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Triangulation in tourism research: A bibliometric study of top three tourism journals

Erdogan Koc [a,*], Hakan Boz [b,1]

[a] Balikesir University, Bandirma Faculty of Economics and Administrative Sciences, Department of Business Administration, Bandirma Kampusu, Bandirma, Balikesir, Turkey
[b] Usak University, School of Applied Sciences, 1 Eylul Kampusu, Usak, Turkey

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ABSTRACT

This bibliometric study explores the extent of the use of triangulation as a research method/strategy in research papers published in top three tourism journals (namely Annals of Tourism Research, Tourism Management and Journal of Travel Research) over a period of ten years between 2003 and 2012. The findings reveal that in large proportion of the research papers (70.3%) published in the top three journals the authors have not resorted to triangulation and used only one method of data collection. The findings have implications not only for industry practitioners and academics (both as authors and referees) but also for a wide variety of other stakeholders such as journal editors, publishers, research funding bodies and public policy makers.

1. Introduction and the research rationale

In general it is assumed that academic journals could reflect the development of academic efforts in three levels: meta-level (*academic field*), meso-level (*journal*, *institution*), and micro-level (*individual*) (Hall, 2005). Perhaps more importantly, academic journals can also be considered as a showcase of a particular field or industry (van Doren, Koh, & McCahill, 1994). The quantity and the quality of research studies in a field, or an industry, are believed to provide a real impetus for the growth and further development of that field or industry as these studies not only improve strategic and operational efficiency and effectiveness, but also provide opportunities for innovation (Cheng, Li, Petrick, & O'Leary, 2011; Koc, 2013; Koc & Boz, 2014; van Doren et al., 1994; Yang, Wang, & Su, 2006). Apart from playing a significant role in academic scholarship (Xiao & Smith, 2006) journals can empower innovation in a given field (Kogut, 2001).

Weiner (2001) argues that academic journals serve three main functions: i) to produce, disseminate, and exchange academic knowledge, ii) to provide a means to evaluate research and scholarly work for the planning and allocation of research funds, and iii) to inform decisions and strategies in practice. This means that the performance of academic journals in a particular field could reflect the development of not only an academic community (Graburn & Jafari, 1991) but also an industry or a sector. One of the most important challenges researchers often face is the determination of the appropriate research methodology and the methods of data collection and analysis as the determination and the design of the methodology and the data collection methods directly influence the validity and generalizability of a study (Crouch & Housden, 2003; McGrath & Brinberg, 1983; Tillyer, Engel, & Cherkauskas, 2010; Zhu & Brilakis, 2009). From a practical perspective, the validity and generalizability are two of the most essential elements of a research study to ensure its instrumentality for real life applications (Yang et al., 2006).

The credibility and validity of research can be increased by the use of different sources of information or through different methods of data collection, called triangulation (Babbie, 1983; Bogdan & Biklen, 2006; Cheng, 2005; Phillips, 1985; Smith, 1975). Triangulation can be described as the combination of multiple methods (two or more) in the study of the same phenomenon (Webb, Campbell, Schwartz, & Sechrest, 1966). As no single method is always superior (Yin, 2003) and each single method may have its own special strengths and weaknesses (Denzin, 1970a), over the years the use some form of triangulation in almost all social research has become an accepted practice (Babbie, 1983; Phillips, 1985; Smith, 1975). The triangulation strategy, the third methodological movement (an intellectual and practical synthesis) has been given many names including *blended research* (Thomas, 2003), *integrative research* (Johnson & Onwuegbuzie, 2004), *multimethod research* (Hunter & Brewer, 2003; Morse, 2003), *multiple methods* (Poteete, Janssen, & Ostrom, 2010; Reich, Ariel, Darkes, & Goldman, 2012), *triangulated studies* (Sandelowski, 2003), *ethnographic*

* Corresponding author. Tel.: +90 266 7380945x422.
E-mail addresses: erdogankoc@balikesir.edu.tr, erdogankoc@yahoo.com (E. Koc), hakan.boz@usak.edu.tr (H. Boz).
[1] Tel: +90 276 2212121x2282.

