Photographic Tourism Research: Literature Review

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HIGHLIGHTS

Tourist perceptions, tourist behaviour and destination image are the most researched.

Literature material was preferred over tourist samples.

North American countries prefer qualitative while Asian favour quantitative methods.

The main photographic data collection method was researcher-found imagery.

ABSTRACT

This study reviews the current photographic tourism literature to identify what fields within tourism have been studied by researchers, the contexts, the samples used, the sampling methods employed, the photographic methods and supporting methods used, the data analysis techniques applied and the countries studied. A set of 115 relevant academic articles were selected and assessed using content analysis. The findings showed that overall publications in the field of photographic tourism increased after 1997, with a notable rise in tourism management research in this area. Tourist perceptions, tourist behaviours and destination image were the most frequently researched topics. Literature material was generally preferred over tourist samples. Purposive sampling was the most common sampling method. The main photographic data collection method was researcher-found imagery. Many studies used interviews as an accompanying method. Critical analysis was more common in North American research while statistical approaches were employed more often in Asian studies.

KEYWORDS

Photographic Tourism; Research Methodology Trends; Tourism Research Trends; Tourism Qualitative Methods; Quantitative Photographic Analysis; Tourism Literature; International Research Perspective

INTRODUCTION

Photography in tourism research has played a critical role in understanding the perception of a destination and the behaviour in it. There is no doubt that over the last forty years, the use of photography techniques as a data collection method in tourism research has increased significantly due to technological innovations (Feighey, 2003; Larsen, 2001; Van House, 2011), the mass transportation of tourists (Larsen, 2001; WTO, 2016), and instant global communication (Mak 2017; Lo, McKercher, Lo, Cheung, & Law, 2011).

The summations of photography-focused tourism studies have added new perspectives to the tourism literature landscape in areas such as tourist perception (Garrod, 2008; MacKay & Couldwell, 2004; Urry, 1992), behaviour (Markwell, 1997; Noy, 2014), and experiences (Cederholm, 2004; Fung & Jim, 2015), including destination image (Mak, 2017; Stepchenkova & Zhan, 2013), tourism development (Brickell, 2012; Haywood, 1990) and management (Garrod, 2007; Lo & McKercher, 2015). As a result, the use of photography in scientific research has expanded to encompass a range of emerging areas of interest, such as the ethnographic effects of tourism (Neumann, 1992; Scarles, 2010), marine tourism (Bryson, Duce, Harris, Webster, Thompson, Vila-Concejo, & Williams, 2016; Prideaux & Coghlan, 2010), land development for tourism (Voulvouli, 2012; Hudak & Wessman, 1998), analysing cultural heritage photography using computer aided design (Styliadis, 2008; Styliadis & Sechidis, 2011), virtual tourism in gaming (Poremba, 2007), travel fashion (Pritchard & Morgan, 2005) and food tourism (Liu, Norman, & Pennington-Gray, 2013). Therefore, this research defines photographic tourism literature as a study that applies any photography technique as a data collection method with tourism perspective.

However, no study has yet attempted to investigate the global development of published tourism research with integrated photographic methods over time. For example, little is known about the tourism fields (for instance, management, history, geography or culture) and contexts (such as perception, motivation, experience or destination image) in which photography has been applied as a data collection method. Similarly, the samples (like; literature material, tourists, residences, students or online images) and sampling methods (in the case of; purposive, convenience or random sampling) used by scholars in photographic tourism literature remains largely unexamined. Moreover, even less is understood about the way researchers collect visual data (whether by; researcher found imagery from books, postcards or magazines, online photography or respondent-employed photography) and the supporting methods (like; interviews, observation, questionnaires or diaries) they employ with photographic techniques. Lastly, an insufficient amount is known about the range of qualitative and quantitative methods and tests used by authors in photographic tourism research.

Thus, a study examining the trends of tourism research with integrated photographic methods subject matters, contexts, qualitative and quantitative approaches, and methods of analysis would potentially offer great benefits to scholars overall understanding of the photographic tourism literature landscape and provide a foundation for future studies. As a result, this will create more focused research and methodological development. For example, in the areas of tourist's gaze and experience (Urry, 1992; Larsen, 2008). Whereas, the practical implications would lead further investigations advancing destination image organisers and managers understanding in areas such official marketing imagery verses tourist's photography (Stepchenkova & Zhan, 2013; Scott, Green, & Fairley, 2016) or how a destination is consumed using geotagged tourist photography and official statistics (Kádár, 2014). Government bodies could also profit by incorporating various photographic methods into local or national studies thus quicken their research processes (Loughlin, 2013).

Research Objectives

The purpose of this study is to provide a contemporary overview of the photographic tourism literature landscape. The research questions of this study are to identify:

- What are the specific tourism fields of the studies?
- What are the contexts of the studies?
- What are samples used in the studies?
- What are the sampling methods used in the studies?
- What are the photographic methods used in the studies?
- What are the accompanying procedures used in the studies?
- What are the qualitative data analyses methods used in the studies?
- What are the quantitative data analyses techniques used in the studies?
- What countries are conducting photographic tourism research?

LITERATURE REVIEW

A worldwide search of published academic literature on photographic tourism revealed 115 unique publications dating from 1979 to 2017. The findings are summarised and presented in chronological order in Table 1, which gives, for each study, the author(s), the year of publication, the tourism category, the context of the study, the sample (people or objects) used, the sampling frame, the photographic methods, the accompanying data collection methods, the data analysis techniques and tests used, and finally the country in which the primary research was conducted.

