

Analyzing Research Collaborations of Information Technology Publications in Leading Hospitality and Tourism Journals: 1986-2005

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Abstract

In spite of the existence of many of published Information Technology [IT] related articles in tourism and hospitality research journals, the degree to which the collaboration and social interaction of researchers in IT and tourism remains largely unknown. This paper reports on a study that selected six leading research journals in hospitality and tourism, including *Annals of Tourism Research* [ATR], *Journal of Travel Research* [JTR], *Tourism Management* [TM], *International Journal of Hospitality Management* [IJHM], *Cornell Hotel and Restaurant Administration Quarterly* [CQ], and *Journal of Hospitality & Tourism Research* [JHTR], as the source to analyze research collaboration in the context of IT and tourism research. A total of 4,140 full-length research papers have been published in the period of 1986 to 2005. On the basis of research findings, both national and international research has a significant increase of 154% and 175% between the first and second decades for IT related publications in these six journals. Interestingly, co-authored papers frequently have senior academics' involvement, and that over 90% of the papers had three to four authors have at least one author who is a senior academician.

Keywords: hospitality and tourism research, research collaboration, information technology

1 Introduction

At present, IT has become a major component in tourism business. As such, the tourism industry requires new research efforts on how IT can assist business development. To achieve this, researchers not only conduct research individually but also work with others in order to speed up the research process and to maximize research outcomes. In many cases, academic researchers collaborate within the same institute or different institutes in the same country for the sake of easy communications and resources sharing. With the substantial decrease of communication and travel costs, many research findings from international collaborations are published in the last decade. In addition, publications in academic journals show the collaborative efforts of academics from various backgrounds and

positions. Such a phenomenon of single and collaborative efforts also directly applies to IT publications in tourism and hospitality journals. Still, the existing tourism and hospitality literature virtually has no prior studies that made an attempt to examine the issue of collaborations. This study initially analyzes research collaborations on IT related research in the leading tourism and hospitality journals. In addition, this study examines whether there are any relationships of authors' affiliation with North American institutes and the institutes where the chief editors work. This is to investigate the potential linkage with the authors and the world's largest region in research and close proximity with the chief editors. Research findings are expected to shed some insights about the extent to which researchers are working together, and the relationship of these authors' affiliated institutes with the journal and the region.

2 Literature Review

The present tourism industry has been, and will be, enormously affected by advanced technological developments (Bentley, 1996). Technologies have changed the way in which organizations conduct business and compete (Porter, 2001). Although tourism is not an IT oriented industry, Olsen and Connolly (2000) advocated that IT commences and ends with customers in tourism and hospitality, and thus IT use can put knowledge at the core of an organization's competitiveness. Also, as technologies become one of the business components, IT experts cannot purely work on technologies to solve business operations. Instead, they have to integrate IT into their business strategies.

In academia, there are numerous reasons that motivate research collaborations. At first, the establishment of Internet and the substantial fall of travel and communication costs enable researchers communicate and share their expertise easily without any geographic boundaries. (Laudel, 2001; Melin, 2000). Additionally, academic's research performance highly depends on the quality and quantity of their publications. As competitions among universities and researchers become more vigorous, there is an increasing pressure for researchers to publish research outputs in a collaborative way (Wilson, 2001). Lotka (1926) showed that more researchers prefer to collaborate in order to increase their productivity. McKercher (2006) found that the world's most prolific authors like to co-author. Moreover, Collision and Sheldon (1991) have identified that senior academic have spent more time on research so they have more experience in preparing research publications. Similarly, Håkansson and Snehota (1989) identified that academics and senior personnel of commercial organizations understood the strategic importance of developing collaborations. As an example, commercial organizations can save research and development costs with the assistance of academic research results. Besides, senior academics provide supports to junior scholars by approving their applications for funding and even supervising the junior academics' research (Melin, 2000). Moreover, Kodama (1992) stated that technology research should be in 'fusion' with other fields. As a result, researchers needed to collaborate in order to share knowledge and experience among different areas. A study conducted by Wagner-Döbler (2001) found that at the beginning of the twentieth century, co-authorships accounted for less than 10 percent of publications but at the end of the twentieth century, this percentage had gone up to over 50 percent. In Europe, the growing integration of European Union (EU)

encourages researchers in the region to collaborate. (Moed *et al.*, 1991; Marshakova-Shaikevich, 2006).

