RBTUR
Revista Brasileira de Pesquisa em Turismo

ANPTUR
ASSOCIAÇÃO NACIONAL DE PESQUISA E PÓS-GRADUAÇÃO EM TURISMO

ISSN 1982-6125

Papers

Classification of authors, institutions, and countries, using productivity, centrality, and impact metrics: The field of tourism studies in Brazil (journals), 1990-2018

Classificação de autores, instituições e países, por meio de métricas de produção, centralidade e impacto: O campo de turismo no Brasil (periódicos), 1990-2018

Clasificación de autores, instituciones y países, utilizando métricas de producción, centralidad e impacto: El campo del turismo en Brasil (revistas científicas), 1990-2018

André Fontan Köhler[1], **Luciano Antonio Digiampietri**[1]

[1]University of São Paulo (USP), São Paulo, SP, Brazil.

Keywords:

Tourism and information science;
Scientific production;
Journals;
Bibliometrics.

Abstract

We investigated the set of Brazilian tourism journals, specifically 3,887 articles published in 16 journals, from 1990 to 2018. The three main objectives of this study are: a) to rank authors, institutions, and countries in the field of tourism studies in Brazil, using productivity, centrality, and impact metrics, for 1990-1999, 1990-2009, and 1990-2018; b) to characterize the leading elements – i.e. top-ranked ones; and c) to compare these rankings with h-index based rankings. A bibliometric and social network study was carried out, with manual data collection and revision and disambiguation. Productivity (full and fractional counting), centrality (degree, betweenness, and PageRank), and impact (based on actual citations) metrics were calculated. In summary, the leading authors are affiliated with institutions in the South and Southeast regions of Brazil, and they are linked to graduate programs. For institutions, offering a graduate program in tourism or in a related field seems to be a key factor. The University of São Paulo (USP) and the University of Vale do Itajaí (UNIVALI) clearly stand out in all metrics. Brazil occupies the first position in productivity, centrality, and impact, followed by Spain.

Palavras-chave:

Turismo e ciência da informação;
Produção científica;
Periódico;
Bibliometria.

Resumo

Trabalha-se com o conjunto de periódicos brasileiros de turismo, mas particularmente com os 3.887 artigos publicados em 16 revistas, no período 1990-2018. Há três objetivos principais, a saber: a) construir rankings de autores, instituições e países do campo de turismo no Brasil, segundo métricas de produção, centralidade e impacto, nos períodos 1990-1999, 1990-2009 e 1990-2018; b) caracterizar os elementos mais importantes – aqueles que aparecem nas primeiras posições desses rankings; e c) comparar os resultados desses rankings aos obtidos com a aplicação do Índice H. Foi feito um estudo bibliométrico e de redes, com coleta de dados e revisão e desambiguação manuais; foram calculadas métricas de produção (contagem simples e fracionada), centralidade (grau, intermediação e Page Rank) e impacto (baseadas nas citações reais). Em resumo, os principais pesquisadores trabalham em instituições do Sul e Sudeste do país, e estão vinculados a programas de pós-graduação stricto sensu. Para as instituições, ter um programa de pós-graduação stricto sensu em turismo ou campo correlato parece ser um fator-chave; a Universidade de São Paulo e a Universidade do Vale do Itajaí claramente se destacam das demais, em toda e qualquer métrica. O Brasil ocupa a primeira posição em produção, centralidade e impacto, seguido sempre pela Espanha.

Palabras clave:

Turismo y ciencias de la información;

Resumen

Este trabajo analiza el conjunto de revistas del turismo brasileñas, específicamente los 3,887 artícu-

Producción científica;
Revistas científicas;
Bibliometría.

los publicados en 16 revistas científicas, en 1990-2018. Hay tres objetivos principales, a saber: a) construir clasificaciones de autores, instituciones y países en el campo del turismo en Brasil, utilizando métricas de producción, centralidad e impacto, en 1990-1999, 1990-2009 y 1990 -2018; b) caracterizar los elementos más importantes: aquellos que aparecen en las primeras posiciones de estas clasificaciones; y c) comparar los resultados con los obtenidos con la aplicación del índice h. Se realizó un estudio bibliométrico y de redes sociales, con recolección de datos, revisión manual y desambiguación. Se calculó las métricas de producción (conteo simple y fraccional), centralidad (grado, intermediación y Page Rank) e impacto (basado en las citas reales). Los principales investigadores trabajan en instituciones en las regiones Sur y Sudeste del país y están vinculados a programas de posgrado estrictos. Para las instituciones, tener un programa de posgrado estricto en turismo o un campo relacionado parece ser un factor clave. La Universidade de São Paulo y la Universidade do Vale do Itajaí se destacan claramente del resto, en todas las métricas. Brasil ocupa el primer puesto en producción, centralidad e impacto, siempre seguido por España.

Peer reviewed by pairs.
Received in: 19/05/2020.
Approved in: 25/11/2020.
Editor:
Glauber Eduardo de Oliveira Santos

How to Cite: Köhler, A. F.; Digiampietri, L. A. (2021). Classification of authors, institutions, and countries, using productivity, centrality, and impact metrics: The field of tourism studies in Brazil (journals), 1990-2018. *Revista Brasileira de Pesquisa em Turismo, São Paulo,* 15 (3), e-2035, Sep./Dec. http://dx.doi.org/10.7784/rbtur.v15i3.2035

1 INTRODUCTION

Tribe (1997) considers that tourism consists of three dimensions. First, it is a phenomenon of the outside world; most definitions of tourism focus on this dimension. Second, there is the study of tourism, which centers around academia. Third, there is education and training in tourism, whose most visible elements are higher education programs in tourism.

In the literature, a consensus seems to be emerging that tourism is a field of study, and not a science or discipline (Tribe, 1997, 2000, 2010; Racherla & Hu, 2010; Benckendorff & Zehrer, 2013); according to Tribe (2010), that field is divided into the following subfields: a) administration/management and tourism businesses; and b) topics not related to administration/management and tourism business (social sciences).

Tourism is considered as a field of study that is still developing; it is fragmented and interdisciplinary, and does not have a unified theoretical approach, but rather multiple theoretical approaches, derived from the set of disciplines that address the tourism phenomenon (Racherla & Hu, 2010; Benckendorff & Zehrer, 2013). In this context, bibliometrics can provide information to better characterize and understand the field of tourism.

Bibliometrics can be defined as the description, evaluation, and monitoring of a specific science, discipline, or field of knowledge; this is done through data such as, for example, the number of citations received, bibliographic references used, authorship, and keywords. Bibliometrics allows us to evaluate, for the science, discipline or field in question, the state of the art and the intellectual landscape, social structure, and conceptual structures (Koseoglu, Rahimi, Okumus, & Liu, 2016). As well stated by Benckendorff and Zehrer (2013), bibliometrics allows researchers to study tourism as a knowledge-building system.

In addition, bibliometrics allows the discussion and development of methods, indexes, and metrics for evaluating research and researchers, institutions, graduate programs, and even countries (Koseoglu et al., 2016). Bibliometric studies enable mapping topics and study objects, research methodologies, and most common theoretical frameworks used, as well as identifying gaps in the literature, through mathematical and statistical techniques and calculations.

In addition, bibliometrics can help conducting ranking exercises – authors, institutions, graduate programs, countries, etc. – by calculating and combining quantitative measures, such as, for example, production/productivity, centrality (in co-authorship networks), and impact (citations received).

The scientific journal is a key element in every science, discipline, and field of study. According to Weiner (2001), journals serve three main purposes. First, the scientific journal is responsible for the production, dissemination, and exchange of academic knowledge. Second, it provides a means for the evaluation and classification of research and scientific production, including for allocating resources. Third, its production can be used to base and justify the hiring and promotion of teachers and researchers, as well as to evaluate the performance of individuals, universities, and graduate programs. Santos and Rejowski (2013) believe that journals are the main formal medium of scientific communication.

By publishing, reading, and citing articles in journals, researchers play a threefold role in the scientific communication process – producers, disseminators, and consumers.

As Page (2005) puts it, the growing competition for public funding has led to attempts to produce indicators which assess quantity, quality, and excellence of scientific research by authors and institutions. In this context, various methods of evaluation and classification of articles, authors, institutions, and even countries have appeared. Most of these assessment methods are based on quantitative measures, using bibliometrics and social network analysis.

The fierce competition between universities and research centers is reflected, in many countries, in the attempt to recruit teachers and researchers with more publications in indexed journals, especially top ranked ones in their field of study, discipline, or science (McCarty, Jawitz, Hopkins, & Goldman, 2013).

Another consequence of this competition was the creation of administrative and bureaucratic structures – at the national level and even in some universities – responsible for allocating research funds and for defining and measuring "quality" in research. Probably, this allocation of funds and the hiring policy based on performance and impact were the decisive factors for the growth of bibliometric studies that assess and classify authors, institutions, and scientific journals, usually by ranking them, or by discussing the relevance and validity of the methods used and the results obtained (McKercher, 2008; Hall, 2011).

In Brazil, the establishment of standards and evaluation systems is the responsibility of the Coordination for the Improvement of Higher Education Personnel, a public foundation linked to the Ministry of Education, both for graduate programs and for scientific journals. The tourism field is part of Area 27 (Public Administration and Business, Accounting and Tourism).

This study is a bibliometric analysis that calculates and analyzes evaluation and network metrics, namely productivity, centrality, and impact measures for authors, institutions, and countries. For these three elements, rankings are constructed based on each set of metrics (productivity, centrality, and impact), for the periods 1990-1999, 1990-2009, and 1990-2018. Also, the similarities and differences between the resulting rankings are analyzed, as well as the leading researchers in the field of tourism in Brazil, according to the criteria of this study.

The object of study is the set of Brazilian scientific journals in the field of tourism, more specifically, the published articles. As it is done in most bibliometric studies in the field of tourism – e.g., Benckendorff and Zehrer (2013), Strandberg, Nath, Hemmatdar and Jahwash (2018), and Racherla and Hu (2010) – only full articles were included; editorials, reviews, interviews, and everything else was discarded.