Table 1. Literature review of 115 photographic tourism studies from 1979 to 2017

Author (Year)	Category	Context	Sample	Sampling	Photographic method	Accompanying methods	Data analysis & test	Country
Chalfen (1979)	Tourism	Local and tourist perception	Literature	Purposive	NA	Literature review	Critical analysis	NA
Graburn (1983)	Tourism	Tourist behaviour	Literature	Purposive	NA	Literature Review	Critical analysis	NA
Albers & James (1983)	Tourism History	Tourist perception	Literature	Purposive	Researcher-found images	Anthropological inquiry	Critical analysis, content analysis	USA
Jakle (1981)	Tourism History	Tourist perception	Photographers	Purposive	Researcher-found images	Diary	Thematic analysis	USA
Uzzell (1984)	Tourism management	Destination imagery	Literature	Purposive	Researcher-found images	Literature review	Semiotic analysis, content analysis	NA
Moore (1985)	Tourism	Tourist behaviour	Tourists	Purposive	NA	Interviews, observation, ethnographic approach, anthropological inquiry, tourist texts	Ethnographic analysis, semiotic analysis	USA
Foster (1986)	Tourism	Tourist behaviour	Tourists	Purposive	NA	Observation, interviews, diary, anthropological inquiry	Thematic analysis	Sea
Botterill & Crompton (1987)	Tourism	Tourist perception	Tourists	Purposive	Tourist/Visitor photography	Interviews, phenomenological approach	Repertory grid, specific scientific technology	Mexico
Albers & James (1988)	Tourism	Destination imagery	Literature	Purposive	Researcher-found images	Literature review	Content analysis, semiotic analysis	NA
Dann, Nash, & Pearce (1988)	Tourism	Tourist behaviour	Literature	Purposive	NA	Literature review	Critical analysis	NA
Haywood (1990)	Tourism Management	Tourism development	Tourists	Purposive	Tourist/Visitor photography	Interviews	Specific researcher's test	Canada
Laxson (1991)	Cultural Tourism	Tourist perception	Residents and tourists	Purposive	NA	Interviews, observation, cognitive approach	Thematic analysis	USA
Cohen, Nir & Almagor (1992)	Tourism	Local and tourist perception	Literature	Purposive	NA	Literature review	Critical analysis	Various
Neumann (1992)	Visual Science	Tourist experiences	Literature	Purposive	Researcher photography	Literature review	Critical analysis	USA
Urry (1992)	Tourism	Tourist perception	Literature	Purposive	NA	Literature review	Critical analysis	NA
Van den Berghe (1992)	Cultural Tourism	Tourist behaviour	Tourists	Purposive	NA	Interviews	Thematic analysis	Mexico
Silver (1993)	Tourism	Tourist perception	Literature	Purposive	Researcher-found images	Literature review	Critical analysis	NA
Mellinger (1994)	Tourism	Tourist perception	Literature	Purposive	Researcher-found images	Literature review	Critical analysis	USA
Becker (1995)	Visual Science	Tourist behaviour	Literature	Purposive	NA	Literature review	Critical analysis	NA
Meisch (1995)	Tourism	Tourist behaviour	Residents and tourists	Purposive	Researcher photography	Interviews, literature review	Thematic analysis	Ecuador

Author (Year)	Category	Context	Sample	Sampling	Photographic method	Accompanying methods	Data analysis & test	Country
Pizam & Sussmann (1995)	Tourism	Tourist behaviour	Tourists	Purposive	NA	Questionnaire/survey	Factor analysis, analysis of variance, frequency analysis	UK
Bhattacharyya (1997)	Tourism	Tourist perception	Literature	Purposive	Researcher-found images	literature review	semiotic analysis, content analysis	NA
Burns (1997)	Tourism History	Tourist perception	Photographers	Purposive	Researcher-found images	Literature review	Textual analysis	UK
MacKay & Fesenmaier (1997)	Tourism	Destination imagery	Tourists	Purposive + Convenience	Researcher-found images	Visual analysis, focus group, focus group	Factor analysis, descriptive analysis, t-tests, components analysis, varimax rotation, analysis of variance, Eigenvalues, R, standardised coefficients	Canada
Markwell (1997)	Tourism	Tourist behaviour	Students	Convenience	Tourist/Visitor photography	Observation, interviews, photographic collections, diary	Content analysis	Malaysia
Gordon (1998)	Tourism	Tourist perception	Literature	Purposive	Researcher-found images	Literature review	Critical analysis	Germany
Hudak & Wessman (1998)	Tourism Geography	Tourism development	Land	Purposive	Aerial photography	Maps, GPS	Geo-reference, specific scientific technology, specific researcher's test	South Africa
Human (1999)	Tourism Management	Tourist perception	Literature	Purposive	Researcher-found images	Literature review	Critical analysis	NA
Edensor (2000)	Tourism	Tourist behaviour	Tourists	Convenience	NA	Observation	Metaphor analysis, critical analysis	India
Pritchard & Morgan (2000)	Tourism	Tourist perception	Literature	Purposive	Researcher-found images	Literature review	Critical analysis	NA
Fawcett & Cormack (2001)	Tourism	Destination imagery	Residents	Purposive	Researcher-found images	Literature review, interviews	Critical analysis, thematic analysis	Canada
Hammond (2001)	Tourism History	Tourist perception	Literature	Purposive	Researcher-found images	Literature review	Critical analysis	NA
Johns & Clarke (2001)	Tourism	Tourist perception	Tourists	Convenience	Tourist/visitor photography	Interviews, visual analysis	Thematic analysis, content analysis	UK
Larsen (2001)	Tourism History	Tourist experiences	Literature	Purposive	NA	Literature review	Ethnographic analysis	NA
Markwick (2001)	Tourism	Tourist motivation	Literature	Purposive	Researcher-found images	Literature review	Critical analysis, thematic analysis	Malta
Ateljevic & Doorne (2002)	Tourism Management	Destination imagery	Literature	Purposive	Researcher-found images	Literature review	Critical analysis	New Zealand
Garlick (2002)	Cultural Tourism	Tourist perception	Literature	Random	NA	Literature review	Critical analysis	NA
Siegenthaler (2002)	Tourism History	Destination imagery	Literature	Purposive	Researcher photography	Literature review	Thematic analysis	Japan
Crouch, & Desforges (2003)	Tourism	Tourist experiences	Literature	Purposive	NA	Literature review	Critical analysis	NA
Digance (2003)	Tourism Management	Tourist behaviour	Residents and tourists	Purposive + Convenience	NA	Interviews, observation, questionnaire/survey, diary	Thematic analysis	Australia
Feighey (2003)	Tourism Management	Tourist experiences	Literature	Purposive	NA	Literature review	Critical analysis	NA