3 Methodology

On the basis of previous studies on the rating of tourism and hospitality journals (Baloglu & Assante 1999; Bowen & Sparks 1998; Crawford-Welch 1992; Ferreira *et al.* 1994; Jogaratnam *et al.* 2005; Howey *et al.* 1999; O'Connor & Murphy 2004; Pechlaner *et al.* 2004), six leading journals were selected for a content analysis in this study. These journals included ATR, JTR, TM, IJHM, CQ, and JHTR. Only full-length papers were analyzed in this research. Abstracts, book reviews, case studies, conference reports/reviews/proceedings, editors' comments, readers' comments, rejoinders, research notes, and viewpoints were not included.

Specifically, this study analyzed the institutional relationships between authors and editors, identified if the papers had senior researchers, and subsequently to determine if there exists any significant relationship between these factors. More importantly, the study examined the trend of research collaborations on IT-related publications in the selected journals.

In this study, co-authorship was divided into three categories of in-house collaborations, national collaborations, and international collaborations. In-house collaborations refer to the papers in which all authors were from the same university. Publications in single authorship were also grouped in the in-house collaborations. National collaborations refer to the publications in which all authors are from the same country; whereas international collaborations refer to the publications in which the authors were from two or more countries.

When analyzing the relationship between journal editors and authors, all authors' affiliated institutes of each paper were compared with the affiliated institute of the chief editor/s or guest editor/s. Besides, authors were divided into three categories: senior researchers, junior researchers and industrial professionals. In this study, the authors who were full professors, department heads, and associate professors were classified as senior researchers whereas the other academic authors were classified as junior researchers. Authors that were not affiliated with academic institutes were counted as industrial professionals.

4 Findings and Discussions

4.1 Journals Productivity

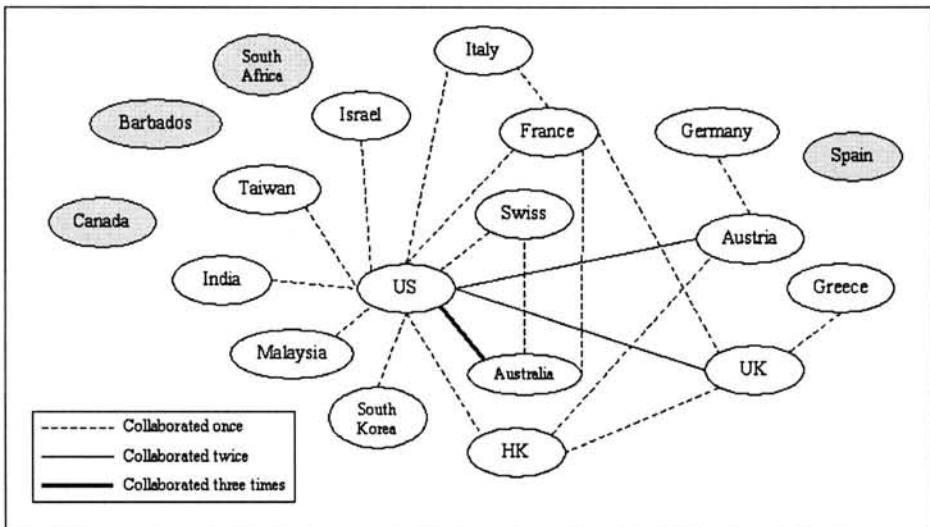
In total, 4,140 full-length research papers were published in the six research journals, and 195 of them were IT-related publications in the period 1986 to 2005 (Table 1). CQ has contributed the most with 66 IT-related papers (33.85%) whereas ATR had only 5 (2.56%) in the past 20 years.