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residual analysis (Fry, Chantavanich, & Chantavanich, 1981), and *mixed research* (Johnson & Christensen, 2004). According to Greene, Caracelli, and Graham (1989) triangulation as a multi-strategy research may be used to achieve for five major objectives:

i) to seek convergence and corroboration of results from different methods and designs for studying the same phenomenon. The convergence may enhance the credibility of research findings. The findings and results obtained through triangulation are more likely to be valid, credible and warranted (Gorard & Taylor, 2004; Greene, Kreider, & Mayer, 2005).
ii) to seek elaboration, enhancement, illustration, and clarification of the results from one method with results from the other method, i.e. for complementarity. The enabling of cross-validation complementarity allows the researcher to gain a fuller understanding of the research problem and/or to clarify a given research result (Hesse-Biber, 2010; Yauch & Steudel, 2003).
iii) to discover paradoxes and contradictions that may lead to a reframing of the research question. When triangulation is used, the paradoxes and contradictions may be more easily spotted allowing a review of research design and objectives (Greene et al., 2005) and sometimes result in the complete restructuring of the whole research process.
iv) to use the findings from one method to help inform the other method, i.e. for development. Triangulation may allow the researcher to see the shortcomings and advantages of methods more clearly for future use (Singh, Milne, & Hull, 2012).
v) to seek to expand the breadth and range of research by using different methods for different inquiry components. The research may be expanded in terms of scope and depth through triangulation (Denzin, 1970b).

The achievement of above objectives may produce a number of specific benefits for a researcher, as the use of triangulation may involve mixed methods (i.e. both qualitative and quantitative methods) as well as two or more methods which are all qualitative alone or quantitative alone (Singh et al., 2012):

- to have opportunities for an exploratory inductive process beginning with empirical evidence and proceeding to a level of abstraction, theorising and generalising. Triangulation may reveal different aspects of empirical reality (Denzin, 1970a).
- to be able to facilitate answering exploratory questions and verifying and generating theory in the study (Rocco, Bliss, Gallagher, & Perez-Prado, 2003).
- to be able to capitalise the advantages and to address the weaknesses of each constituent method used and thus enabling the researcher to have an opportunity to see divergent views of the research problem (Ho, Milne, & Cottrell, 2006).

Based on the above it may be argued that a triangulation strategy, a mixed methods approach, can provide stronger evidence for a better conclusion through convergence and collaboration of findings and add insight and understanding that might be otherwise missed when only a single method is used (Johnson & Onwuegbuzie, 2006). However, caution must be taken as the use of multiple methods would normally generate significantly more amount of data and this, in turn, may cause difficulties in managing and selecting appropriate data in relation to the objectives of the study (Singh et al., 2012).

Table 2
Data collection methods used.

Method	Surveys–questionnaires	Interviews	Secondary research (conceptual papers)	Document analysis – content/meta analysis	Observations	Focus group studies	Tests	Experiment	Total
N	958	778	382	378	62	47	11	1	2235 *

* As in some papers where more than one method is used, the total number of methods is higher than the total number of papers.

Table 3
Total number of papers over the years.

Years	Total number of research papers in top three tourism journals (*N*)	%
2003	147	7.5
2004	145	7.4
2005	169	8.6
2006	208	10.6
2007	216	11.0
2008	187	9.5
2009	158	8.0
2010	183	9.3
2011	253	12.9
2012	298	15.2

Apart from being a multifaceted and complex phenomenon and thus difficult to study comprehensively, tourism is the largest industry in the world, both in terms of the revenues generated and numbers of people employed (Decrop, 1999; Koc, 2005; Riley & Love, 2000). In 2012 the number of international tourists reached 1 billion generating an income over 1 trillion dollars (United Nations World Tourism Organization, 2013). It is estimated that by year 2020 the number of tourists will exceed 1.8 billion and the revenues generated in tourism industry will reach 2 trillion dollars (UNWTO, 2013). Given the level of complexity and the size of the industry, as explained above, the growth of the tourism industry as whole, and the success of industry players at micro-level and governments at macro-level, depend on the conducting of research studies sufficient both in terms of quantity and quality.