Author (Year)	Category	Context	Sample	Sampling	Photographic method	Accompanying methods	Data analysis & test	Country
Jenkins (2003)	Tourism Geography	Tourist behaviour	Tourists	Purposive	Researcher-found images	Visual analysis, interviews	Semiotic analysis, content analysis	Australia
Cano & Mysyk (2004)	Cultural Tourism	Tourist behaviour	Residents and tourists	Random	Tourist/visitor photography	Interviews, observation, questionnaire/survey	Thematic analysis	Mexico
Cederholm (2004)	Tourism	Tourist behaviour	Tourists	Cluster	Tourist/Visitor photography	Interviews	Visual elicitation, thematic analysis	Sweden
Fotsch (2004)	Tourism	Tourist behaviour	Tourists	Purposive	Researcher-found images	Interviews, observation	Thematic analysis	USA
MacKay & Couldwell (2004)	Tourism	Tourist perception	Tourists	Random	Tourist/Visitor photography	Focus group, diary	Thematic analysis, content analysis	Canada
Stedman, Beckley, Wallace, & Ambard (2004)	Tourism Management	Destination imagery	Residents	Convenience	Resident-employed photography	Interviews	Discourse analysis	USA
Larsen (2005)	Tourism	Tourist behaviour	Tourists	Convenience	Tourist/Visitor photography	Interviews	Content analysis	Danish island of Bornholm
Pritchard & Morgan (2005)	Tourism	Tourist perception	Literature	Purposive	Researcher-found images	Visual analysis	Discourse analysis	Hong Kong
Gillespie (2006)	Tourism	Local and tourist perception	Tourists	Convenience	Researcher photography	Observation	Critical analysis	India
Page, Steele, & Connell (2006)	Tourism	Destination imagery	Literature	Purposive	Researcher-found images, online photography	Promotional literature	Content analysis	UK
Snavely, Seitz, & Szeliski (2006)	3D modelling	Destination imagery	Flickr images	Purposive	Online photography	Control group, experimental group	Algorithm, specific scientific technology, triangulation, geo-reference	NA
Cole (2007)	Cultural Tourism	Tourist perception	Residents and tourists	Purposive + Convenience	Researcher photography	Observation, diary, ethnographic approach	Ethnographic analysis, respondent validation, thematic analysis	Indonesia
Dewar, Li, & Davis (2007)	Tourism Management	Tourist experiences	Students	Purposive	Researcher-found images	Q methodology	Specific scientific technology, factor analysis, components analysis, varimax rotation	Various
Garrod (2007)	Cultural Tourism	Tourism development	Literature	Purposive	Volunteer-employed photography	Literature review	Critical analysis	UK
Poremba (2007)	Visual Science	Tourist behaviour	Literature	Purposive	Gaming photography	Literature review	Critical analysis	NA
Steen Jacobsen (2007)	Tourism Geography	Destination imagery	Literature	Purposive	NA	Literature review	Critical analysis	NA
Caton & Santos (2008)	Tourism	Tourist behaviour	Students	Convenience	Tourist/Visitor photography	Literature review	Thematic analysis	Various
Garrod (2008)	Tourism	Tourist perception	Residents and tourists	Purposive	Tourist/Visitor photography	Visual analysis	Content analysis	UK
Hunter (2008)	Tourism Management	Destination imagery	Literature	Purposive	Researcher-found images	Photographic collections	Content analysis, textual analysis, genre analysis, critical analysis	Various
Larsen (2008)	Tourism History	Tourist behaviour	Literature	Purposive	Researcher photography, online photography, researcher-found images	Literature review	Non-representational approach	NA

Author (Year)	Category	Context	Sample	Sampling	Photographic method	Accompanying methods	Data analysis & test	Country
Styliadis (2008)	3D Modelling	Destination imagery	Literature	Purposive	Researcher-found images, CAD	Questionnaire/survey	Presence of skew, 3D virtual reconstruction	NA
Tribe (2008)	Cultural Tourism	Tourist perception	Literature	Purposive	Online photography, researcher-found images	field visits	Content analysis, discourse analysis, specific scientific technology	NA
Cahyanto, Pennington-Gray, & Thapa (2009)	Tourism	Tourism development	Residents	Purposive	Resident-employed photography	Questionnaire/survey, Snapshot approach	Content analysis	Indonesia
Garrod (2009)	Tourism	Tourist perception	Tourists	Random	Visitor employed photography, researcher-found images	Literature review	Content analysis, inter-coder reliability, chi-square, specific researcher's test	UK
Feighery (2009)	Tourism Management	Destination imagery	Stock photographs	Purposive	Online photography	Interviews, visual analysis, ethnographic approach	Critical analysis	UK
Little (2009)	Tourism History	Destination imagery	Literature	Purposive	Researcher-found images	Reflexive approach, interviews, photo ranking	Critical analysis	USA
Prideaux & Coghlan (2010)	Tourism Management	Tourist behaviour	Tourists	Random	Tourist/Visitor photography	Computer image analysis, computer image analysis	Specific scientific technology, frequency analysis, chi-square	Australia
Scarles (2010)	Tourism	Tourist experiences	Tourists	Purposive	Tourist/Visitor photography	Questionnaire/survey, interviews	Thematic analysis, chi-square, visual elicitation	Peru
Bandyopadhyay (2011)	Tourism	Tourist perception	Residents and tourists	Convenience	Researcher photography	Interviews, observation	Semiotic analysis	India
Belk & Hsiu-yen Yeh (2011)	Tourism	Tourist perception	Tourists	Convenience	NA	Maps, government statistics	Content analysis	Various
Li, Zhao, Sun, Su, Zheng, Dong, & Shi (2011)	Tourism Management	Tourist behaviour	Tourists	Purposive	Online photography	Interviews, field visits	Geo-reference, specific scientific technology, kernel-based approach, least-square cross validation, specific researcher's test	China
Lo, McKercher, Lo, Cheung, & Law (2011)	Tourism Management	Tourist behaviour	Tourists	Convenience	Online photography	Interviews, observation, ethnographic approach	Cluster analysis	Hong Kong
Nicolau (2011)	Tourism	Tourist behaviour	Residents	Multistage	NA	Interviews, questionnaire/survey, government statistics	Correlation coefficients, specific researcher's test, mean, regression analysis	Spain
Styliadis & Sechidis (2011)	3D Modelling	Destination imagery	Literature	Purposive	Researcher-found images, CAD	Observation, visual analysis, interviews	Ratio, specific researcher's test	NA
Van House (2011)	Visual Science	Destination imagery	Photographers	Purposive	Online photography	Interviews, visual analysis	Content analysis	USA
Brickell (2012)	Tourism Geography	Tourism development	Residents	Cross-sectional Representation	Resident-employed photography	Observation, diary	Content analysis, triangulation	Vietnam
Nicoletta & Servidio (2012)	Tourism Management	Tourist motivation	Tourists	Convenience	Researcher-found images	Interviews, observation, diary	Cronbach's alpha, regression analysis, chi-square, ratio	Italy
Ong & du Cros (2012)	Tourism	Destination imagery	Tourists	Purposive	Online photography	Grounded theory, gratification theory, online groups, questionnaire/survey	Foucauldian analysis	China
Rakić & Chambers (2012)	Tourism	Tourist experiences	Tourists	Convenience	Researcher photography	Interviews, observation, diary, anthropological inquiry, ethnographic approach	Thematic analysis, mapping analysis, content analysis, critical analysis	Greece