Contrary to what is more common in bibliometric studies in the field of tourism – e.g. Ye, Li and Law (2013), Koc and Boz (2014) and Kirilenko and Stepchenkova (2018) – this article includes a wide range of journals, not limited to those considered the leading ones. This follows the recommendation of Jamal, Smith and Watson (2008) and McKercher (2005) not to limit the study to a very small fraction of the field of study.

The chosen journals had to meet the following criteria: (1) be a scientific journal published in Brazil which evaluates manuscripts with a double-blind peer review system, (2) the journal must be a tourism journal, without considering another science, discipline, or field of study; for example, as a result, PODIUM Sport, Leisure and Tourism Review was excluded, (3) in February 2019, the journal needed to be classified in Qualis Journals in the field of Business, Accounting and Tourism, listed in B5 or higher strata (quadrennium 2013-2016), and (4) the journal must be still in existence.

In total, 16 journals were selected, namely: a) *Anais Brasileiros de Estudos Turísticos*; b) *Applied Tourism*; c) *Caderno de Estudos e Pesquisas do Turismo*; d) *CULTUR – Revista de Cultura e Turismo*; e) *Caderno Virtual de Turismo*; f) *Revista Acadêmica Observatório de Inovação do Turismo*; g) *Revista Brasileira de Ecoturismo*; h) *Revista Brasileira de Pesquisa em Turismo*; i) *Revista Iberoamericana de Turismo*; j) *Revista Latino-Americana de Turismologia*; k) *Revista Rosa dos Ventos*; l) *Revista de Turismo Contemporâneo*; m) *Revista Turismo: Estudos e Práticas*; n) *Revista Turismo – Visão e Ação*; o) *Turismo em Análise*; and p) *Turismo e Sociedade*.

Only one exception was made; the *Caderno de Estudos e Pesquisas do Turismo* ended the publication of articles in 2017, but was kept in the object of study, given that it was still in existence, at the beginning of data collection, and was still evaluated in Qualis Journals, in February 2019.

For each journal, all articles published between 1990 and 2018 were collected, including those that had already been made available on its website up to March 31, 2019. This enabled the collection of all articles already published in the selected journals, until that date.

For each article, two data sets were collected. First, authors and their institutions, as well as the countries where they are located. Second, all citations received by the articles were collected through Google Scholar. The two data sets are described in the research methodology section.

The objectives of this study are threefold. Primarily, we sought to rank authors, institutions, and countries in the field of tourism in Brazil as to productivity, centrality, and impact, in the periods 1990-1999, 1990-2009, and 1990-2018. This allowed the identification of a select group of researchers, institutions, and countries, based on the following criteria:

a) elements that appear in the first centile (1%) of productivity, centrality and/or impact rankings, from the 1990-1999 period to the 1990-2018 period; i.e., researchers, institutions, and countries that, since the first decade (1990s) appear in top positions, staying there for the total period (1990-2018);

b) elements that appear, in the period 1990-2018, in the first centile (1%) of the three rankings – productivity, centrality, and impact; i.e., researchers, institutions, and countries that stand out simultaneously in the three groups, for the set of all articles published in the 16 journals in the study.

In this article, we work with continuous cumulative time periods instead of discrete intervals (e.g., 1990-1999, 2000-2009, and 2010-2018), which is the most used in bibliometrics in tourism studies – see, for example, Benckendorff and Zehrer (2013) and Racherla and Hu (2010). Also, mostly of the seminal authors in this field of study in Brazil are still active, and the two pioneering institutions offering graduate programs and which publish the two oldest scientific journals in existence (*Turismo em Análise* and *Revista Turismo – Visão e Ação*), still occupy leading positions – University of São Paulo (USP) and University of Vale do Itajaí (UNIVALI). Working with cumulative periods allows us to understand the trajectory of the tourism field, while considering the whole set of articles published in 1990-2018.

The second main objective is to characterize these identified elements, as described in items (a) and (b) above. This characterization includes the following:

a) authors: academic background, professional performance, publication of articles in a journal (total), and total citations received (in the case of researchers with a Google Scholar profile);

b) institutions: country (foreign) or federal unit and region (Brazil) where it is located, tourism programs on offer (undergraduate and graduate levels), and type of institution (public, private, confessional, etc.);

c) country: continent and official language.

The third main objective is to compare the results of the present study with those obtained from the hybrid metric that has been widely used in rankings of authors, institutions, and countries, the h-index.

These three objectives provide useful insights into the tourism field in Brazil. The identification of the leading authors, institutions, and countries is useful to the extent that it gives credit to major contributors to the mentioned field. In addition, their characterization makes possible the identification of common points, useful for understanding the dynamics of the tourism field in Brazil.

This study allows the comparison between rankings based on several single measures and on the three sets of measures (productivity, centrality, and impact), showing the existing overlaps for authors, institutions, and countries, with respect to the first centile (1%).

The study is justified for several reasons. Bibliometric studies help to recognize not only tourism as an important field of study, but also the contributions of researchers and institutions to its formation.

Leta and Lewison (2003) point out that, for developing and/or scientifically peripheral countries, a large part of their scientific production is not apprehended by international databases, because it is concentrated in national and regional journals. Santos, Panosso Netto and Wang (2017) and Santos and Rejowski (2013) point out that there are several difficulties to work with and to measure the impact of Brazilian tourism journals, given that they are neither included in the Thomson Reuters Journal Citation Reports, nor are they part of database systems, such as Science Direct or JSTOR. This study collected data that are not gathered and organized anywhere else.

Koseoglu et al. (2016) summarize the importance of studies like this one. First, not just a handful of journals are contemplated; the 16 journals that make up our object of study are the entire study population (i.e. the tourism journals in Brazil), according to the criteria already presented. Second, the time frame is not restricted to a short

period; almost 30 years of scientific production are covered, encompassing the beginning of the publication of tourism journals in Brazil (still in existence). Third, the object of study covers a country, Brazil, that publishes little in English.

In assessing the quality of research in the tourism field, McKercher (2005) argues that articles published in journals with blind peer-review are the most important element for assessing the quality of an investigation, researcher, and institution (journal articles versus other types of publication).

The journals reflect the social structure of the field of study in a given region and period, as well as the popularity, or lack thereof, of themes and objects of study.

2 LITERATURE REVIEW

As mentioned, there has been an increase in the number of studies presenting rankings of authors, institutions, journals, and even countries; this has been accompanied by the adoption by governments and institutions of methodologies for the evaluation and classification of scientific research, including for recruitment and career advancement of researchers and for allocating research funds.

It should be noted that this has been criticized in the literature. For example, Page (2005) argues that these attempts to assess and classify have not, in general, been beneficial for research in the field of tourism. According to the author, they lead to a certain academic productivism which stifles innovation, creativity, sacrifices depth and promotes easily published research. In addition, the focus on the accelerated production of journal articles creates a lack of incentives to studies that require a long period of maturation and are better suited to a book, as in the case of many seminal works published in the 1970s and 1980s.

In this context, several ranking metrics and methodologies have emerged. According to Hall (2011), there is already a consensus, within bibliometrics, that it is not possible to measure the quality of research using a single metric because of the following aspects:

a) the element under analysis may lose out in evaluation, as the metric fails to identify, at least, one important aspect of their scientific production;

b) from the moment the metric is established, the elements under analysis can concentrate efforts on maximizing their performance on it, to the detriment of other tasks also important to professional performance that are not under evaluation (Hall, 2011; Bollen, Sompel, Hagberg, & Chute, 2009).

No single measure can identify all aspects of the scientific production of authors or institutions; necessarily, a combination of metrics should be used for ranking production (Hirsch, 2005; McCarty et al., 2013). In general, based on bibliometrics and social networks analysis, the metrics can be divided into evaluative and relational.

Evaluative metrics aim to assess the scientific production of a certain element, generally in comparison with the performance of other authors, institutions, or countries. Basically, what is considered as an evaluative study is the work that presents some measure of performance. Hall (2011) and Koseoglu et al. (2016) divide these studies into three groups. The first includes productivity metrics, based on the number of articles published. The second includes impact metrics, the basis of which is always the number of citations received. Finally, the third group presents hybrid metrics, such as the h-index, which combine production and impact indicators.

Relational metrics are based on existing relationships in the scientific production under analysis; for example, the analysis of keywords and/or references used together can reveal the most studied areas and themes within a science, discipline or field of study (Benckendorff, 2009; Benckendorff & Zehrer, 2013; Racherla & Hu, 2010; Ye, Li, & Law, 2013).

There are also hybrid metrics, which combine aspects of more than one group of metrics (productivity, centrality, and impact). The h-index has been widely used in the literature; the value obtained indicates the number of articles that have, at least, that amount of citations each – the remaining articles have received a lower number of citations each (Hirsch, 2005).

In general, a high h-index indicate that a given element has several published articles that received many citations. The use of hybrid metrics has been advocated by several authors, such as McKercher (2008), Benckendorff (2009), Hall (2011) and Ye, Li and Law (2013).

It is possible to use some relational indicators in an evaluative way, such as centrality metrics, as it is done in this article. The basis of centrality metrics are co-authoring relationships between authors, institutions, and countries, as seen in sub-item 2.2 "Centrality metrics."

For example, Park, Phillips, Canter and Abbott (2011) aim to measure the production of authors, institutions, and countries, in the period 2000-2009, taking only the three main international tourism journals (*Annals of Tourism Research, Tourism Management,* and *Journal of Travel Research*) and hospitality (*Journal of Hospitality & Tourism Research*, *International Journal of Hospitality Management,* and *Cornell Hospitality Quarterly*).

Also based on productivity metrics, Jogaratnam, Chon, McCleary, Mena and Yoo (2005) evaluate the authors and the most productive institutions in the field of tourism, taking the period 1992-2001 and the journals *Annals of Tourism Research*, *Journal of Travel Research*, and *Tourism Management*. McKercher (2008) uses Google Scholar and the Publish or Perish software, to identify the most influential researchers in the tourism field (biased towards English-language publications).

2.1 Productivity metrics

Productivity metrics have been widely applied for the evaluation and classification of authors, institutions, and countries, e.g. Jogaratnam et al. (2005), Zhao and Ritchie (2007), Park et al. (2011) and Ye, Li and Law (2013). Basically, there are two metrics used, namely:

a) full counting: the element in question receives a point for the authorship of an article, irrespective of the number of authors for that paper;

b) fractional counting: the article's score is divided by the number of authors for that paper.

