics of research (Figure 10) are to some extent associated with contributions by authors from the respective countries (Figures 11 and 12). Documents in both queries exhibit similar patterns of co-authorship links. Spain shows links with the countries from Spanish (Portuguese) linguistic/geographic neighborhoods. The average publication year of this authorship is much more recent. USA and England [7] show a longer presence in such studies (violet-to-blue colors). The US circle is located in the vicinity of East Asian countries. The authors affiliated to US institutions co-authored the highest number of articles with the authors in the Peoples Republic of China. This is shown by the close proximity of the two countries and the thickness of the connecting line. Such intense co-authorship between these

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Figure 11 Country collaboration links by co-authorship from the respective countries (Narrower query)

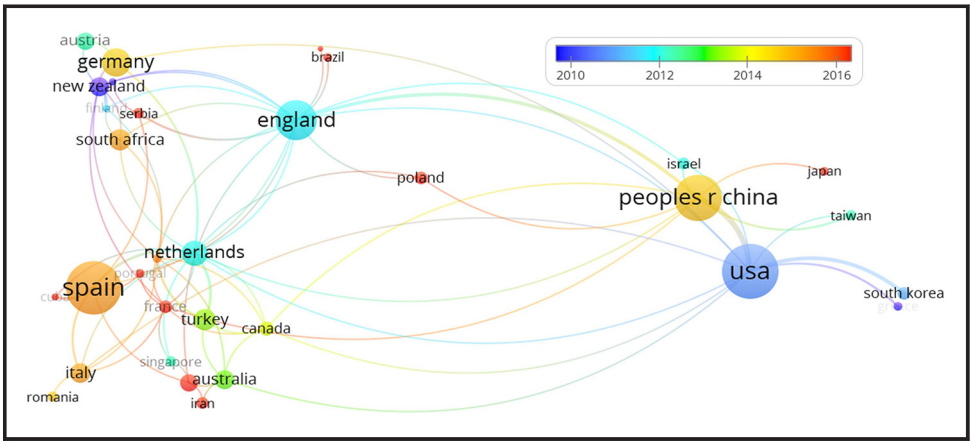
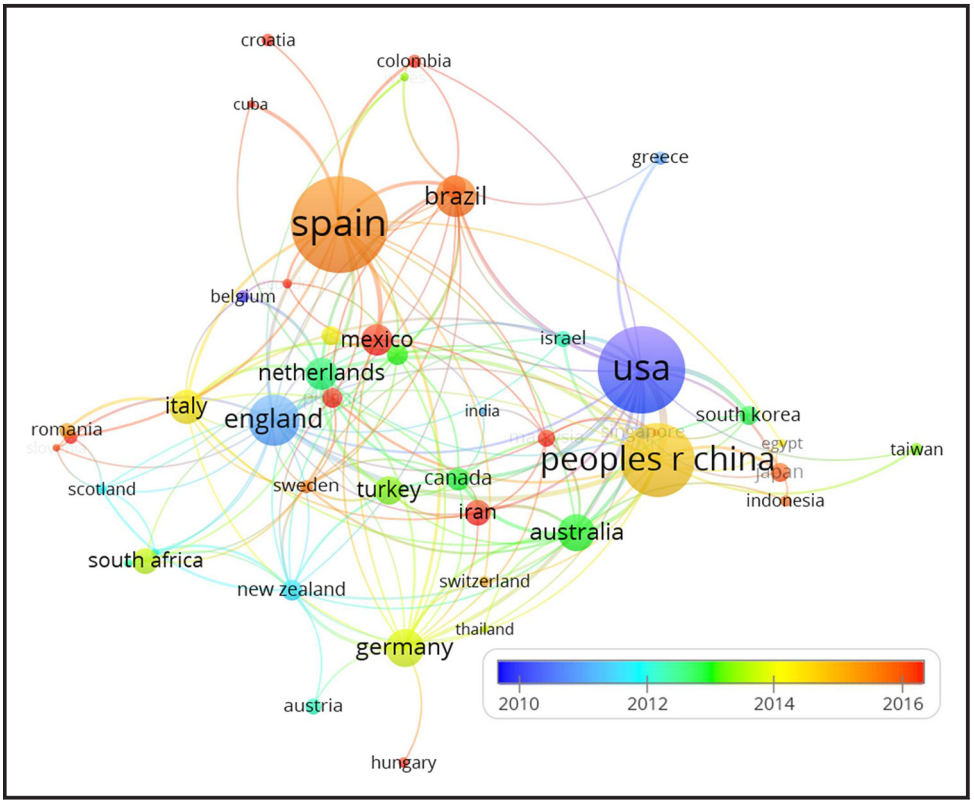