Table 1. IT Full-length paper ratio in each research journal

Journal	Total Research Paper (a)	Total IT paper (b)	(b) / (a)	(b) / (c)
ATR	841	5	0.59%	2.56%
IJHM	425	32	7.53%	16.41%
CQ	903	66	7.31%	33.85%
JHTR	584	35	5.99%	17.95%
JTR	635	24	3.78%	12.31%
TM	752	33	4.39%	16.92%
Total	4,140	195 (c)	4.71%	100.00%

4.2 Research Collaboration

Leung and Law (2006) identified that the number of co-authorship publications has increased significantly in hospitality and tourism IT research. In other words, more researchers chose to work with others to disseminate their research findings. Figure 1 shows the collaboration of different countries.

**Fig.1.** Map of Collaboration

Apparently, the U.S. plays an important role in IT research in hospitality and tourism research as authors from twelve different countries have worked with authors from the U.S. on joint research projects. Within the study period, the U.K. and Austria had two papers that were collaborated with authors from the U.S. Authors from Australia, however, had collaborated with authors from the U.S. for three times. Additionally, there were a large number of collaborations within Europe. Authors from six European countries (Austria and Germany, France and the U.K., France and Italy, and Greece and the U.K.) had co-authored four research papers. Such collaborations are

not unexpected as European countries are geographically close to each, which in turn, enable the easily collaborative efforts. Authors from Asian countries, however, were not active in research collaboration. Within the study period, only authors from six Asian countries had published research papers but none of them were collaborated with authors in the same region. Basically, all Asian authors chose to collaborate with authors in the U.S., and authors from Hong Kong had also collaborated with authors in the U.K. and Austria. A reason for Asian authors not collaborating with each other could be due to the immature nature of IT development. Asian researchers would hence prefer to work with authors from the U.S., the most developed country in technology.

As indicated in Figure 1, authors from four countries, including Barbados, Canada, Spain, and South Africa, had published research papers that had no authors from other countries. Among the nine papers in this group, five had single authorship. In Canada, one research paper was the result of an in-house collaboration and another one was the outcome of national collaboration. Among the publications authored by Spanish researchers, two papers were both for publishing findings of in-house collaborations.

Among the 195 papers analyzed in this study, 137 papers (70.26%) had at least one author who was affiliated with North American institutes. Apparently, North American authors had dominated research publications in the samples. Such dominance was particularly true in JHTR and CQ in which only four papers' authors were not affiliated with North American institutes (11.43% and 6.06% respectively). (Table 2) Chi-square test showed the significant relationship between region and authorship.

Table 2. Geographical distribution of authorships

Journals (n=195)	At least one author was affiliated with an institute in North America	None of the authors was North America	d.f.	X ²	Sig.
ATR	2 (40.00%)	3 (60.0%)	5	51.8928	0.0000*
IJHM	13 (40.63%)	19 (59.38%)			
CQ	62 (93.94%)	4 (6.06%)			
JHTR	31 (88.57%)	4 (11.43%)			
JTR	15 (62.50%)	9 (37.50%)			
TM	14 (42.42%)	19 (57.58%)			

* significant at a 0.05 level

Since North America plays a leading role in IT and tourism research, many researchers would like to work with researchers in the U.S. because of their richness in resources and advanced technologies. With the popularity of the Internet and the significant decrease in transportation costs, it is common for researchers to form international collaboration networks. Researchers can then easily communicate with each other through email, inexpensive international phone calls, and even low cost air-tickets.

4.3 Authors' Seniority

Among 195 published papers, only 127 had stated the job titles of authors. Within these 127 papers, there were 244 contributing authors and 105 of them were senior researchers whereas the others were junior researchers (43.0% and 57%). Among the six selected journals, four of them showed the majority of publications included at least one senior researcher (ATR, CQ, JTR, and TM) and IJHM and JHTR had published more papers solely by junior researchers. (52.94% and 66.67%). (Table 3)

Table 3. Distribution of Authors' Seniority in six research journals

Journals (n=195)	With at least one author was a senior researcher	No senior researcher on the list of authors	d.f.	X ²	Sig.
Annals	2 (50.00%)	2 (50.00%)	5	8.514	0.130
IJHM	8 (47.06%)	9 (52.94%)			
CQ	46 (69.70%)	20 (30.30%)			
JHTR	2 (33.33%)	4 (66.67%)			
JTR	17 (77.27%)	5 (22.73%)			
TM	6 (50.00%)	6 (50.00%)			