Author (Year)	Category	Context	Sample	Sampling	Photographic method	Accompanying methods	Data analysis & test	Country
Rickly-Boyd (2012)	Tourism	Tourist experiences	Literature	Purposive	NA	Literature review	Critical analysis	NA
Salazar (2012)	Tourism	Destination imagery	Literature	Purposive	NA	Ethnographic approach	Critical analysis	NA
Scarles (2012)	Tourism	Tourist experiences	Residents	Purposive	Researcher photography	Photographic collections, photographic collections	Thematic analysis	Peru
Snow (2012)	Tourism History	Tourist behaviour	Tourists	Purposive	Tourist photography, researcher-found images	Ethnographic approach, online groups	Content analysis, critical analysis	USA
Stylianou-Lambert (2012)	Tourism	Tourist behaviour	Tourists	Convenience	Researcher photography, tourist photography, researcher-found images	Visual analysis, interviews	Content analysis, semiotic analysis, sociological analysis	Greece
Thompson, Hannam, & Petrie, (2012)	Tourism	Destination imagery	Objects	Purposive	Researcher photography, researcher-found images	Literature review	Critical analysis	USA
Voulvouli (2012)	Cultural Tourism	Destination imagery	Literature	Convenience	Online photography	Interviews, observation	Content analysis, semiotic analysis	Namibia
Andriotis & Mavrič (2013)	Tourism History	Destination imagery	Literature	Purposive	Online photography, researcher-found images	Ethnographic approach	Content analysis	Turkey
Bertella (2013)	Tourism Management	Tourist perception	Informants and tourists	Purposive	Researcher-found images, online photography	Observation	Content analysis	Norway
Boley, Magnini, & Tuten (2013)	Tourism	Tourist behaviour	Tourists	Convenience	Online photography	Interviews, diary	Analysis of variance	USA
Buzinde & Manuel-Navarrete (2013)	Tourism Geography	Tourist perception	Residents	Purposive	Researcher-found images	Interviews, maps, Questionnaire/survey	Content analysis, thematic analysis, triangulation	Mexico
Liu, Norman, & Pennington-Gray (2013)	Tourism Management	Destination imagery	Flickr images	Purposive	Online photography	Ethnographic approach, observation, interviews	Content analysis, chi-square, t-tests	Various
Loughlin (2013)	Tourism	Tourist perception	Students	Convenience	Researcher photography, student photography	Literature review	Ethnographic analysis	Australia
Matteucci (2013)	Tourism Management	Tourist experiences	Tourists	Purposive	Researcher-found images	Interviews, observation, promotional literature	Thematic analysis, triangulation	Spain
Molz (2013)	Tourism	Tourist perception	Residents and tourists	Convenience	NA	Interviews, observation, ethnographic approach	Thematic analysis	Various
Mordue (2013)	Tourism	Tourist perception	Literature	Purposive	Researcher-found images	Literature review	Discourse analysis, content analysis, triangulation	UK
Stepchenkova & Zhan (2013)	Tourism Management	Destination imagery	Flickr images	Random	Online photography	Questionnaire/survey	Content analysis, chi-square, specific researcher's test	Peru
Balomenou & Garrod (2014)	Tourism Management	Tourism development	Residents and tourists	Systematic random	Tourist/Visitor photography	Diary	Thematic analysis, content analysis, inter-coder reliability, chi-square, specific researcher's test	UK
Donaire, Camprubí, & Galí (2014)	Tourism Management	Tourist behaviour	Tourists	Random	Online photography	Reflexive approach, ethnographic approach, interviews, online groups	Content analysis, cluster analysis, analysis of variance, F, specific researcher's test	Spain
Kádár (2014)	Tourism Geography	Tourist behaviour	Tourists	Purposive	Online photography, geotagged	Unmanned aerial vehicle	Specific researcher's test, correlation coefficients, geo-reference	Various