The quantity wise, relatively speaking, the number of research studies in the field of tourism do not appear to be sufficient. For instance, the number of tourism journals in the SSCI (Social Science Citation Index) is 21 including journals whose titles include the words tourism, hospitality, leisure and recreation (Social Science Citation Index, 2013). The number of research papers may be looked at as another indicator from the quantity perspective. The overall number of papers published in the SSCI and SCI (Science Citation Index) (Science Citation Index, 2013; SSCI, 2013) over a period of ten years between 2003 and 2012 is 10,355,592. Of these over 10 million papers only 9902 of them (i.e. less than one in ten thousand) appear to be on tourism, on the largest industry in the world. Although the number of tourism papers indexed in the SSCI increased from 401 in 2003 to

Table 1
Data collection methods used.

	Total number of research papers *N*	%	Number of research papers in 2003	Number of research papers in 2012
Tourism Management	988	50.31	59	152
Annals of Tourism Research	521	26.53	46	84
Journal of Travel Research	455	23.17	42	62
Total	1964	100	–	–

Table 4
Overall use of triangulation.

	Frequency *N*	%	Cumulative %
One method only	1381	70.32	70.32
Two methods	535	27.24	97.66
Three or more methods	48	2.44	100
Total	1964	100.0	100.0

1741 in 2012, more than threefold increase, it may still be stated that, this increase does not represent the magnitude of tourism industry as the largest industry in the world. These figures may be interpreted as there is a need for new tourism journals to be further outlets for additional research papers.

Based on this lack of quantity of the research studies in tourism and the benefits of triangulation from a quality perspective, this study explores the other facet of the matter, i.e. the quality aspect of tourism, and investigates the extent of the use of triangulation in tourism research by analysing top three tourism journals over a period of ten years between 2003 and 2012.

2. Research method

In order explore the extent of the use of triangulation this bibliometric study analyses research papers, including conceptual papers, discussion papers and papers with secondary research (desk research), but excluding case studies, letters to editors, books reviews, etc. published in the top three tourism journals, namely Annals of Tourism Research, Tourism Management and Journal of Travel Research, in terms of the frequency and the type and number of data collection methods employed. A total number of 1964 papers have been identified meeting the criteria stated above (i.e. including conceptual papers but excluding case studies, letters to editors, books reviews) and looked at one by one and analysed in the study across the top three journals over the decade, between 2003 and 2012. The method(s) and methodology sections of all 1964 papers in the above three journals have been carefully perused, especially the data collection sections under the method(s) and methodology sections. In instances where there were no headings such as data collection, the whole method(s) and methodology sections have been carefully read and scanned for words such as "interview", "questionnaire", "time series", "conceptual discussion", "triangulation", "mixed methods", "data mining", "data collection", and "survey". All results have been entered on a spreadsheet.

The journals of Annals of Tourism Research, Tourism Management and Journal of Travel Research have been chosen for analysis as they have been repeatedly designated as the top three tourism journals by many scholars over the past ten years or so (Benckendorff & Zehrer, 2013; Chang & McAleer, 2012; Cheng et al., 2011; Harzing, 2011; Jamal, Smith, & Watson, 2008; Kim, Savage, Howey, & Van Hoof, 2009; Koc, 2008; Koc, 2009; McKercher, Law, & Lam, 2006; Pechlaner, Zehrer, Matzler, & Abfalter, 2004; Racherla & Hu, 2010; Ryan, 2005; Sheldon, 1990; Tribe & Xiao, 2011; Zehrer, 2007; Zhao & Ritchie, 2007). These three journals are considered to be the most prominent and highly cited journals in the field of tourism and they have received the highest ranking possible across different rating systems. Moreover as they publish outstanding, original and rigorous research they are believed to shape the field of tourism, as the above references suggest.

3. Findings and analysis

The analysis shows that there is a steady growth of papers, with or without triangulation, published in the three tourism journals throughout the period. Over the years the total number of research papers in top three journals rose from an annual number of 147 and 145 in 2003 and 2004 to 253 and 298 in 2011 and 2012 respectively (see Table 1).