Productivity metrics are important for measuring the performance of the element in question, given that the higher the production, ceteris paribus, the higher the ability of an author to communicate the results of his or her research. In addition, when working with journal articles, the quality of research is already recognized, given that the work has undergone an evaluation process (blind peer review, in most cases).

Both Zhao and Ritchie (2007) and Park et al. (2011) advocate for the use of fractional counting, to the detriment of full counting, since it provides a more accurate view of the production of the element in question. Park et al. (2011) even estimate the weighted fractional count, whereby the amount of points received by each institution is divided by the number of existing researchers in its staff.

However, Zhao and Ritchie (2007) put a "but" to the fractional counting method; it is not possible to know the contribution of each co-author to the work in question. Thus, dividing the point (credit) into equal parts may not reflect the actual contribution of co-authors to the article.

2.2 Centrality metrics

Racherla and Hu (2010) point out that central researchers, in co-authorship networks, obtain greater benefits from the same study compared to more peripheral researchers and/or that are, in general, less connected in that network. Ye, Li and Law (2013) use centrality metrics to authors in the tourism field in ranking exercises.

Centrality metrics measure the importance of an element in the network; i.e., how central it is. In co-authorship networks, centrality metrics highlight the elements with the most visibility and their role as nodal points in the network. Three centrality metrics stand out:

a) degree centrality: the metric indicates the number of links (for example, co-authorship) with other elements of the network;

b) betweenness centrality: the metric indicates, for a given element, the extent to which it lies on the shortest paths between other elements in the network;

c) PageRank centrality: the metric is used to calculate the importance of an element of the network, considering not only the number of its neighbors, but also the importance of each one of them. The idea behind this metric is that important elements tend to relate to others that are also important (Bonacich, 1987; Langville & Meyer, 2009).

In bibliometrics and analysis of co-authorship networks, degree centrality indicates the number of co-authors that a researcher, institution, or country has. Betweenness centrality, on the other hand, indicates the author's importance

as “bridges” (indirect connections) between the different authors in the network. Finally, PageRank centrality identifies the importance of a given author, considering the number and importance of his co-authors.

In this paper, closeness centrality was not used. This measure determines the average length between a given element and all others in the network, however, it is not applied in disconnected networks – in which there are no paths between all pairs of elements – as it is the case of the networks studied here.

2.3 Impact metrics

In short, as Ye, Li and Law (2013, p. 54) summarize: “Citation counts is the most popular method of research assessment, as it is natural to assume that influential scientists are cited more often than others.”

Citation counts is one of the most used methods for assessing the quality of research, taking as object authors, institutions, or countries; impact measures are also widely used to evaluate and rank journals. It is assumed that there is a positive correlation between research quality and the number of citations a paper receives (Strandberg et al., 2018; McKercher, 2008).

When using impact metrics, it is considered that a cited article was used in another study, in order to improve it, complement it, or provide a counterpoint. All citations are also considered to be the same, without distinction; the score assigned is the same, regardless of where it appears within the article, or how it is used.

The main impact metric is the full counting of citations received by a given scientific paper; unlike what happens in production metrics, the use of fractional counting of citations is not common.

3 METHOD

In all steps of the study, data collection from primary sources and revision of the data already collected were done manually (verification and disambiguation of names).

All papers published in the 16 selected journals, from 1990 to 2018, were collected. Each file was manually downloaded, in PDF format. Production and centrality metrics were calculated for authors, institutions, and location countries, data collected from each article.

Manual disambiguation of authors’ names, institutions, and countries was particularly important to avoid duplication, especially in the case of the authors. Often, there are significant changes in the way that the same author has his or her name published; for women, there are many cases in which surnames are added or deleted, as could be seen by consulting the researchers' Lattes résumés. In total, more than 200 name adjustments were made.

Using the title, we searched for the article in Google Scholar, with the entry in the link “Cited by ___,” which brings up the list of all works that cite the article in question. In some cases, it was necessary to add other information to find the paper in Google Scholar, such as the name of an author or the journal’s title.

Citation search in Google Scholar has been advocated by several authors active in the field of tourism, such as Jamal, Smith and Watson (2008), McKercher (2008), Hall (2011), and Strandberg et al. (2018), also because most of the journals in Google Scholar are not part of impact indexes (Law & Veen, 2008; Hall, 2011; Koseoglu et al., 2016). Another advantage of Google Scholar is that the tool makes available all citations received by the text in question, and not just those made by journal articles.

Within the list of citations received for a given article, each of the texts was entered manually, preferably in the original document, to verify whether the citation mentioned by Google Scholar was actually made. For each citation, the following screening was followed:

a) it is a self-citation – there is at least one author in common between the work cited and the one who cites it;

b) it is an error – there is no document in Google Scholar, or, if it exists, it does not cite the article in question;

c) it is a redundancy – the same document appears more than once in the citation list.

This allowed us to count, for each article, nominal citations and actual citations received; the latter is the same as the nominal citations minus self-citations and errors and redundancies. The manual process has made possible to overcome a limitation often mentioned in the literature on citation studies, namely: the problem of not being able to screen out self-citations, in the case of automated collection processes (Jamal, Smith, & Watson, 2008; Strandberg et al., 2018).

Each citation was classified according to the type of production, namely: a) journal article (tourism field); b) journal article (others); c) book; d) book chapter; e) monograph (master's/doctorate); f) communication (full article published in proceedings of a technical-scientific event); and g) others. The category "others" includes everything else; in practice, most of the entries in “others” consists of final undergraduate or graduate projects.

This classification according to the type of production allowed the calculation of three impact metrics, instead of just the total citations received.

The collection of citations was made throughout 2017, 2018, and the first quarter of 2019, within a broader work of data collection. In order to prevent the difference in time from affecting citation collection, a concentrated effort was made to review the data of all journals, during the second half of April 2019, when data collection ended.

The following metrics were used for authors, institutions, and countries, by period (1990-1999, 1990-2009, and 1990-2018):

a) full counting of articles (number of articles published);

b) fractional counting of articles;

c) degree centrality;

d) betweenness centrality;

e) PageRank centrality;

f) actual citations: equal to the total nominal citations minus self-citations, errors, and redundancies;

g) actual citations minus others: set of actual citations, except for those classified as “others”;

h) journal citations: only actual citations received from articles published in journals.

Centrality metrics were calculated using the igraph library version 0.8.0 of Python programming language. All other measures were calculated using tools developed by the authors, in Perl and Java programming languages. All data were organized in text files.

For ranking authors, institutions, and countries the following methodology was used: (1) the ranking of positions was made for each of the metrics used, from the highest to the lowest result; (2) for each set of metrics, the median value of the positions in those metrics was removed, and the ranking was made for the set, from the highest to the lowest median value; (3) finally, the consolidated list was made with all the authors, institutions, or countries that appear, at least, in one of the three lists in the first centile (1%) of the productivity, centrality, and impact metrics. For ordering the consolidated list, the median of the medians of the three sets of metrics was used.

For constructing the rankings of individual metrics and of the three groups, the total set of the element in question (author, institution, or country) was considered. For the consolidated list, the elements included in the first centile (1%) of at least one set of metrics were considered.

The h-index was calculated only for the period 1990-2018, for authors, institutions, and countries. The index was calculated based on full counting of the total actual citations (impact). The results were compared with the consolidated lists for the mentioned period.

4 RESULTS: PRESENTATION AND DISCUSSION

Data collection shows that, for the 16 selected Brazilian tourism journals, there are 3,887 articles published in the period 1990-2018. 13,573 nominal citations were collected, of which, after removing self-citations and errors and redundancies, 10,882 were treated as actual citations (80.17% of the total). For these 3,887 articles, the average number of citations is 2.8 per article, while the median is equal to 1. Of the total, 1,638 articles (42.14% of the total) did not receive any actual citations.

The set of 3,887 articles has 4,915 authors, 1,012 institutions, and 46 single countries.

Table 1 summarizes these data for the three periods under analysis, for authors, institutions, and countries, providing an overview of the tourism field in Brazil:

Table 1 – Basic data of the tourism field in Brazil (journals), periods 1990-1999, 1990-2009 and 1990-2018

	PERIOD		
	1990-1999	1990-2009	1990-2018
Articles (number)	181	957	3,887
Unique authors	165	1,166	4,915
Unique institutions	67	347	1,012
Countries (unique)	8	21	46
Total nominal citations	1,111	6,633	13,573
Self-citations and errors and redundancies	148	1,017	2,691
Total actual citations	963	5,616	10,882
Average number of actual citations per article	5.32	5.87	2.80
Median number of actual citations per article	2	3	1
Percentage of articles without citation	27.62%	19.85%	42.14%

Source: The authors (2020).

4.1 Authors

Table 2 shows the consolidated list of authors who, in the period 1990-2018, are listed in the first centile (1%) of one or more rankings resulting from the different set of metrics (productivity, centrality, and impact). Due to the limited space, only the position occupied by the authors for each set is listed, using the median value of the metrics used, without showing the values or even the position for each single measure.