Despite the non-existence of significant relationship between the involvement of senior researchers and publications in Table 3, it was found that there was a higher ratio of having senior researchers in co-authored papers than single-authored papers. Based on the included samples, only 21 papers (41.17%) were written by senior academics whereas 30 papers (58.82%) were authored by junior academics or industrial professional. Among the 25 publications with three authors, all of them had at least one author who was senior academic. In total, 34 authors were senior researchers (45.33%) and 41 of them were junior (54.67%) researchers. Among the 12 publications with four authors, only one paper was authored solely by a junior researcher and the remaining 11 papers (91.67%) had at least one senior researcher. (Table 4) Apparently, senior researchers were experienced in academic publications so their research papers can be prepared in a way that better match journal requirements. Besides, mentorship is also a factor that senior researchers collaborated with junior researchers. As a result, junior researchers would like to collaborate with senior researchers for their experience, mentorship and supervision.

Table 4. Relationship between number of authors and authors' seniority

No. of Authors (n=195)	With at least one author who is a senior researcher	No senior researcher on the list of authors	d.f.	X ²	Sig.	Total
1	21 (41.18%)	30 (58.82%)	3	29.601	0.000*	51 (40.15%)
2	24 (61.54%)	15 (38.46%)				39 (30.71%)
3	25 (100.00%)	0 (0.00%)				25 (19.69%)
4	11 (91.67%)	1 (8.33%)				12 (9.45%)

* significant at a 0.05 level

In this study, there were 252 authors and 16 of them (6.35%) were industrial professionals. A large portion of these 16 papers were single authored (11 papers,

68.75%) and four of the remaining papers were co-authored with either senior academics (three papers) or another industrial professional (one paper).

4.4 Analysis of Collaboration

As indicated earlier, collaboration was divided into three categories of in-house collaborations, national collaborations, and international collaborations. Based on the findings, there is an increase of national and international collaborations. Figure 2 shows the 5-year moving average patterns of these three categories. Seemingly, there was a large decrease of in-house collaborations but the numbers of national and international collaborations have increased.

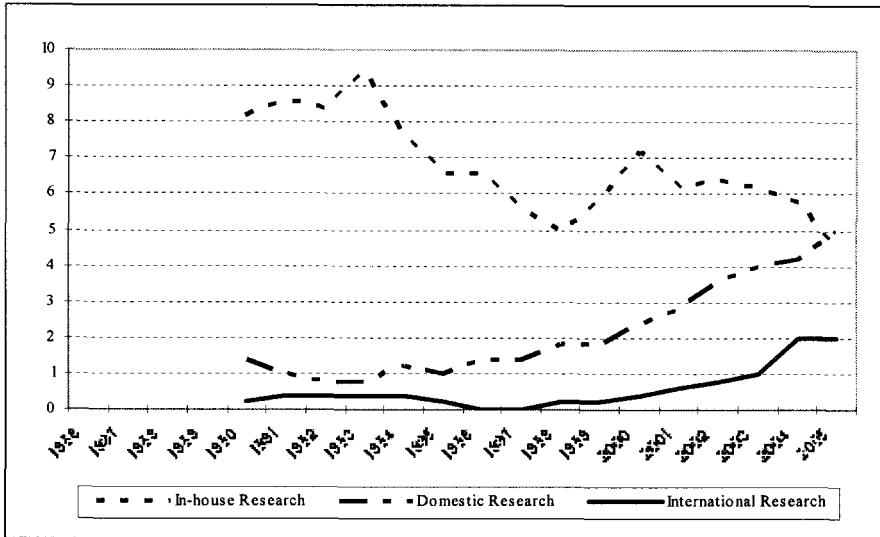


Fig.2. 5-year Moving Average of Three Types of Research

By comparing the research collaboration figures between two study decades, only in-house collaborations had a 22% decrease (from 73 research papers down to 64); whereas national and international collaborations had 2.3-fold and 5-fold increases (from 11 papers to 28, and 4 papers to 15 respectively) (Table 5). Again, the lower costs of telecommunications and traveling had substantially decreased, which helped researchers form national and international research teams. Pooling research funding and maintain networks could encourage researchers to form both domestic and international research teams. As such, the ratio of in-house research had dropped substantially.