Figure 12 Country collaboration links by co-authorship from the respective countries (Broader query)



two countries in tourism research was also observed by Shen *et al.* (2018) and Köseoglu *et al.* (2019). The recent importance of Spain in tourism research was noted by Butowski *et al.* (2019). The recent Spanish context substantiates our previous inferences on the role of ESCI journals in this field. While the contribution by countries was investigated earlier (Yuan *et al.*, 2015) some countries have now gained higher prominence (orange-to-red color palette) which points to the changing landscape in (urban) tourism studies.

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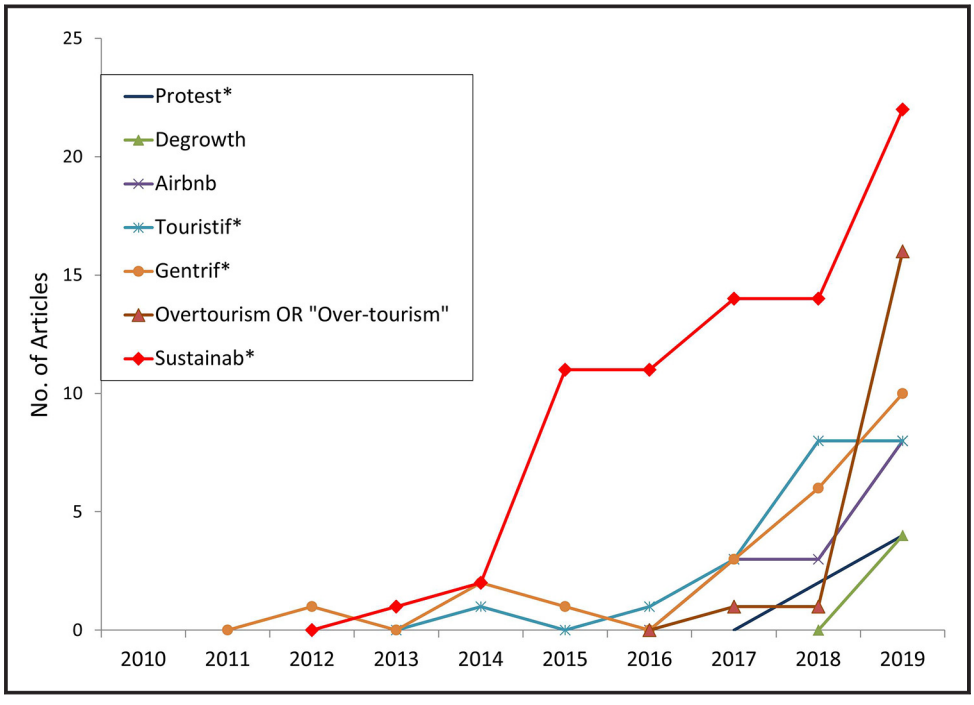
3.9 Recent upsurge of novel terms