The last five columns show the sets in which the author appears in the first centile (1%). Of these, the first three show whether he or she is in the first centile of the set (1 – yes; 0 – no) – productivity (Tag1), impact (Tag2), and centrality (Tag3) – while the fourth column shows his or her total. Finally, the last column shows the medians (result) of productivity, impact, and centrality sets, as presented in Table 2:

Table 2 – Consolidated list of authors from the tourism field in Brazil, 1990-2018 (continue)

#	Author	Productivity	Impact	Centrality	Tag1	Tag2	Tag3	Sum	Median of medians
1	Jose Manoel Goncalves Gandara	1	2	1	1	1	1	3	1
2	Mirian Rejowski	4	3	8	1	1	1	3	4
3	Rivanda Meira Teixeira	3	5	20	1	1	1	3	5
4	Carlos Alberto Cioce Sampaio	4	9	7	1	1	1	3	7
5	Edegar Luis Tomazzoni	4	33	8	1	1	1	3	8
6	Andre Riani Costa Perinotto	8,5	42	2	1	1	1	3	8,5
7	Doris Van de Meene Ruschmann	9	7	22	1	1	1	3	9
8	Maximiliano Emanuel Korstanje	4,5	11	543	1	1	0	2	11
9	Glauber Eduardo de Oliveira Santos	8,5	24	13	1	1	1	3	13
10	Francisco Antonio dos Anjos	14	48	5	1	1	1	3	14
10	Milton Augusto P. Mariani	14	90	5	1	0	1	2	14
12	Luzia Neide Menezes T. Coriolano	14,5	12	24	1	1	1	3	14,5
12	Paulo dos Santos Pires	14,5	8	20	1	1	1	3	14,5
14	Miguel Bahl	15	255	19	1	0	1	2	19
14	Marlusa de Sevilha Gosling	19	47	6	1	1	1	3	19
16	Susana de Araujo Gastal	19,5	113	20	1	0	1	2	20
17	Mario Carlos Beni	21,5	1	3.094	1	1	0	2	21,5
18	Josildete Pereira de Oliveira	23,5	58	17	1	0	1	2	23,5
19	Suzana Maria de Conto	27,5	99	14	1	0	1	2	27,5
20	Raquel Maria Fontes do A. Pereira	24	90	30	1	0	1	2	30
20	Valmir Emil Hoffmann	35,5	17	30	1	1	1	3	30
20	Luiz Octavio de Lima Camargo	47,5	24	30	1	1	1	3	30
20	Marta de Azevedo Irving	54,5	14	30	0	1	1	2	30
24	Maria de Lourdes de A. Barbosa	33	67	19	1	0	1	2	33
25	Maria Henriqueta S. G. G. Minasse	17,5	35	39	1	1	1	3	35
26	Helena Araujo Costa	36	21	53	1	1	1	3	36
27	Luiz Carlos da Silva Flores	28	120	37	1	0	1	2	37
28	Fabricia Durieux Zucco	38	154	15	1	0	1	2	38
29	Wilker Ricardo de M. Nobrega	39,5	252	10	1	0	1	2	39,5
30	Sergio Luiz do Amaral Moretti	43	154	32	1	0	1	2	43
31	Elizabete Sayuri Kushano	43,5	69	39	1	0	1	2	43,5
32	Kerlei Eniele Sonaglio	33,5	108	44	1	0	1	2	44
33	Francisco Fransualdo de Azevedo	45,5	53	26	1	0	1	2	45,5
34	Tiago Savi Mondo	46	117	20	1	0	1	2	46

Table 2 – Consolidated list of authors from the tourism field in Brazil, 1990-2018 (conclusion)

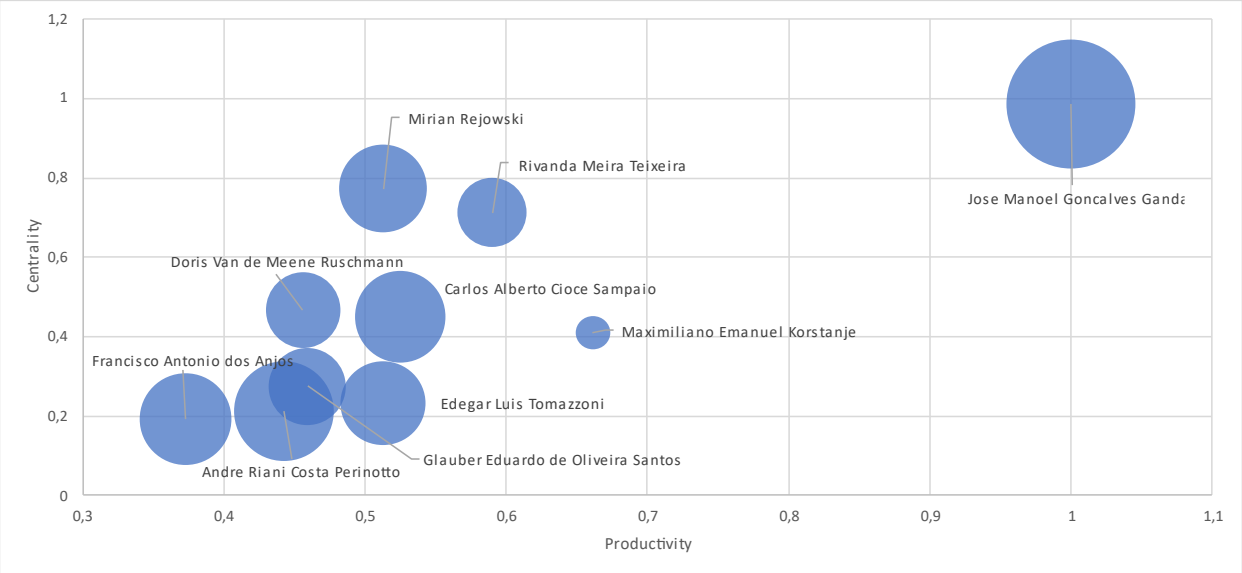
#	Author	Productivity	Impact	Centrality	Tag1	Tag2	Tag3	Sum	Median of medians			
35	Alexandre Panosso Netto			107,5		19	49	0	1	1	2	49
36	Airton Jose Cavenaghi			49,5		370	44	1	0	1	2	49,5
37	Marcio Marreiro das Chagas			50,5		11	135	1	1	0	2	50,5
38	Margarita Barretto			51,5		6	207	0	1	0	1	51,5
39	Pedro de Alcantara B. Cesar			13,5		113	53	1	0	1	2	53
39	Zysman Neiman			121		47	53	0	1	1	2	53
41	Karoliny Diniz Carvalho			15		54	305	1	0	0	1	54
42	Janaina de Moura E. Giraldi			55		67	44	0	0	1	1	55
43	Luiz Augusto M. Mendes Filho			56		142	25	0	0	1	1	56
44	Sara Joana G. dos Anjos			61		75	45	0	0	1	1	61
45	Rodrigo de Sousa Melo			61,5		10	63	0	1	0	1	61,5
46	Ivan Rego Aragao			22		200	63	1	0	0	1	63
46	Saulo Ribeiro dos Santos			22,5		501	63	1	0	0	1	63
46	Senia Regina Bastos			35,5		364	63	1	0	0	1	63
49	Elizabeth Kyoko Wada			69		489	53	0	0	1	1	69
49	Silvio Luiz Goncalves Vianna			69		99	53	0	0	1	1	69
51	Maria Noemi Marujo			70,5		20	651	0	1	0	1	70,5
52	Heros Augusto Santos Lobo			26		71	240	1	0	0	1	71
53	Eurico de Oliveira Santos			72		722	34	0	0	1	1	72
53	Christianne Luce Gomes			72		635	44	0	0	1	1	72
55	Julio da Costa Mendes			73,5		81	24	0	0	1	1	73,5
56	Marcelino de Souza			49,5		169	76	1	0	0	1	76
57	Yolanda Flores e Silva			78,5		189	24	0	0	1	1	78,5
58	Jose Antonio Fraiz Brea			84		26	87	0	1	0	1	84
58	Magnus Luiz Emmendoerfer			84		370	43	0	0	1	1	84
60	Olga Tulik			85		16	1.403	0	1	0	1	85
60	Rosana Mara Mazaro			85		49	3.094	0	1	0	1	85
62	Rocio Del Carmen S. Barquin			87		189	9	0	0	1	1	87
63	Marcelino Castillo Nechar			87,5		29	240	0	1	0	1	87,5
64	Thiago Duarte Pimentel			32		469	89	1	0	0	1	89
65	Franciele Cristina Manosso			91		24	129	0	1	0	1	91
66	Pablo Flores Limberger			95		173	24	0	0	1	1	95
67	Rafael Angelo Fortunato			38,5		97	114	1	0	0	1	97
68	Marialva Tomio			100,5		34	282	0	1	0	1	100,5
69	Carlos Eduardo Silveira			40		170	110	1	0	0	1	110
70	Thays Cristina Domareski Ruiz			45		163	112	1	0	0	1	112
71	Vander Valduga			115,5		120	30	0	0	1	1	115,5
72	Ivan Bursztyn			273,5		14	134	0	1	0	1	134
73	Jose Elmar Feger			144,5		455	51	0	0	1	1	144,5
74	Hernanda Tonini			155,5		26	1002	0	1	0	1	155,5
75	Francisco Orgaz Aguera			49,5		252	160	1	0	0	1	160
76	Carlos Marcelo Ardigo			165		1759	53	0	0	1	1	165
77	Marlei Salete Mecca			179		489	44	0	0	1	1	179
78	Jose Ramon Cardona			24		186	240	1	0	0	1	186
79	Angelo Mariano N. Campos			206,5		46	948	0	1	0	1	206,5
80	Davis Gruber Sansolo			265		22	350	0	1	0	1	265
81	Ewerton Reubens Coelho Costa			40		272	1.002	1	0	0	1	272
82	Patricia Monteiro Gorni			275		49	350	0	1	0	1	275
83	Paulo Carvalho			277		40	543	0	1	0	1	277
84	Altair Sancho			334		23	350	0	1	0	1	334
85	Bianca Freire Medeiros			383		42	775	0	1	0	1	383
86	Cassio Avelino S. Pereira			476		45	4.410	0	1	0	1	476
87	Claudio Magalhaes Batista			552		39	3.094	0	1	0	1	552
88	Alfredo Ascanio			34,5		592	4.410	1	0	0	1	592
89	Nathallye Galvao de S. Dantas			679,5		33	3.094	0	1	0	1	679,5
90	Ana Gueimonde Canto			2.708,5		29	914	0	1	0	1	914
91	Isabel Dieguez Castrillon			2.708,5		29	1.002	0	1	0	1	1002
91	Lidia Blanco Cerradelo			2.708,5		29	1.002	0	1	0	1	1002
91	Ana Sinde Cantorna			2.708,5		29	1.002	0	1	0	1	1002
91	Gustavo de M. Melo			2.708,5		37	1.002	0	1	0	1	1002
95	Bertha K. Becker			1.012,5		4	4.410	0	1	0	1	1.012,5
95	Hassan Zaoual			1.012,5		17	4.410	0	1	0	1	1.012,5
97	Rita de Cassia A. da Cruz			1.512,5		42	3.094	0	1	0	1	1.512,5

Source: The authors (2020).