Author (Year)	Category	Context	Sample	Sampling	Photographic method	Accompanying methods	Data analysis & test	Country
Mahn (2014)	Tourism History	Tourist perception	Literature	Purposive	Researcher-found images	Visual analysis, questionnaire/survey	Argument analysis	Greece
Noy (2014)	Tourism	Local and tourist perception	Tourists	Accidental	Researcher photography, researcher-found images	GPS, government statistics	Critical analysis	Sea
Grimwood, Yudina, Muldoon, & Qiu (2015)	Tourism	Tourist behaviour	Tourists	Purposive	Volunteer-employed photography	Questionnaire/survey, interviews	Discourse analysis, critical analysis	Canada
Fung & Jim (2015)	Tourism Geography	Tourist experiences	Residents and tourists	various methods	Tourist/Visitor photography	Literature review	Content analysis	Hong Kong
Lo & McKercher (2015)	Tourism	Tourist perception	Residents	Purposive + Convenience	Online photography	Questionnaire/survey	Ethnographic analysis, triangulation, content analysis, textual analysis, semiotic analysis	Hong Kong
Bryson, Duce, Harris, Webster, Thompson, Vila-Concejo, & Williams (2016)	Tourism Geography	Tourism development	Land	Purposive	Aerial photography	Maps	Geo-reference, mapping analysis, specific scientific technology, triangulation, Root Mean Square	Australia
Dinhopl & Gretzel (2016)	Tourism	Tourist perception	Literature	Purposive	Online photography	Literature review	Critical analysis	NA
Dominici & Maitland (2016)	Tourism History	Destination imagery	Literature	Purposive	Researcher-found images	Literature review	Discourse analysis, visual elicitation	Switzerland
Li, Huang, & Christianson (2016)	Tourism Management	Destination imagery	Students	Random	Eye-tracking, researcher-found images	Visual analysis, Mise en scène analysis	Power analysis, eye movement analysis, mapping analysis, eye movement analysis, analysis of variance	China
Lyu (2016)	Tourism Management	Tourist perception	Tourists	Random	Online photography	Anthropological inquiry	Cronbach's alpha, Mean, Standard Deviation, structural equation modelling, chi-square, factor analysis, specific researcher's test, Goodness of Fit, Root Mean Square	Korean
Scott, Green, & Fairley (2016)	Tourism Management	Tourist perception	Students	Convenience	Eye-tracking, researcher-found images	Questionnaire/survey	Eye tracking, specific scientific technology, F, scan paths, heat maps, analysis of variance	NA
Jóhannesson & Lund (2017)	Tourism Management	Tourist behaviour	Residents and tourists	Accidental	NA	Ethnographic approach, observation	Ethnographic analysis, critical analysis	Norway
Karlsson, Kemperman, & Dolnicar (2017)	Tourism	Tourist behaviour	Residents	Purposive	Online photography	Questionnaire/survey, experimental group	Specific researcher's test, specific scientific technology	Australia
Mak (2017)	Tourism Management	Local and tourist perception	Residents and tourists	Purposive	Online photography	Literature review	Content analysis, mapping analysis, specific scientific technology	Taiwan
Yoshimura & Hiura (2017)	Tourism Geography	Tourist behaviour	Flickr images	Purposive	Online photography, geotagged	Interviews	Visual elicitation, specific scientific technology, geo-reference, Receiver Operating Characteristic	Japan

METHODS

One hundred fifteen photographic tourism articles from online academic journals were identified using two database search resources - Science Direct (www.sciencedirect.com) and Google Scholar (https://scholar.google.co.th) - with the keywords “Photography + Tourism” during the spring of 2017. The papers were examined using content analysis and the data was entered into a custom-made Excel spreadsheet and coded into themes (Saldana, 2009). The category and context codes in Table 1 were generated by evaluating the published article title, the academic journal title and the content of the study as guide. The sample population or objects were extracted from each study. Photographic tourism literature reviews that did not state their sampling method were identified as using a purposive sampling method due to the images or data being selected in relation to its research objective. The sample size was initially collected; however, some studies not did use any samples, other articles did not specify the sample amount, and some research used several different samples sizes. Therefore, the sample size was not examined in this study. The photographic methods were separated from the accompanying research methods of the study. The data analyses and tests of each study were initially collated and coded with specific scientific technology such as “*Real Time Kinematic DGPS*” (Bryson, Duce, Harris, Webster, Thompson, Vila-Concejo, & Williams, 2016) and specific researchers' tests like “*Yates's correction*” (Balomenou, & Garrod, 2014) being clustered. Then the data analyses and tests codes were grouped by their use of a qualitative or quantitative approach, and analysed separately. After that, those articles that purely examined the tourism literature without defining a specific country of reference, that did not use an identifiable photographic method, or were focused on 3D modelling for virtual tourism, were given a “not applicable” (NA) country code. Finally, the coded results were analysed by frequency along the article publication timeline, and presented as figures.

RESULTS

Overall

The overall results from the 115 photographic tourism articles from academic journals (Fig. 1) revealed a low number of publications from 1979 to 1991. However, from 1997 onwards there was a continual increase in photographic tourism publications, with the highest number of eleven articles being published in 2012.

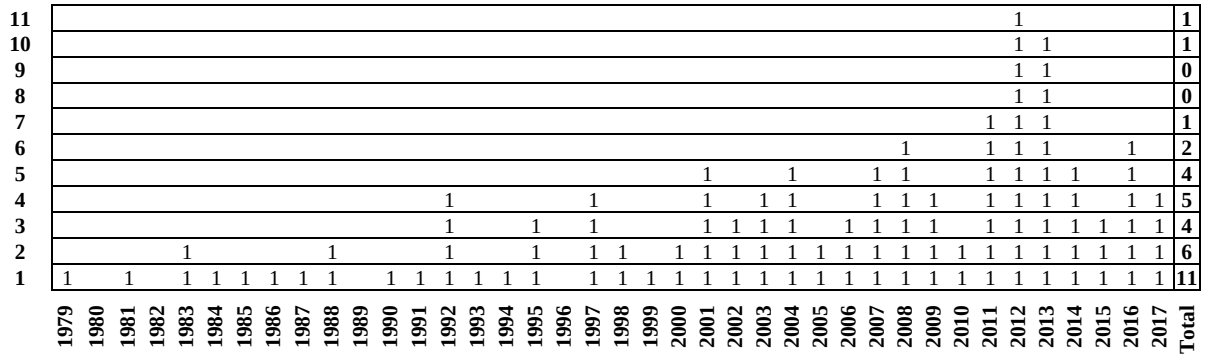


Fig. 1. The annual number of published photographic tourism articles from 1979 to 2017

Tourism Categories

The different fields studied in tourism with photography (Fig. 2) showed that most tourism studies (T=54) were general in nature. Two-thirds of studies had investigated the specific aspects of tourist behaviour and tourist perception. A little over a third (37.7%) of these articles used respondent-based photography such as tourist- or visitor-sourced photography and researcher-sourced photography. Online photography was first used in 2006 and had increased in frequency since. 26.4% of these articles relied on the use of literature without using any other accompanying method to collect data.