A consistent analysis for the 2019 data cannot be made as many articles have not yet been indexed by WOS. Against this background, we conducted an exploratory assessment of the 2019 data in the early spring of 2020 (based on NQ). We needed to exclude documents with early access in WOS because they distort the visualizations as the publication year is not yet assigned. The data show a very strong increase in some novel terms, some of which we highlighted in the keyword section and which have obviously experienced an outbreak over the past year – or even months. In 2010, there were no such terms (Figure 13). *Degrowth* first appeared in 2019. However, this is only a preliminary assessment. The 2019 documents are still arriving. We highlight an interesting terminological development: the novel t*our*istification also appears as t*ur*istification (Spanish: turistificacion), in up to 10% of the articles. As expected, these documents represent several ESCI journals and/or the Spanish research background, although the (incorrect) *turistification* was derived from English language titles, abstracts or keywords. Also, the compound word *overtourism* sometimes comes about as *over tourism*. Authors should therefore take care not to increase terminological entropy in addition to other challenges of information retrieval in this field.

At this point, we need to, however, mention that this evolution may take yet unexpected directions. Namely, in the time of the finalization of this study, a disturbing turn of events has begun with the outbreak of Covid-19 (SARS-CoV-2 coronavirus). The troubling developments are likely to have a major impact on tourism and cities although this will not be immediately reflected in the publishing patterns in this field because the first articles to this end are just being published. This remains a subject to be followed in our future research based on science mapping and visualizations.

Figure 13 Development of specific terms in documents retrieved with the Narrower query (2010-2019)



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4. Conclusions

The study evaluates the conceptual framework in the field of urban tourism in a narrow sense and tourism and cities in a broader sense using quantitative visualizations. It thus contributes to existing theoretical frameworks in which the authors either systematize perspectives (or research approaches) or discuss them analytically. The findings on the importance of information retrieval represent an academic and practical contribution. The academic one refers to the extraction of information relevant to researchers in the field. Consequently, the better quality of information can contribute to the development, and more importantly, the integration of this disciplinary field. Of practical importance to urban and tourism professionals is guidance on how to search for research findings in the literature. The connections between research directions were tested at three levels of terminological inclusivity, with implications for information retrieval addressed at each level. This is a novel way for evaluating links in the field of urban tourism. The dual expertise of an information specialist and a sociologist was used for this purpose.

In creating the methodological search syntax, which was an introductory step, it became clear that a focused search query would miss a significant portion of the relevant documents. On the other hand, a broad query would also return documents that are no longer related to the topic. On the analytical level, this is a dilemma of the degree of inclusiveness of topics, approaches, perspectives in a given field, which also impacts connectivity to other fields. Obviously, this dilemma is also reflected in information retrieval. The practical implications are clear: researchers who want to get a more complete picture must be aware that some information will remain "undiscovered."

The impression of particularly strong growth in this area after 2015 is due, at least in part, to the addition of journals to the WOS, although these journals are not really new. They may have been overlooked, however, if authors have previously searched only at WOS. In any case, the more recent publication patterns show a very strong occurrence, if not prevalence, of Spanish (Portuguese) linguistic-geographic contexts. This is reflected not only in the cities studied but also in the author's collaborations. Other clusters are also apparent, albeit of early date (US – East Asia). The boundaries and implications are left to interpretation. Perhaps, this is an opportunity for future collaboration, for example, in sharing new insights in the face of the Covid-19 crisis that will inevitably hit tourism and cities hard.

Quantification, in this case, the dispersion of articles across journals, points to connectivity between the fields, allowing the theoretical assumption of imbalance in the perspective to urban tourism to be tested. This type of tourism has been fully embraced by HLST (WOS). Recently, the issues of (social) sustainability have also come to the fore. On the other hand, this research area seems to have been very weakly covered by urban studies, according to the respective WOS category, notwithstanding the limitations of this scheme. Nevertheless, we advise authors and editors outside the immediate field of tourism journals to open up to this type of research to better reflect the many aspects of urban tourism, especially social sustainability.