Through a bubble chart, it is possible to visualize, more clearly, the performance of the leading authors in the field of tourism in Brazil in each of the three sets of metrics. In the figure, productivity, centrality, and impact values were

normalized – from zero (lowest value among authors) to one (highest value). Figure 1 shows the first ten authors in Table 2 (median of medians criterion), in which the horizontal axis measures productivity, the vertical axis shows centrality, and the size of the circles represents impact:

Figure 1 – Productivity, centrality, and impact of leading authors, with normalized values, 1990-2018



Source: The authors (2020).

Figure 1 gives a clearer view of what Table 2 already shows. Growing circles on the main diagonal indicates that productivity, centrality, and impact go together. That is, the most productive authors also tend to be more central, and with more impact. José Manoel Gonçalves Gândara stands out with high values in all the three sets of metrics.

In the three time periods, there are 103 single authors who appear in the first centile of at least one set of metrics. However, in 1990-2018, there are only 97 authors, as shown in Table 2. The results of this table and the data set for the periods 1990-1999 and 1990-2009 allow for some particularly interesting analyses; the following stand out:

Most authors appearing in the first centile of at least one set of metrics continue to appear in the consolidated list of subsequent periods. Of the five authors on the consolidated list for the period 1990-1999, four (80% of the total) appear on the consolidated lists in 1990-2009 and 1990-2018. In the 1990-2009 list, of the 21 authors who did not appear in 1990-1999, 16 (76.19% of the total) appear in the consolidated list for the subsequent period (1990-2018).

Part of this can be explained by the fact that this article uses cumulative periods of time; in this sense, researchers like Mario Carlos Beni and Mirian Rejowski have a head start over other authors in the calculation of metrics, given that their work published in the 1990s enters into the calculation of the 1990-2018 period.

However, since most articles were published in the 2010s, it is not considered that the point addressed in the preceding paragraph is the most important to explain the continuity of authors in the consolidated lists. There are two factors that can explain this permanence, namely:

a) the author has published over the nearly three decades under analysis; the emblematic case is Mirian Rejowski, who appears in the consolidated lists of the three periods. The mentioned scholar went from four articles published in 1990-1999 to 25 (1990-2018); in the latter period, she ranks fourth in productivity, third in impact, and eighth in centrality;

b) the author continues to be cited over the years, even if they have decreased or stopped publishing; the case of Olga Tulik is emblematic, since five of her six articles were published in the period 1990-1999. Already retired, she continues to appear in the period 1990-2018, solely and exclusively due to the set of impact metrics, in which she occupies the sixteenth position.

Another interesting observation is that, over the years, the authors that are in the consolidated list tend to be more present in the lists of more than one set of metrics (first centile), even though the majority is only in a single group, in the consolidated lists for all periods. In 1990-1999, only Mario Carlos Beni is simultaneously in more than one list (in this case, productivity, and impact); 80% of the researchers are in only one group. Of the 25 researchers in

the consolidated list for the period 1990-2009, three (12% of the total) appear in all groups, five (20%) in only two lists, and the remainder (17 – 68% of the total) appear in only one group.

In the period 1990-2018, of the 97 researchers, 16 (16.49% of the total) are in the three groups, 23 (23.71%) in two groups, and 58 (59.79%) are in only one group. It is noteworthy that, among the 16 researchers who appear simultaneously in the three groups, there are three of the four scholars who are on the consolidated lists of all periods – Mirian Rejowski, Doris Van de Meene Ruschmann, and Mario Carlos Beni.

Finally, it is interesting to see who the leading researchers are according to the criteria of this study, in the field of tourism in Brazil. To that end we identified, for this analysis, a subset of authors that met at least one of two criteria. First, they had to be part of the consolidated lists for all three periods. Second, for the period 1990-2018, they had to appear simultaneously in the first centile of all three sets of metrics.

The mentioned subset consists of the following authors: i) Mario Carlos Beni; ii) Doris Van de Meene Ruschmann; iii) Olga Tulik. iv) Mirian Rejowski; v) Jose Manoel Gonçalves Gândara; vi) Rivanda Meira Teixeira; vii) Edegar Luis Tomazzoni; viii) Carlos Alberto Cioce Sampaio; ix) Glauber Eduardo de Oliveira Santos; x) André Riani Costa Perinotto; xi) Francisco Antonio dos Anjos; xii) Luzia Neide Menezes Teixeira Coriolano; xiii) Paulo dos Santos Pires; xiv) Maria Henriqueta Sperandio Garcia Gimenes Minasse; xv) Marlusa de Sevilha Gosling; xvi) Valmir Emil Hoffmann; xvii) Helena Araújo Costa; and xviii) Luiz Octávio de Lima Camargo.

For the analysis, José Manoel Gonçalves Gândara – who died on March 18, 2019 –, was kept, as he was an important part of the tourism field in Brazil. Olga Tulik was withdrawn, because her Lattes Résumé was last updated on August 2, 2005. In any case, it is noteworthy that the contribution of the said researcher to the field of knowledge is not undervalued.

The only institutions that stand out in terms of academic training are the University of São Paulo (USP), where six of the 17 researchers received their doctorates[1], and the Federal University of Santa Catarina (UFSC), with two. In addition, with an author each, we found five foreign institutions and five national ones.

In relation to the field of study, the most common is the doctorate in Communication Studies, with five researchers; of these, four were from the School of Communications and Arts, University of São Paulo (ECA-USP), in the tourism research line. José Manoel Gonçalves Gândara received his doctorate in Tourism and Sustainable Development. Other present areas are Administration (4), Production Engineering (2), Geography (2), History, Sustainable Development, Educational Sciences, and Economic and Legal Sciences, with one researcher each.

Regarding ongoing supervisions, only three professors have none, while nine are supervising students in tourism and five in another area. Of the latter, Mirian Rejowski and Maria Henriqueta Sperandio Garcia Gimenes Minasse are accredited in the Graduate Program in Hospitality at Anhembi Morumbi University (UAM), which belongs to a field of study related to tourism.

Except for André Riani Costa Perinotto (Federal University of Piauí, UFPI) and Luzia Neide Menezes Teixeira Coriolano (State University of Ceará, UECE), all authors work in the South and Southeast regions of the country; no author comes from a foreign institution. USP, UAM, and UNIVALI each has three researchers, followed by the Federal University of Paraná (UFPR), and the University of Brasília (UnB), each with two. Positivo University (UP) and Federal University of Minas Gerais (UFMG) appear at the bottom of the list, with one researcher each.

Of the total number of articles, within the subset, there is a great variation in the number of articles published in the 16 Brazilian tourism journals, for each author. This is related to the fact of whether their articles address or not tourism[2] – judging by the title and journal of publication.

Surprisingly, for six researchers only a minority of their articles addressed tourism topics. They have a relatively low percentage of articles published in the 16 journals – Rivanda Meira Teixeira (22.31%), Carlos Alberto Cioce Sampaio (21.21%), Maria Henriqueta Sperandio Garcia Gimenes Minasse (31.11 %), Marlusa de Sevilha Gosling (12.05%), Valmir Emil Hoffmann (16.88%), and Luiz Octávio de Lima Camargo (20.37%).

In general, researchers with most or even all of their journal articles dealing with tourism have higher percentages,

[1] Glauber Eduardo de Oliveira Santos holds a doctorate from USP (Administration) and from the University of the Balearic Islands (UIB), in Spain (Economic and Legal Sciences), being the only one in the subset with two doctoral degrees.

[2] For each researcher, Lattes résumé was consulted, more specifically the part that contains the full articles published in journals. Each article was classified as tourism or other judging by its title and, eventually, the abstract and keywords. This made possible to divide the subset into authors who have most or all their journal articles addressing tourism, and researchers who have a minority of them about tourism.

namely: a) José Manoel Gonçalves Gândara (44.88%); b) Edegar Luis Tomazzoni (43.10%); c) Mirian Rejowski (39.68%); d) Glauber Eduardo de Oliveira Santos (56.41%); e) André Riani Costa Perinotto (27.59%); f) Doris Van de Meene Ruschmann (60%); g) Francisco Antonio dos Anjos (37.7%); h) Luzia Neide Menezes Teixeira Coriolano (27.94%); i) Paulo dos Santos Pires (50%); j) Mario Carlos Beni (21.82%); and k) Helena Araújo Costa (36.11%).

We calculated how much of the actual citations of articles published in the 16 tourism journals correspond to the total citations received by authors, using their pages on Google Scholar. Above 15%, we have only André Riani Costa Perinotto (23.96%) and Edegar Luis Tomazzoni (15.45%). With the lowest percentages there are Luiz Octávio de Lima Camargo (3.22%), one of the great names in the leisure field in Brazil, and Mario Carlos Beni (4.52%); for example, Beni (1998) has 3,304 citations, according to his profile in Google Scholar, which correspond to 64.61% of this author[3].

Finally, of the 18 researchers (including Olga Tulik), eight are women and ten are men. And two authors supervised others who are also part of the subset: Mirian Rejowski, who supervised the doctorate of Edegar Luis Tomazzoni, and Mario Carlos Beni who supervised Doris Van de Meene Ruschmann (doctorate).

It is useful to compare the results of this research with the findings of Santos, Panosso Netto and Wang (2017), even though they only include articles published in four journals (*Turismo em Análise*, *Revista Turismo – Visão e Ação*, *Caderno Virtual de Turismo*, and *Revista Brasileira de Pesquisa em Turismo*), in the period 1990-2014.

Table 2, by Santos, Panosso Netto and Wang (2017), lists the 19 authors with the highest production (full count), of which 12 are part of our subset of 18 researchers. Olga Tulik, André Riani Costa Perinotto, Luzia Neide Menezes Teixeira Coriolano, Maria Henriqueta Sperandio Garcia Gimenes Minasse, Marlusa de Sevilha Gosling, and Luiz Octávio de Lima Camargo do not appear in this table, whereas seven authors in it do not belong to the subset.