Tourism management (TM=25) focused research was done in native English speaking countries (Canada, USA, UK, New Zealand, Australia) until 2010. After that Asian and European countries started to explore tourism management issues with photography. Thirty-six percent of these studies examined destination image. Forty-eighty percent of tourism management articles preferred the use of statistical analysis and employed the use of technological methods, such as online photography, researcher-found (online) images and eye-tracking to collect data.

The analysis of historical tourism studies (TH=12) using photography showed that a third of these papers were conducted in the USA and another third in Europe. All of the articles used qualitative methods, for example critical, content and thematic analysis, with seventy-five percent of these studies using found imagery as their data collection method.

Tourism geography (TG=9) research using geographical imagery and data was first noted in 1998 and accelerated in occurrence thereafter with the Asian region publishing more than half of all these articles while using online photography, aerial photography and geo-tagging. Just over half (55.55%) of these studies used specific technology with statistical analysis.

Cultural tourism (CT=8) research using photographic methods emerged after 1990. Half of all these studies examined tourist perception. Fifty percent of cultural tourism research incorporated the use of interviews as an accompanying data collection method. All these studies used qualitative analysis methods.

Most visual science (VS=4) studies used a combination of photography methods and literature reviews. Finally, 3D modelling (3D=3) was the least used method in photographic tourism studies.

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
3D																												1		1			1								**3**
VS														1			1												1				1								**4**
CT													1	1										1		1			2	1				1							**8**
TG																				1					1				1					1	1	1	1	1	1	**9**
TH			1		1														1				2	1					1	1			1	1	1		1		**12**
TM						1						1									1			1	2	1			1	1	1	1	2	1	4	1		3	2	**25**
T	1				1		1	1	1	2				2	1	1	2		3	1		2	3		1	4	2	2		2	2	1	3	7	4	1	2	1	1	**54**

Note: T = Tourism (54), TM = Tourism Management (25), TH = Tourism History (12), TG = Tourism Geography (9), CT = Cultural Tourism (8), VS = Visual Science (4), 3D = 3D modelling (3)

Fig. 2. The different fields studied in tourism with photography

Tourism Contexts

The analysis of the various tourism contexts (Fig. 3) using photography exposed the fact that tourist perception (TP=33) was the most documented. Tourist perception research was focused in USA and Europe from 1979 to 2004. After that Asian studies begun to investigate tourist perception using photographic methods. Online photography was first used in 2008 and has been used most in Asian studies with quantitative analysis methods. The combination of multiple data collection methods, such as interviews, questionnaires/surveys and observations were incorporated after the year 2000.

Tourist behaviour (TB=32) studies were first noted in 1983 and used no photographic methods, until 1995 where studies using researcher photography and tourist-employed photography were first published. Subsequently, from 2011 there was a rapid transition to using online photography. Meanwhile, qualitative analysis methods like thematic analysis were mostly used until 2008. A distinct change to quantitative analysis techniques was evident from 2010 onwards.

Destination image (DI=25) research using photography found that thirty-two percent of studies were in the tourism management sector. The use of online photography was first used in 2006 and had increased in use since. Thirty-eight percent of these papers used content analysis, whereas twenty-eight percent of articles used a variety of quantitative analysis techniques. Lastly, twenty-four percent of destination image studies were done in North America.

Tourist experience (TE=11) research using photography was first carried out in 1992. 45.45% of these studies used researcher- and tourist-based photography. However, the use of interviews (36.36%), diaries (27.27%) and observation (27.27%) were integrated into data gathering procedures after 2010.

Tourism development (TD=7) articles were first noted in 1990 and saw the single use of volunteer-employed photography, resident-employed photography, aerial photography and the use of interviews for data collection.

Local and tourist perception (LTP=5) has been studied the longest, but excluded the use of photographic methods until 2006, after which various photographic methods were used. Finally, tourist motivation (TM=2) has been relatively unexplored using photographic methods.

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
TM																							1											1						**2**
LTP	1													1														1							1			1	**5**
TD												1								1								1	1		1		1	1		1			**7**
TE														1									1	2				1			1		3	1		1			**11**
DI						1				1									1				1	2		1	2	1	2	2		2	4	3			2		**25**
TB					1		1	1		1				1			3		1			1			2	3	1		1	2		1	3	2	1	2	1		3	**32**
TP			1		1				1				1	1	1	1			2	1	1	1	2	1		1	1		1	2	1		2		5	1	1	3		**33**

Note: TP = tourist perception (33), TB = tourist behaviour (32), DI = destination imagery (25), TE = tourist experience (11), TD = tourism development (7), LTP = local and tourist perception (5), TM = tourist motivation (2)

Fig. 3. The contexts studied in tourism with photography

Samples

The samples used in photographic tourism studies (Fig. 4) found that literature (L=43) material was the most used from 1979. Twenty-one percent of these studies were historically focused.

Tourists (T=33) were first sampled in 1985, and have been used in research more frequently since. 24.24% of the articles studied explored tourism management issues with tourist samples. Tourist- and visitor-employed photography was used from 1987 and became common practice until 2010. Thereafter, tourists' online photography was predominantly used to study tourist behaviour with statistical tests.

The use of residents and tourists (RT=13) as sample populations in a single study was first seen in 1991 and this approach has increased in frequency since. The major contexts researched with dual samples were tourism management (38.46%) and cultural tourism (23.07%). More than half of this group (53.84%) examined tourist perception. 38.46% used respondent-employed photography. The additional data gathering methods used were interviews (61.53%), observation (38.46%) and diaries (30.76%). Thematic analysis was used about half (53.84%) the time to analyse the data.