Table 5 Distribution of Research Collaboration for past two decade's

		86-95	96-05	% Change
Research Collaborations (n=195)	In-house	73	64	-12.31
	National	11	28	+154.55
	International	4	15	+275.00

4.5 Relationship with Journal Editors

Empirically, the percentage of authors who were affiliated with the institute of journal editors was less than 7% except CQ. ATR and JTR had no publications that the authors' affiliated institutes were the same as journal editors. TM and JHTR had only one publication and IJHM had two publications in this category. However, in CQ 15 papers were authored by researchers from the Cornell University (22.73%). Table 6 shows the significant relationship of the institutes that were affiliated with the authors and editors.

Table 6. Relationship between authors and editors' affiliated institutes

Journals n=195	At least one author's affiliated institute was the same as editor	None of the author's affiliated institute was the same as editor	d.f.	X ²	Sig.
ATR	0 (0.00%)	5 (100.00%)	5	19.8049	0.0014*
IJHM	2 (6.25%)	30 (93.75%)			
CQ	15 (22.73%)	51 (77.27%)			
JHTR	1 (2.86%)	34 (97.14%)			
JTR	0 (0.00%)	24 (100.00%)			
TM	1 (3.03%)	32 (96.97%)			

* significant at a 0.05 level

In an attempt to find out whether the authors and editors were from the same country, it was found that more than 50% of the authors for publications in CQ, JHTR and JTR were from the same country as the editors' affiliated institute. In the case of JHTR and CQ, over 85% and 90% of the authors had at least one author who was from the U.S. Again, a significant relationship was found between the countries of authors and editors. (Table 7).

Table 7. Distribution of relationship between authors and editors' affiliated geographic location

Journals (n=195)	At least one author's affiliated institute was from the same country as the editor	None of the author's affiliated institute was from the same country as the editor	d.f.	X ²	Sig.
ATR	2 (40.00%)	3 (60.00%)	5	75.241	0.0000*
IJHM	9 (28.12%)	23 (71.88%)			
CQ	61 (92.42%)	5 (7.58%)			
JHTR	30 (85.71%)	5 (14.29%)			
JTR	13 (54.17%)	11 (45.83%)			
TM	7 (21.21%)	26 (78.79%)			

* significant at a 0.05 level

5 Discussion and Conclusions

Based on research findings, more than 70% of research collaborations was associated with authors from the U.S. Consequently, collaboration with authors from North American, especially the U.S., institutes would increase the chance of publication.

The hospitality and tourism industry highly emphasize on industrial applications, so it is necessary for academics to demonstrate their research findings to help industrial practitioners solve managerial or operational problems (Van Scotter & Culligan, 2003; Piccoli & Wagner, 2003). As the requirements of IT research switch from theoretical developments to industrial applications, more researches chose to integrate their work with other areas like Marketing and Revenue Management. In addition, many co-authored papers had the involvement of senior researchers (65.33%), especially for the papers with three or more authors. In some instances, senior researchers authored with their postgraduate students for providing mentorship. As a result, in order to have a higher acceptance rate, junior academics are suggested to collaborate with senior academics because the latter group has the valuable experience in academic publications.

Furthermore, with the rapid development in telecommunication technologies, collaborations at the national and international levels had substantially increased 154% and 275% respectively between the first and second decades during the study period. Finally, although a significant relationship was found between authors and editors within the selected six journals, the ratio of faculty members at Cornell University who published in CQ was much higher than other journals.

Findings of this research, albeit limited in scope of journal coverage and time frame, do provide some useful findings for researchers in general, and academics in particular, to set their strategies for publications of IT-related papers in first-tier journals in tourism and hospitality. Specifically, the factors that authors need to consider relate to the level of collaborations and their geographical proximity with the journal and the journal editor. To provide a broader view, future researches are recommended to include journals such as IT&T or ENTER proceedings and content analysis on research topics.

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