In Table 2, Santos, Panosso Netto and Wang (2017) present the most cited authors in the articles included in their study sample. Of the 33 listed, only five belong to the subset (Mario Carlos Beni, Doris Van de Meene Ruschmann, Mirian Rejowski, Rivanda Meira Teixeira, and Luzia Neide Menezes Teixeira Coriolano). This is explained not only by the different sets of articles and metrics used, but mainly by the preponderance of books over journal articles, in the production of the most cited authors, except for Rivanda Meira Teixeira.

4.2 Institutions

Table 3 shows the consolidated list of institutions that, in the period 1990-2018, are in the first centile (1%) of one or more rankings of the sets of metrics (productivity, centrality, and impact). Table 3 uses the same type of data and is organized similarly to Table 2, but for the institutions.

Table 3 – Consolidated list of institutions in the field of tourism in Brazil, 1990-2018

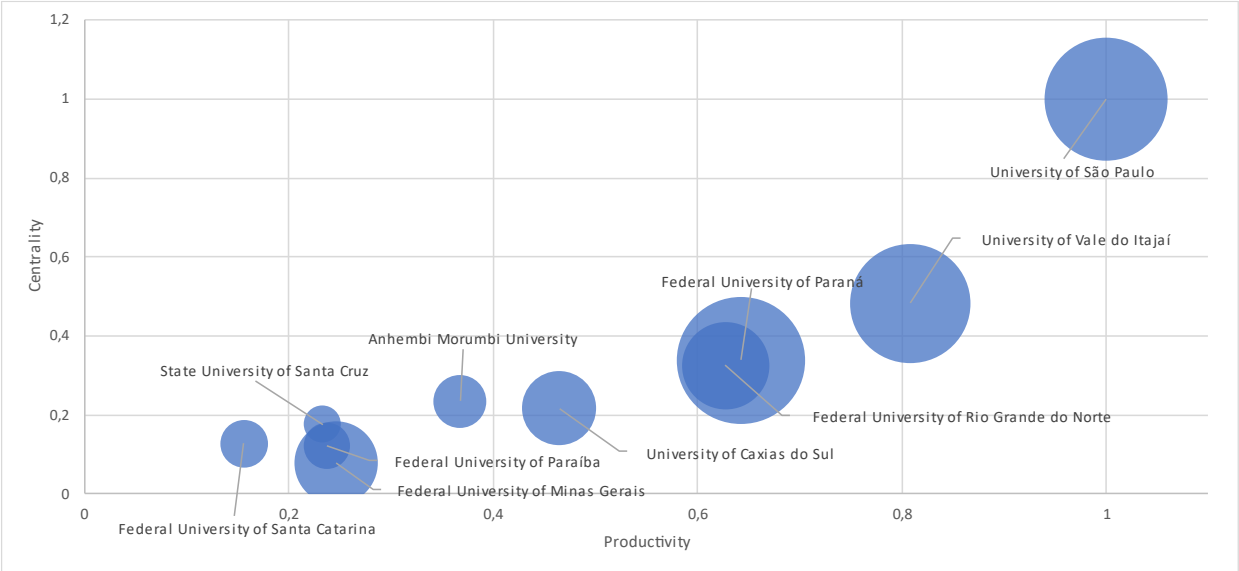
#	Institution	Productivity	Impact	Centrality	Tag1	Tag2	Tag3	Sum	Median of medians
1	University of São Paulo	1	1	2	1	1	1	3	1
2	University of Vale do Itajaí	2	2	3	1	1	1	3	2
3	Federal University of Paraná	3.5	3	1	1	1	1	3	3
4	Federal University of Rio Grande do Norte	3.5	4	4	1	1	1	3	4
5	University of Caxias do Sul	5	7	6	1	1	1	3	6
5	Anhembi Morumbi University	6	5	11	1	1	1	3	6
7	State University of Santa Cruz	8	8	16	1	1	1	3	8
7	Federal University of Minas Gerais	8	14	5	1	1	1	3	8
9	Federal University of Paraíba	8	10	13	1	1	1	3	10
10	Federal University of Santa Catarina	10.5	9	14	1	1	1	3	10.5
11	University of Brasília	10.5	12	18	1	1	1	3	12
11	Federal University of Pernambuco	12	13	7	1	1	1	3	12
13	Regional University Foundation of Blumenau	21	14	9	1	1	1	3	14
14	Federal University of Sergipe	15	11	24	1	1	1	3	15
15	Getulio Vargas Foundation	23.5	17	10	1	1	1	3	17
16	Federal University of Rio de Janeiro	20	6	33	1	1	1	3	20
17	Federal Rural University of Rio de Janeiro	24.5	32	8	1	1	1	3	24.5
18	Federal University of Mato Grosso do Sul	30.5	43	11	1	1	1	3	30.5

Source: The authors (2020).

[3] Doris Van de Meene Ruschmann, Luzia Neide Menezes Teixeira Coriolano, Marlusa de Sevilha Gosling and Helena Araújo Costa do not have a Google Scholar profile, or the profiles could not be found. The profiles of the researchers were consulted on April 5, 2020.

Using the bubble chart, the same way it was done for authors, the performance of the main institutions in the field of tourism in Brazil can be seen more clearly in each of the three sets of metrics. Figure 2 shows the same data organization as Figure 1 and normalized values, covering the ten main institutions in Table 3:

Figure 2 – Productivity, centrality, and impact of the leading institutions, with normalized values, 1990-2018



Source: The authors (2020).

In Figure 2, it is noticeable that University of São Paulo and University of Vale do Itajaí stand out from the others, in the three sets of metrics. Federal University of Paraná has a size (impact) similar to that of those institutions, but it is highly dependent on a single author, José Manoel Gonçalves Gândara, as it will be seen below.

In the three time periods, there are 18 single institutions that appear in the first centile of at least one set of metrics. The same way to what occurs with the authors, the observation of Table 3 and the data set for the periods 1990-1999 and 1990-2009 allow for several interesting analyses; the following stands out.

First, all the institutions that appear in the consolidated lists of 1990-1999 and/or 1990-2009 are included in the 1990-2018 period; as it was mentioned regarding the authors, part of this is due to work with cumulative periods of time, which does not fully explain the phenomenon.

In the period 1990-2018, it stands out that many institutions that do not appear in previous periods are in the first positions of the consolidated list, such as Federal University of Rio Grande do Norte (UFRN), University of Caxias do Sul (UCS), and UAM. In these three cases, the institutions have graduate programs in tourism or in related fields; the first two publish one of the 16 Brazilian tourism journals.

UFSC, Federal University of Rio de Janeiro (UFRJ), and Federal Rural University of Rio de Janeiro (UFRRJ) appear in the second half of the 1990-2018 consolidated list, despite appearing in the previous periods. These universities do not have graduate programs in tourism, nor do they publish scientific journals in the field, except for UFRJ, which publishes *Caderno Virtual de Turismo*.

Contrary to what happens in the case of authors, the institutions that appear in the consolidated lists of the three periods are always in the first centile of the three sets of metrics. The exception is UFSC, for 1990-1999, which does not appear in the productivity group. UFSC appears only in the consolidated lists for the 1990-1999 and 1990-2018 periods, not being part of the 1990-2009 period.

In the last decades, the institutions in the lists are from all regions of the country, apart from the North. If, in 1990-1999, only universities in Santa Catarina (2) and São Paulo (1) appeared, in the period 1990-2018 there are five institutions in the Northeast, two in the Central-West, six in the Southeast and five in the South region. The federal states with more institutions are Santa Catarina and Rio de Janeiro; however, FGV is headquartered in the former federal capital, but also maintains units in São Paulo and the Federal District.

Finally, considering the set of 18 institutions from the 1990-2018 consolidated list, two points should be noted. The first is the offer of undergraduate and graduate programs in tourism at these institutions. Those universities in the

first six positions have both undergraduate and graduate programs in the field of tourism, as well as UFMG, and the Federal University of Pernambuco (UFPE).

State University of Santa Cruz (UESC), UFSC, UFRJ, and FGV do not offer an undergraduate or a graduate program in tourism; the remaining in the list only offers an undergraduate degree in tourism[4].

It is easy to notice that the highest positions are held by institutions with undergraduate and graduate programs in tourism or related field of study. In addition to having a teaching staff specialized in tourism, leisure and/or hospitality, the existence of graduate programs requires that accredited teachers have a certain minimum production of articles, as well as a continuous flow of research on tourism, in form of master's theses and, eventually, doctoral dissertations. This helps to explain, mainly, the high production of articles (full counting and fractional counting) of these institutions.

Among the 18 institutions, USP, UNIVALI, and UFPR occupy the first three positions in all individual metrics for the period 1990-2018; the exception is UFRN which occupies the third position in fractional counting. It is noteworthy that, while USP and UNIVALI have their production spread over many authors, UFPR depends heavily on a single author, José Manoel Gonçalves Gândara – 56 of the 186 articles published by the institution (30.65% of the total) are authored by him. At USP, Edegar Luís Tomazzoni is the most productive author (full counting) – 18 of 251 articles (7.17%). UNIVALI's most productive author is Francisco Antonio dos Anjos, with 21 of 219 articles (9.59%).

For comparison, the second institution that most relies on a single author, in full counting, is UFMG, with Marlusa de Sevilha Gosling authoring 20 of the institution's 92 articles (21.74% of the total)[5].

Finally, of the 18 institutions, 11 are public federal universities, two are state universities, and one is a municipal university; 14 of the 18 (77.78% of the total) are public higher education institutions. UNIVALI and UCS are community institutions, FGV is a private law foundation, and UAM is the only private institution in the group. This shows, for the field of tourism in Brazil, the importance and primacy of public higher education institutions in research and publication.

4.3 Countries

Table 4 shows the same organization and the same type of data presented in tables 2 and 3, but for countries:

Table 4 – Consolidated list of countries in the field of tourism in Brazil, 1990-2018

#	Country	Productivity	Impact	Centrality	Tag1	Tag2	Tag3	Sum	Median of medians
1	Brazil	1	1	1	1	1	1	3	1
2	Spain	2.5	2	2	1	1	1	3	2

Source: The authors (2020).

Contrary to what happens with authors and institutions, the data in Table 4 do not allow very elaborate analyses about the countries because Brazil has a very dominant position in the country's own tourism field. For example, in the period 1990-2018, it was responsible for the publication of 3,147 articles, compared to only 156 from Spain, which ranks second (full counting) – 20.17 times more.