Residents (R=9) were initially sampled in 2001 and have grown in number since, while the contexts of these studies have equally addressed destination image, tourism development, tourist behaviour and tourist perception. Overall, one third of these papers used resident-employed photography. Interestingly, all tourism development studies in this data set used resident-employed photography. 88.88% of researchers used interviewing methods while 37.5% triangulated their results by using qualitative methods.

Student (S=6) samples were first used in papers published in 1997, with two-thirds of these studies conducted in Asia investigating aspects of cultural behaviour and perception.

The use of Flickr images (F=4) was first noted in 2006 and has been used to research destination image predominantly through quantitative analysis methods such as chi-square and geo-referencing.

The least used sample sources were other photographers (P=3), land (LND=2) imaging by aerial photography, stock photographs (SP=1) and objects (O=1).

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
O																																		1							1
SP																															1										1
LND																				1																				1	2
P			1																1														1								3
F																												1							2				1	4
S																			1										1	1					1			2			6
R																							1			1					1		1	2	1		1		1	9
RT													1				1								1	1			1	1			1		2	1	1		2	13
T							1	1	1			1		1			1		1			1	1		1	3	1	1			1	2	3	5	2	3	1	1		33
L	1				2	1				2				3	1	1	1		1	1	1	1	3	3	2		1	1	3	4	1		1	3	2	1		2		43
Total	1		1		2	1	1	1	1	2		1	1	3	1	1	3		1	1	1	1	3	3	2		1	1	3	4	1		1	3	2	1		2		

Note: L = literature (43), T = tourists/visitors (33), RT = residents and tourists (13), R = residents (9), S = students (6), F = Flickr images (4), P = photographers (3), LND = land (2), SP = stock photographs (1), O = objects (1)

Fig. 4. The samples used in photographic tourism research

Sampling Methods

The sampling methods used in photographic tourism research (Fig. 5) revealed that purposive sampling (P=77) had been used longest with just over fifty percent (50.6%) using researcher-found images. Purposive sampling was mostly used in the areas of tourist perception and destination image.

Convenience sampling (C=18) was first used in 1997 and had increased in popularity since to investigate tourist behaviour and tourist perception with a very strong reliance on respondent based photography. The favoured data collection when using convenience sampling were interviews and observations.

Random sampling (R=9) on the other hand was used first in 2002. More than half of random sampling was in the field of tourism management. Overall, random sampling studies have displayed a tendency to use quantitative analysis and testing methods such as chi-square.

Seventy-five percent of dual sampling methods such as purposive sampling and convenience sampling (PC=4) have been used in Asian studies.

Accidental sampling (A=2) was used in 2014 and 2017. While cluster sampling (CL=1) was used once in 2004. Other sampling methods, such as cross-sectional representation (CS=1), multistage sampling (1), systematic random sampling (SR=1) and various sampling methods (V=1) have only been used once each in this data set, all between 2011 and 2015.

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
V																																						1		1
SR																																					1			1
MS																																	1							1
CS																																		1						1
CL																										1														1
A																																				1			1	2
PC																			1						1				1								1			4
R																								1		2					1	1			1	1		2		9
C																			1			1	1			1	1	1		1			3	4	3			1		18
P	1		1		2	1	1	1	1	2		1	1	4	1	1	3		2	2	1	1	4	2	3	1	1	2	4	5	3	1	3	6	6	2	1	3	3	77
Total	1		1		2	1	1	1	1	2		1	1	4	1	1	3		2	2	1	1	4	2	3	1	1	2	4	5	3	1	3	6	6	2	1	3	3	

Note: P = Purposive sampling (77), C = Convenience sampling (18), R = Random sampling (9), PC = Purposive sampling & Convenience sampling (4), A = Accidental sampling (2), CL = Cluster sampling (1), CS = Cross-sectional Representation (1), MS = Multistage sampling (1), SR = Systematic random sampling (1), V = various sampling methods (1)

Fig. 5. The sampling methods used in photographic tourism research

Photographic Methods

The most used photography methods in this set of tourism research (Fig. 6) was researcher found imagery (RF=28) with half of all research exploring tourist perception. In total, a quarter of studies examined the historical aspects of tourism in The United States and Europe, with 71.42% of those studies focusing on tourist perception. Whereas, another twenty-five percent investigated tourism management perspectives with 42.85% concentrating on aspects of destination image. Overall, the accompanying methods showed that literature (60.71%) material was used the most, after that interviews (21.42%) and then visual analysis (17.85%). Critical analysis (39.28%) and content analysis (28.57%) were the highest used forms of data analysis.

Research that did not use any photographic methods (~NA=24) were mostly located in the area of general tourism (62.5%). Overall 45.83% of these studies examined tourist behaviour. The main data gathering devices were literature reviews (45.83%), observations (33.3%) and interviews (33.3). Critical analysis was used in half of the articles and thematic analysis in 20.83% of research.

The use of online photography (OP=16) within tourism was first published in 2006 and has quickly accelerated in use since. Fifty percent of all these publications have been in the field of tourism management. 43.75% of these articles have specifically inspected a destination's image. Questionnaires and surveys (35.71%) were the preferred data collection methods and were first used in 2011. Finally, 43.75% of studies using online photography in tourism research have been carried out in Asia.

Overall respondent-based photography like tourist and visitor-employed photography, researchers' photography, resident-employed photography and volunteer-employed photography mostly used interviews, observations and diaries to accumulate data. Additionally, qualitative methods such as thematic analysis and content analysis were common methods of data evaluation. Further details follow on each of these groups.

Tourist- and visitor-employed photography (TVP=13) was generally conducted in the field of tourism. 46.15% of these papers researched tourist behaviour. 61.53% used interviews and 23.07% used diaries as accompanying methods. Content analysis (46.15%) was the most used technique.