The central aim of the study was to identify research perspectives through clustering techniques and science maps. The correspondence between the clusters identified in this study and the perspectives analytically systematized in the literature is remarkable. Restricting the search to the narrow concept of urban tourism reveals dominance of the tourism business. It is only through broader searches that all perspectives become visible: tourism-business perspective, socio-cultural perspective and environmental-spatial perspective. Limitations exist nevertheless. The less restrictive the search query, the higher the proportion of articles with weaker direct references to issues of cities and tourism.

This inevitable trade-off has practical implications for researchers. If they want to find very focused documents, it is sufficient to limit the query to the conventional notion of "urban

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tourism." However, such documents are not numerous. If they want to find documents that reflect the links between tourism and cities in a broader sense, they will need to test queries at multiple levels, which will inevitably produce unrelated documents. The least precise documents will be found in the interlinking area of tourism, cities and the environment, where impacts can go in all directions (impacts of cities and tourism on the environment and vice versa).

Recently, there has been a flood of terms such as Airbnb, overtourism and touristification, in response to changes in cities and society in general. From an informetric perspective, this is still too new to be perceptible in visualizations. These novel issues, all related to the social sustainability of cities, could possibly develop into a separate research front that we would like to pursue in the future. Such issues can also be discovered through the analysis of author keywords, as authors are inevitably influenced by urban dynamics and wider social processes. In fact, such subjective "buzzwords" may even skew the numbers. Or the keywords may simply reflect the politics of a journal. This has practical implications for search, so keywords should be interpreted with caveats.

The role of each city also needs to be considered in context, as the terms city or urban are not necessarily used in the context of a particular city. However, this is true for most cities, so the occurrence of a city name still reflects its relative importance. On the other hand, terms such as travel can be used for other types of mobility. Indeed, the enfolding broader socio-cultural processes promote Spatio-temporal accessibility and thus permeate different "mobilities" that affect urban morphology and consequently influence the changing nature of urban tourism. This will then have an impact on information retrieval. In any case, it will never be able to identify "all" relevant elements (apart from subjective notions of relevance).

Finally, one of the clusters points to links between tourism and health, recalling the vulnerability of cities and tourism to climate change and disease. This has already begun to manifest itself in publications related to the Covid-19 outbreak. The implications for cities and tourism are likely to be severe, potentially reversing or significantly reconceptualizing previous sustainability issues (due to overtourism). This could put earlier studies in a new perspective. Here, our study could serve as a temporal reference point, as it mapped this field shortly before the pandemic. This is an important implication for upcoming research. So this is also a front on which we intend to continue our science mapping in the future.

To conclude, we would like to reflect on a challenge in such studies: the multiple limitations and trade-offs in information retrieval perceived by the information specialist are interpreted by sociologists as a specific aspect of social complexity that must be reduced in order for the "big picture" to emerge. Authors can nevertheless contribute to better discoverability of their work by using more streamlined terminology, e.g. by at least using terms with clear and unambiguous meanings. In any case, despite all the challenges, we would like to encourage more interdisciplinary collaboration as a contribution to better integration in this field.

Notes

1. Later, we will highlight additional problems of terminological nature, for example, multifaceted terms, such as *travel(lers)* and *visit(ors)* which are used in tourism terminology but may also have "non-tourist" meanings and uses.
2. The share of *town*-associated documents relative to *tourism* is very low.
3. As highlighted in the introduction, tourism and day-to-day practices are increasingly interconnected and thus indistinguishable (de-differentiation of socio-spatial practices).
4. The length of journal names on the map is optimized by the program. If the number of journals increases then the names are shortened to lessen both the overlapping and blurring.
5. See a comprehensive and detailed summary of approaches in Edwards *et al.* (2008).

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6. With an increasing number of included terms in visualization maps, many terms are blurred or not visible because of overlap with other terms what is especially well demonstrated in Figure 7 which displays only the principal terms.
7. WOS counts UK's countries/regions (England, Northern Ireland, Scotland, Wales) separately which hampers the comparison of the UK with other countries. This also applies to Chinese territories where Hong Kong and Macao are also counted separately in WOS.

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