Two points stand out. First, until the 1990-2009 period, Venezuela was the foreign country with the most published articles, both in full and fractional counting. This is due to the large number of articles signed by professors from the University of Zulia and the University Simón Bolívar, mainly in the journal *Turismo em Análise*.

In the period 1990-2018, Spain ranks second in the sets of metrics of productivity, centrality, and impact, always second only to Brazil. The two Spanish institutions with the highest production are University of Girona (UdG), with 20 (full counting – 12.82% of Spain's total) and 16 articles (fractional counting – 12.82%), and University of Las Palmas de Gran Canaria (ULPGC), with 20 (full counting – 12.82%) and 14.5 articles (fractional counting – 11.62%). Together with University of Vigo (UVIGO), University of Córdoba (UCO), and University of the Balearic Islands (UIB), they account for 82 of the 156 articles from Spain – 52.56% of the total (full counting).

[4] Graduate programs at UFMG (Leisure Studies) and UAM (Hospitality) are not exactly tourism, but from related fields of study. It should also be noted that UESC and UnB already had graduate programs. Finally, the Regional University Foundation of Blumenau (FURB) has an undergraduate distance learning program in tourism.

[5] It should be noted that the number of articles of each researcher per institution may be different from their total, given that many authors have their production divided by two or more institutions.

Second, despite the difference in the number of articles published (1990-2018), Spain has many co-authorships not with Brazil, more specifically with Cape Verde, Colombia, Pakistan, Dominican Republic, and Venezuela.

4.4 Comparison between the consolidated lists and the rankings of the h-index (authors and institutions)

The h-index was calculated for authors and institutions in the period 1990-2018. In the case of countries, this was not done, given the large concentration of production in authors linked to Brazilian institutions.

Table 5 and Table 6 show the 97 authors and the 18 institutions, respectively, that appear in the consolidated lists of tables 2 and 3, with their h-index (value) and their positions (consolidated list [#] and h-index). For comparison purposes, both authors and institutions are classified using the median of medians criterion, as well as in Table 2 and Table 3, in the first column on the left (#), which allows their comparison with the classification using the h-index, in the last column on the right:

Table 5 – Authors' h-Index from the consolidated list, 1990-2018 (continue)

#	Author(a)	Index H	Position index H
1	Jose Manoel Goncalves Gandara	9	1
2	Mirian Rejowski	9	1
3	Rivanda Meira Teixeira	7	3
4	Carlos Alberto Cioce Sampaio	6	4
5	Edegar Luis Tomazzoni	5	12
6	Andre Riani Costa Perinotto	4	19
7	Doris Van de Meene Ruschmann	5	12
8	Maximiliano Emanuel Korstanje	6	4
9	Glauber Eduardo de Oliveira Santos	5	12
10	Francisco Antonio dos Anjos	3	45
10	Milton Augusto P. Mariani	3	45
12	Luzia Neide Menezes T. Coriolano	6	4
12	Paulo dos Santos Pires	5	12
14	Marlusa de Sevilha Gosling	3	45
14	Miguel Bahl	3	45
16	Susana de Araujo Gastal	3	45
17	Mario Carlos Beni	6	4
18	Josildete Pereira de Oliveira	4	19
19	Suzana Maria de Conto	4	19
20	Luiz Octavio de Lima Camargo	3	45
20	Marta de Azevedo Irving	4	19
20	Raquel Maria Fontes do A. Pereira	3	45
20	Valmir Emil Hoffmann	5	12
24	Maria de Lourdes de A. Barbosa	3	45
25	Maria Henriqueta S. G. G. Minasse	4	19
26	Helena Araujo Costa	6	4
27	Luiz Carlos da Silva Flores	3	45
28	Fabricia Durieux Zucco	3	45
29	Wilker Ricardo de M. Nobrega	3	45
30	Sergio Luiz do Amaral Moretti	3	45
31	Elizabete Sayuri Kushano	4	19
32	Kerlei Eniele Sonaglio	3	45
33	Francisco Fransualdo de Azevedo	3	45
34	Tiago Savi Mondo	3	45
35	Alexandre Panosso Netto	4	19
36	Airton Jose Cavenaghi	2	133
37	Marcio Marreiro das Chagas	6	4
38	Margarita Barretto	6	4
39	Pedro de Alcantara B. Cesar	3	45
39	Zysman Neiman	4	19
41	Karoliny Diniz Carvalho	4	19
42	Janaina de Moura E. Giraldi	4	19
43	Luiz Augusto M. Mendes Filho	3	45
44	Sara Joana G. dos Anjos	3	45
45	Rodrigo de Sousa Melo	4	19
46	Ivan Rego Aragao	2	133
46	Saulo Ribeiro dos Santos	1	521
46	Senia Regina Bastos	2	133
49	Elizabeth Kyoko Wada	2	133
49	Silvio Luiz Goncalves Vianna	3	45
51	Maria Noemi Marujo	3	45
52	Heros Augusto Santos Lobo	3	45
53	Christianne Luce Gomes	2	133
53	Eurico de Oliveira Santos	2	133

Table 5 – Authors' h-Index from the consolidated list, 1990-2018 (conclusion)

#	Autor(a)	Índice H	Posição Índice H
55	Julio da Costa Mendes	3	45
56	Marcelino de Souza	3	45
57	Yolanda Flores e Silva	3	45
58	Jose Antonio Fraiz Brea	5	12
58	Magnus Luiz Emmendoerfer	1	521
60	Olga Tulik	5	12
60	Rosana Mara Mazaro	3	45
62	Rocio Del Carmen S. Barquin	2	133
63	Marcelino Castillo Nechar	3	45
64	Thiago Duarte Pimentel	2	133
65	Franciele Cristina Manosso	6	4
66	Pablo Flores Limberger	2	133
67	Rafael Angelo Fortunato	3	45
68	Marialva Tomio	4	19
69	Carlos Eduardo Silveira	2	133
70	Thays Cristina Domareski Ruiz	2	133
71	Vander Valduga	3	45
72	Ivan Bursztyn	4	19
73	Jose Elmar Feger	2	133
74	Hernanda Tonini	4	19
75	Francisco Orgaz Aguera	2	133
76	Carlos Marcelo Ardigo	1	521
77	Marlei Salete Mecca	2	133
78	Jose Ramon Cardona	2	133
79	Angelo Mariano N. Campos	3	45
80	Davis Gruber Sansolo	4	19
81	Ewerton Reubens Coelho Costa	3	45
82	Patricia Monteiro Gorni	4	19
83	Paulo Carvalho	3	45
84	Altair Sancho	2	133
85	Bianca Freire Medeiros	3	45
86	Cassio Avelino S. Pereira	2	133
87	Claudio Magalhaes Batista	1	521
88	Alfredo Ascanio	2	133
89	Nathallye Galvao de S. Dantas	2	133
90	Ana Gueimonde Canto	1	521
91	Ana Sinde Cantorna	1	521
91	Gustavo de M. Melo	1	521
91	Isabel Dieguez Castrillon	1	521
91	Lidia Blanco Cerradelo	1	521
95	Bertha K. Becker	1	521
95	Hassan Zaoual	1	521
97	Rita de Cassia A. da Cruz	1	521

Source: The authors (2020).

There are 31 authors on the consolidated list that are not among the top 97, in an h-index based ranking. There are several authors with very low h-index (1 or 2) scores. The author with the highest position in the consolidated list, and who is not among the 97 first in the h-index, is Airton José Cavenaghi. On the other hand, there are 10 researchers tied for the 19th position in this last ranking, with an h-index equal to 4, which are not part of the consolidated list.

Table 6 – Institutions' h-index from the consolidated list, 1990-2018

#	Author	H-index	H-index position
1	University of São Paulo	17	1
2	University of Vale do Itajaí	13	2
3	Federal University of Paraná	11	3
4	Federal University of Rio Grande do Norte	11	3
5	University of Caxias do Sul	8	7
5	Anhembi Morumbi University	9	5
7	State University of Santa Cruz	9	5
7	Federal University of Minas Gerais	7	9
9	Federal University of Paraíba	6	16
10	Federal University of Santa Catarina	7	9
11	University of Brasília	7	9
11	Federal University of Pernambuco	7	9
13	Regional University Foundation of Blumenau	7	9
14	Federal University of Sergipe	7	9
15	Getulio Vargas Foundation	6	16
16	Federal University of Rio de Janeiro	8	7
17	Federal Rural University of Rio de Janeiro	5	21
18	Federal University of Mato Grosso do Sul	5	21

Source: Authors (2020).

Regarding institutions, 14 on the consolidated list are among the top 18 h-index based ranking. The institution with the highest position on the consolidated list, but which is not among the h-index top 18, is Federal University of Paraíba (UFPB). State University of Rio de Janeiro (UERJ) is the one with the highest h-index (equal to 7) among those that do not belong to the consolidated list.

5 FINAL REMARKS

Productivity, centrality, and impact metrics were calculated upon which rankings of authors, institutions, and countries were based. The field of tourism in Brazil was taken as the object of study, understood as the set of articles published in Brazilian academic journals, from 1990 to 2018. Data collection was done manually, as well as the revision, and disambiguation of names.

This is an innovative work in the literature, due to the following: a) the set of tourism journals in a country was studied, instead of a small number of journals; b) the rankings were not based on a reduced number of metrics – the main sets were considered (productivity, centrality, and impact); and c) manual collection allowed for high data reliability.

It is also noteworthy that, for the subset of 18 authors, the majority is affiliated with institutions in the South and Southeast regions of the country, with no author identified in the North or in the Central-West regions of Brazil.

Contrary to what was expected, there are authors who have a small number of articles published in the 16 Brazilian tourism journals. A typical example is Luiz Octávio de Lima Camargo. He is one of the leading scholars in the leisure field in Brazil and had his doctorate supervised by Joffre Dumazedier, however, only 20.37% of his articles published in the mentioned journals, and only 3.22% of citations received by him refer to these articles. Even so, he is in the 20th position on the consolidated list.

Data from the Lattes résumés allow us to characterize the group of 97 authors regarding, for example, academic training (undergraduate, master's, and doctorate – institutions and fields of study), professional performance, and supervision track record (scientific initiation, master's, and doctorate). It is a promising avenue for future research, to describe the group of most important researchers in the field of tourism in Brazil, according to the criteria of this article.