Table 5
The breakdown of the methods used in three journals.

Data collection methods	Journal			Total
	Tourism Management	Annals of Tourism Research	Journal of Travel Research	
Surveys/questionnaires	299	81	145	525
Surveys/questionnaires + interviews	196	87	84	367
Interviews	101	136	60	297
Conceptual papers	149	41	85	275
Content analysis	114	94	36	244
Content analyses + secondary data collection	42	24	14	80
Interviews + content analyses	8	10	3	21
Interviews and focus groups	11	3	2	16

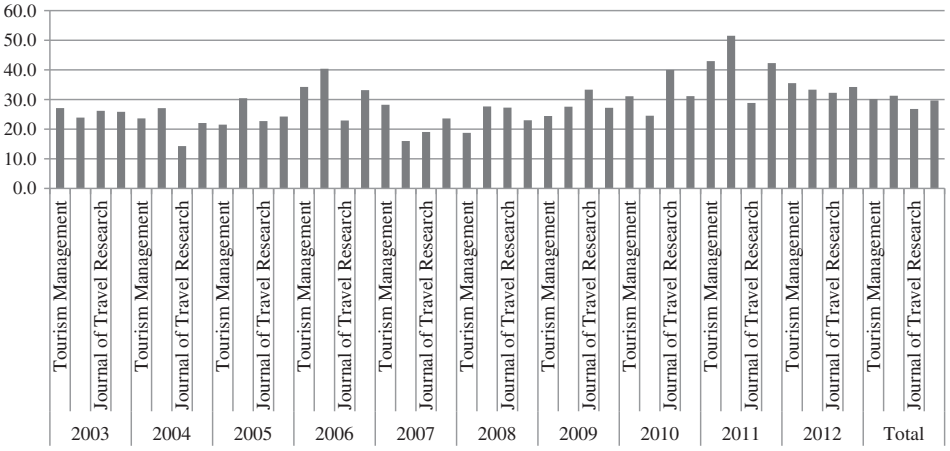

Fig. 1. The breakdown of data collection methods in top three tourism journals.

Table 6
The breakdown of data collection methods in the top three tourism journals between 2003 and 2012.