For institutions, it is clear the importance of offering a graduate program in tourism or in a related field (leisure or hospitality). In the coming years, it will be interesting to see the performance of institutions that do not have this type of program, and whether they will be able to remain on the consolidated list. At the same time, it is necessary to monitor the performance of institutions that, outside the current consolidated list (1990-2018), have a graduate program in tourism, such as Federal Institute of Education, Science and Technology of Sergipe (IFS), State University of Ceará (UECE), and Fluminense Federal University (UFF).

The predominance of public higher education institutions is clearly perceived in the group of 18 authors – academic training (doctorate) and professional activity – and in the consolidated list of institutions (1990-2018). This reinforces the notion that research, in Brazil, still relies heavily on public institutions, even though there has been, in the last decades, a strong growth in the number of private higher education institutions. Tourism field is no exception to the rule.

The study showed that the tourism field in Brazil still has relatively few articles by foreign authors. In addition, the co-authorship network is not very dense; as seen, there are several countries connected to Spain, but not to Brazil.

The present work has two main limitations. First, the rankings were based, solely and exclusively, on articles published in the 16 journals in the field of tourism in Brazil. This excludes publications in the form of books, chapters, proceedings of technical-scientific events, and journals in other areas. Second, production in international tourism journals was not considered. Thus, when consulting and using the rankings constructed and presented in this article, it should be noted that they include only part of the scientific production in the field of tourism in Brazil.

For future research, this article is a good starting point for the characterization of the leading authors and institutions in the field of tourism in Brazil, listed in tables 2 and 3. With the help of Lattes Platform and institutional websites, it is possible to characterize the leading authors and institutions, with regard, for example, to their academic training and supervision activities (authors), and regional distribution and offer of undergraduate and graduate programs in tourism (institutions).

Brazil is linked to only 26 countries, of which 21 have less than five articles. However, it should be noted that some journals produce editions entirely with articles in English or French; *Revista Brasileira de Pesquisa em Turismo* [*Brazilian Journal of Tourism Research*] publishes all articles with an English version. This clearly suggests the intention to go international.

REFERENCES

Benckendorff, P. (2009). Themes and trends in Australian and New Zealand tourism research: A social network analysis of citations in two leading journals (1994–2007). *Journal of Hospitality and Tourism Management*, 16(1), p. 1–15. https://doi.org/10.1375/jhtm.16.1.1

Benckendorff, P., & Zehrer, A. (2013). A network analysis of tourism research. *Annals of Tourism Research*, 43, p. 121–149. https://doi.org/10.1016/j.annals.2013.04.005

Beni, M. C. (1998). *Análise estrutural do turismo*. São Paulo: Senac.

Bollen, J., Sompel, H., Hagberg, A., & Chute R. (2009). A principal component analysis of 39 scientific impact measures. *PLoS ONE*, 4(6): e6022. https://doi.org/10.1371/journal.pone.0006022

Bonacich, P. (1987). Power and centrality: a family of measures. *American Journal of Sociology*, 92(5), p. 1.170-1.182. https://doi.org/10.1086/228631

Hall, C. M. (2011). Publish and perish? Bibliometric analysis, journal ranking and the assessment of research quality in tourism. *Tourism Management*, 32(1), p. 16–27. https://doi.org/10.1016/j.tourman.2010.07.001

Hirsch, J. E. (2005). An index to quantify an individual's scientific research output. *PNAS*, 102(46), p. 16.569–16.572. https://doi.org/10.1073/pnas.0507655102

Jamal, T., Smith, B., & Watson, E. (2008). Ranking, rating and scoring of tourism journals: interdisciplinary challenges and innovations. *Tourism Management*, 29(1), p. 66–78. https://doi.org/10.1016/j.tourman.2007.04.001

Jogaratnam, G., Chon, K., McCleary, K., Mena, M., & Yoo, J. (2005). An analysis of institutional contributors to three major academic tourism journals: 1992-2001. *Tourism Management*, 26(5), p. 641-648. https://doi.org/10.1016/j.tourman.2004.04.002

Kirilenko, A. P., & Stepchenkova, S. (2018). Tourism research from its inception to present day: subject area, geography, and gender distributions. *PLoS ONE*, 13(11): e0206820. https://doi.org/10.1371/journal.pone.0206820

Koc, E., & Boz, H. (2014). Triangulation in tourism research: a bibliometric study of top three tourism journals. *Tourism Management Perspectives*, 12, p. 9–14. https://doi.org/10.1016/j.tmp.2014.06.003

Koseoglu, M. A., Rahimi, R., Okumus, F., & Liu, J. (2016). Bibliometrics studies in tourism. *Annals of Tourism Research*, 61, p. 180–198. https://doi.org/10.1016/j.annals.2016.10.006

Langville, A. N., & Meyer, C. D. (2009). *Google's PageRank and beyond*: the science of search engine rankings. Princeton: Princeton University Press.

Law, R., & Veen, R. (2008). The popularity of prestigious hospitality journals: a Google Scholar approach. *International Journal of Contemporary Hospitality Management*, 20(2), p. 113-125. https://doi.org/10.1108/09596110810852113

Leta, J., & Lewison, G. (2003). The contribution of women in Brazilian science: a case study in astronomy, immunology and oceanography. *Scientometrics*, 57(3), p. 339-353. https://doi.org/10.1023/A:1025000600840

McCarty, C., Jawitz, J. W., Hopkins, A., & Goldman, A. (2013). Predicting author h-index using characteristics of the co-author network. *Scientometrics*, 96, p. 467-483. https://doi.org/10.1007/s11192-012-0933-0

McKercher, B. (2005). A case for ranking tourism journals. *Tourism Management*, 26(5), p. 649–651. https://doi.org/10.1016/j.tourman.2004.04.003

McKercher, B. (2008). A citation analysis of tourism scholars. *Tourism Management*, 29(6), p. 1.226–1.232. https://doi.org/10.1016/j.tourman.2008.03.003

Page, S. J. (2005). Academic ranking exercises: Do they achieve anything meaningful? – A personal view. *Tourism Management*, 26(5), p. 663–666. https://doi.org/10.1016/j.tourman.2004.05.007

Park, K., Phillips, W. J., Canter, D. D., & Abbott, J. (2011). Hospitality and tourism research rankings by author, university, and country using six major journals: the first decade of the new millennium. *Journal of Hospitality & Tourism Research*, 35(3), p. 381-416. https://doi.org/10.1177/1096348011400743

Racherla, P., & Hu, C. (2010). A social network perspective of tourism research collaborations. *Annals of Tourism Research*, 37(4), p. 1.012–1.034. https://doi.org/10.1016/j.annals.2010.03.008

Santos, G. E. O., Panosso Netto, A., & Wang, X. (2017). Análise de citações de periódicos científicos de turismo no Brasil: subsídios para a estimação de indicadores de impacto. *Revista Brasileira de Pesquisa em Turismo*, 11(1), p. 61-88. https://doi.org/10.7784/rbtur.v11i1.1105

Santos, G. E. O., & Rejowski, M. (2013). Comunicação científica em turismo no Brasil: análises descritivas de periódicos nacionais entre 1990 e 2012. *Revista Brasileira de Pesquisa em Turismo*, 7(1), p. 149-167. https://doi.org/10.7784/rbtur.v7i1.578

Strandberg, C., Nath, A., Hemmatdar, H., & Jahwash, M. (2018). Tourism research in the new millennium: a bibliometric review of literature in Tourism and Hospitality Research. *Tourism and Hospitality Research*, 18(3), p. 269–285. https://doi.org/10.1177/1467358416642010

Tribe, J. (1997). The indiscipline of tourism. *Annals of Tourism Research*, 24(3), p. 638–657. https://doi.org/10.1016/S0160-7383(97)00020-0

Tribe, J. (2000). Indisciplined and unsubstantiated. *Annals of Tourism Research*, 27(3), p. 809–813. https://doi.org/10.1016/S0160-7383(99)00122-X

Tribe, J. (2010). Tribes, territories and networks in the tourism academy. *Annals of Tourism Research*, 37(1), p. 7–33. https://doi.org/10.1016/j.annals.2009.05.001

Zhao, W., & Ritchie, J. R. B. (2007). An investigation of academic leadership in tourism research: 1985–2004. *Tourism Management*, 28(2), p. 476–490. https://doi.org/10.1016/j.tourman.2006.03.007

Ye, Q., Li, T., & Law, R. (2013). A coauthorship network analysis of tourism and hospitality research collaboration. *Journal of Hospitality & Tourism Research*, 37(1), p. 51-76. https://doi.org/10.1177/1096348011425500

Weiner, G. (2001). The academic journal: has it a future? *Education Policy Analysis Archives*, 9(9), p. 1-19. https://doi.org/10.14507/epaa.v9n9.2001

Author' s informations

André Fontan Köhler
He has a degree in Business Administration from the Sao Paulo School of Business Administration of Getulio Vargas Foundation (FGV-EAESP) (1999), and a master's degree in Public Administration and Government from FGV-EAESP (2006). He holds a PhD in Architecture and Urbanism from the Faculty of Architecture and Urbanism of University of Sao Paulo (FAU-USP) (2011). He is an assistant professor in the Undergraduate Program in Leisure and Tourism and in the Graduate Program in Cultural Studies and Graduate Program in Public Policies at the School of Arts, Science and Humanities, University of Sao Paulo (EACH-USP).
Contribution: Research design, Literature review, Data collection, Data analysis, Discussion.
E-mail: afontan@usp.br
ORCID: http://orcid.org/0000-0002-8291-1654

Luciano Antonio Digiampietri
He has a degree in Computer Science from the State University of Campinas (UNICAMP). He holds a PhD in Computer Science from UNICAMP. He is an associate professor in the Undergraduate Program in Information Systems and in the Graduate Program in Information Systems at the School of Arts, Science and Humanities, University of Sao Paulo (EACH-USP).
Contribution: Research design, Literature review, Data collection, Data analysis, Discussion.
E-mail: digiampietri@usp.br
ORCID: http://orcid.org/0000-0003-4890-1548