		Distribution of Methods						Total	Total	Triangulation (use of more than one method) %
		One method only (N_1)	One method only (%) (P_1)	Two methods (N_2)	Two methods (%) (P_2)	Three or more methods (N_3)	Three or more methods (%) (P_3)	(N)	(%)	100-P_1
2003	Tourism Management	43	72.88	14	23.73	2	3.39	59	100	27.12
	Annals of Tourism Research	35	76.09	7	15.22	4	8.70	46	100	23.91
	Journal of Travel Research	31	73.81	11	26.19	0	0.00	42	100	26.19
	Total	109	74.15	32	21.77	6	4.08	147	100	25.85
2004	Tourism Management	42	76.36	13	23.64	0	0.00	55	100	23.64
	Annals of Tourism Research	35	72.92	13	27.08	0	0.00	48	100	27.08
	Journal of Travel Research	36	85.71	5	11.90	1	2.38	42	100	14.29
	Total	113	77.93	31	21.38	1	0.69	145	100	22.07
2005	Tourism Management	62	78.48	15	18.99	2	2.53	79	100	21.52
	Annals of Tourism Research	32	69.57	13	28.26	1	2.17	46	100	30.43
	Journal of Travel Research	34	77.27	10	22.73	0	0.00	44	100	22.73
	Total	128	75.74	38	22.49	3	1.78	169	100	24.26
2006	Tourism Management	71	65.74	35	32.41	2	1.85	108	100	34.26
	Annals of Tourism Research	31	59.62	20	38.46	1	1.92	52	100	40.38
	Journal of Travel Research	37	77.08	9	18.75	2	4.17	48	100	22.92
	Total	139	66.83	64	30.77	5	2.40	208	100	33.17
2007	Tourism Management	89	71.77	35	28.23	0	0.00	124	100	28.23
	Annals of Tourism Research	42	84.00	6	12.00	2	4.00	50	100	16.00
	Journal of Travel Research	34	80.95	8	19.05	0	0.00	42	100	19.05
	Total	165	76.39	49	22.69	2	0.93	216	100	23.61
2008	Tourism Management	78	81.25	16	16.67	2	2.08	96	100	18.75
	Annals of Tourism Research	34	72.34	12	25.53	1	2.13	47	100	27.66
	Journal of Travel Research	32	72.73	11	25.00	1	2.27	44	100	27.27
	Total	144	77.01	39	20.86	4	2.14	187	100	22.99
2009	Tourism Management	68	75.56	21	23.33	1	1.11	90	100	24.44
	Annals of Tourism Research	21	72.41	8	27.59	0	0.00	29	100	27.59
	Journal of Travel Research	26	66.67	10	25.64	3	7.69	39	100	33.33
	Total	115	72.78	39	24.68	4	2.53	158	100	27.22
2010	Tourism Management	62	68.89	28	31.11	0	0.00	90	100	31.11
	Annals of Tourism Research	40	75.47	12	22.64	1	1.89	53	100	24.53
	Journal of Travel Research	24	60.00	15	37.50	1	2.50	40	100	40.00
	Total	126	68.85	55	30.05	2	1.09	183	100	31.15
2011	Tourism Management	77	57.04	51	37.78	7	5.19	135	100	42.96
	Annals of Tourism Research	32	48.48	26	39.39	8	12.12	66	100	51.52
	Journal of Travel Research	37	71.15	15	28.85	0	0.00	52	100	28.85
	Total	146	57.71	92	36.36	15	5.93	253	100	42.29
2012	Tourism Management	98	64.47	48	31.58	6	3.95	152	100	35.53
	Annals of Tourism Research	56	66.67	28	33.33	0	0.00	84	100	33.33
	Journal of Travel Research	42	67.74	20	32.26	0	0.00	62	100	32.26
	Total	196	65.77	96	32.21	6	2.01	298	100	34.23
Total	Tourism Management	690	69.84	276	27.94	22	2.23	988	100	30.16
	Annals of Tourism Research	358	68.71	145	27.83	18	3.45	521	100	31.29
	Journal of Travel Research	333	73.19	114	25.05	8	1.76	455	100	26.81
	Total	1381	70.32	535	27.24	48	2.44	1964	100	29.68

An overall analysis 1964 papers (Annals of Tourism Research: 521; Tourism Management: 988 and Journal of Travel Research: 455) shows that over the period of 2003–2012, quantity wise journal of Tourism Management (see Table 1) has published more research papers than the two other journals. Of the total research papers 50.31% were published in Tourism Management, followed by Annals of Tourism

Table 7
Distribution of data collection methods in top three tourism journals between 2003 and 2012.

Periods	Triangulation %
2012, 2011 and 2010	36.24
2009, 2008 and 2007	24.42
2006, 2005 and 2004	27.20

Research and Journal of Travel research with 26.53% and 23.17% respectively. All journals appear to have increased the numbers of papers per year between the years of 2003 and 2012. The number of research papers in Tourism Management increased from 59 in 2003 to 152 in 2012, the number of research papers in Annals of Tourism Research and Journal of Travel Research increased from 46 and 42 in 2003 to 84 and 62 in 2012 respectively. Over the studied period the number of research papers in Tourism Management the increase was almost threefold, in Annals of Tourism Research almost twofold and in Journal of Travel Research the increase was under 50%.

The findings also show that altogether 2235 data collection methods have been used across the total number of 1964 papers. Table 2 shows that surveys with a frequency of 958 have been used more often than any other method of data collection.

Table 3 shows the extent of the overall use of triangulation in the top three journals. The total number of papers in which authors have used triangulation appears to be relatively low in the top three tourism journals studied. In most of the papers (70.32%) in the top three journals authors do not appear to have resorted to triangulation at all. Only in 29.68% of the papers, i.e. less than one third of the papers authors have used two or more methods. The percentage of papers with three or more methods is rather low with a figure of 2.4% only.

Table 4 shows the breakdown of the use of methods (singly or together with another method) in three journals. It is seen that most popular combination of methods, i.e. way of data triangulation, is the combining of surveys with interviews. A total of 367 papers have combined surveys with interviews, about 69% of all papers (535 — see Table 3 above) with two or more methods.

Table 5 and Fig. 1 show the extent of triangulation for each journal over the ten year period studied. An overall trend or pattern over the years does not seem to emerge in terms of the use of triangulation. However, when data are looked at over three-year periods (see Table 6) it is seen that in the last period (i.e. 2012, 2011 and 2010) compared with the two previous periods (i.e. 2009, 2008 and 2007; and 2006, 2005 and 2004) the rate of the use of triangulation strategy appears to be relatively high. It may be stated that if this growth steadily increases in future years, all things being equal, a further rise in the quality of top three tourism journals may be expected.

The findings reveal that (see Table 6 and Fig. 1) over the ten year period studied the percentage of all research papers triangulated in the 2003–2012 period are 31.29% in Annals of Tourism Research, 30.16% in Tourism Management and 26.81% in Journal of Travel Research. The figures appear to be comparable (especially between Annals of Tourism Research and Tourism Management). It must be stated that this study does not aim to compare the three journals individually with one another. The main objective was to analyse the frequency of triangulation overall in top three tourism journals overall. For a comparison of top three journals web sites may be referred to such as Scopus Journal Analyzer, where journals are compared based on a number of criteria grouped under SNIP (*Source Normalized Impact per Paper*), SJR (SCImago — Journal Ranking based on Reputation), Citations, Docs, Percentage Not Cited, and Percent Reviews. For instance, SNIP figures for top three journals for the year 2012 are as follows; Annals of Tourism Research 2.241, Tourism Management: 3.111 and Journal of Travel Research: 2.147 (Table 7).

4. Conclusions

Both the quantity and the quality of research studies have influence on the further growth of the tourism as the world's largest industry. Firstly, quantity wise although the number of tourism research papers in the SSCI increased from 401 in 2003 to 1741 in 2012, tourism research papers represent still a rather relatively low proportion (one in ten thousand) of all papers in the SSCI and the SCI. Journal publishers in the field of tourism may further consider to review their number of issues and the number of papers per issue with a view to increase the number of issues and numbers of papers per issue, without sacrificing the quality. Journal publishers may also look for opportunities to establish new journals while at the same time looking for incentives to attract more authors/papers.

Secondly, the analysis of top three tourism journals in terms of the extent of the use of triangulation of data collection methods reveal that only less than one third of the journal papers have used more than one method of data collection. Although, it may depend on which side of the glass one looks at, it may be argued that there is still room for improvement. It may be stated that this study has implications not only for tourism business practitioners as the final users of research results, and academics (both as an author and as a referee), but also for a wide variety of stakeholders such as journal editors, journal publishers, research funding bodies and public policy makers. For instance, journal editors and publishers may seek ways to encourage authors and referees to place greater use on data triangulation. Likewise funding bodies and public policy makers may encourage and support triangulated research studies. Having stated all above, caution must be taken that using triangulation does not guarantee validity and reliability of the results. In many instances research papers with single data collection methods could be more vigorous than studies which have resorted to triangulation and used a number of data collection methods.

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Dr. Erdogan Koc is a Professor of marketing at Balikesir University, Bandirma Faculty of Economics and Administrative Sciences, Turkey. He is the chair and head of the Department of Business Administration. He has written several journal articles and book chapters published by internationally reputable publishers. He serves on the editorial boards of a number of journals and has acted as an ad hoc referee for more than fifteen respectable journals. His research primarily focuses on the human element (both as consumer and employee) in tourism and hospitality. He provides consultancy and training services for the service sector businesses.

Mr. Hakan Boz is a lecturer at Usak University's School of Applied Sciences. Prior to joining the academia he has held various positions in the tourism and hospitality sector. He has over ten years of experience in tourism and hospitality. His research focuses on gaining a deeper understanding of consumer and employee behaviours in the tourism and hospitality sectors, especially by using equipments such as EEG and fMRI together with Professor Erdogan Koc.