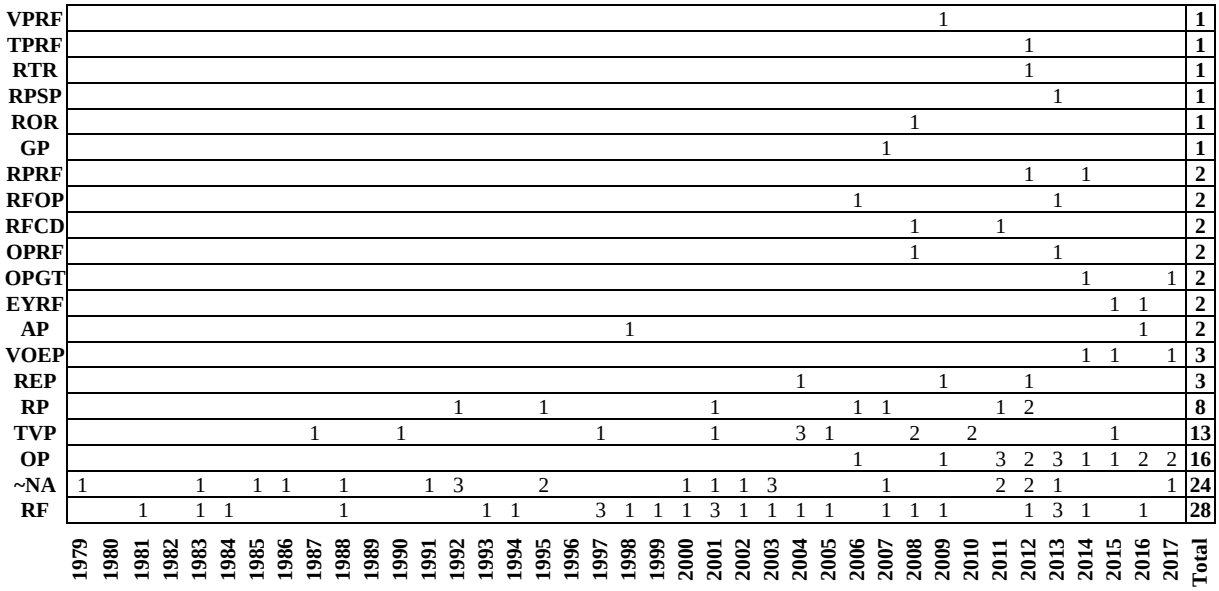
Researchers' photography (RP=8): It was found that 37.5% of these studies had explored tourist experiences. Half of all these studies were in Asia. 62.5% documented their observations and 50% used interviews to gather data. 62.5% used thematic analysis to interpret their results.

Resident-employed photography (REP=3) was first applied in 2004. Two-thirds of these studies were in the field of tourism development in Asia, whereas all the studies used interviews with the residents and 66.6% used content analysis as their decryption method.

Volunteer-employed photography (VOEP=3) was introduced in 2014. 66.6% of this research was in the area of tourism development. Similarly, two-thirds of these studies used interviews and 66.6% used critical analysis to evaluate their findings.

Other single photographic methods such as gaming photography (GP=1) and aerial photography (AP=2) had been used since 1997. However, from 2006 the use of multiple photography data collection methods have arisen, such as: Online photography and geotagged (OPGT=2); online photography & researcher-found images (OPRF=2); eye-tracking and researcher-found images (EYRF=2); researcher-found images and computer aided design or CAD (RFCD=2); researcher-found images and online photography (RFOP=2); researcher photography, online photography and researcher-found images (ROR=1); researcher photography and researcher-found images (RPRF=1); researcher photography and student photography (RPSP=1); researcher photography, tourist photography and researcher-found images (RTR=1); tourist photography and researcher-found images (TPRF=1) and visitor

employed photography and researcher-found images (VPRF=1) with increasing sophistication in quantitative and qualitative data analysis techniques over time.



Note: RF = researcher-found images (28), ~NA = NA (24), OP = online photography (16), TVP = tourist/visitor-employed photography (13), RP = researcher photography (8), REP = resident-employed photography (3), VOEP = volunteer-employed photography (3), AP = aerial photography (2), EYRF = eye-tracking & researcher-found images (2), OPGT = online photography & geotagged (2), OPRF = online photography & researcher-found images (2), RFCD = researcher-found images (2), RFOP = researcher-found images & online photography (2), GP = gaming photography (1), ROR = researcher photography, online photography & researcher-found images (1), RPRF = researcher photography & researcher-found images (2), RPSP = researcher photography & student photography (1), RTR = researcher photography, tourist photography & researcher-found images (1),TPRF = tourist photography & researcher-found images (1), VPRF = visitor employed photography & researcher-found images (1)

Fig. 6. The photographic methods used in tourism research

Accompanying Methods

Interviews (INT=44) were the most frequent accompanying methods used in this set of photographic tourism research (Fig.7). Interviewing techniques were first used in 1985 and increased in usage after the year 2000. 22.72% of these studies were in the domain of tourism management. 31.81% of these articles had researched tourist behaviour. 27.27% had used tourist- and visitor-employed photography from 1990 to 2010. Thereafter online photography was used several times since. Lastly, thematic analysis was used in 43.18% of these studies.

Literature (LR=41) material was used over the longest period of time with 41.46% using researcher-found images in their studies. 19.51% of these articles focused on tourism history. 43.9% investigated tourist perception, followed by 26.82% destination imagery. 65.85% used a critical analysis perspective.

Observational (OS=22) techniques were mostly used when assessing tourist behaviour (40.9%), while over a third (36.36%) of authors used their own photography. A high proportion of these studies (72.72%) used various interviewing methods with observations, whereas diaries (31.81%) were used on occasion for data collection.

Questionnaires and surveys (Q=15) were first used in 1985 and were used more frequently from 2009 onwards. 46.66% of tourism management studies have used questionnaires or surveys. Sixty percent of studies on tourist behaviour used questionnaires and surveys. One-third of these studies used online imagery as a photography method. Meanwhile, forty percent of these papers used interviews as an assisting method. Lastly, 46.66% of reports using questionnaires and surveys originated in Asia.

An ethnographic approach (EA=12) was first applied in 1985 and remained dormant until 2007 after which it was used several times in general tourism research. 41.66% of these studies investigated tourist perceptions, while one-third of the studies used the researchers' photography as the main photographic method. Overall 58.33% used interviews, while 58.33% applied observation as an accompanying method. Lastly, 41.66% of these studies were conducted in Asia.

Diaries (D=11) have been used since 1981 with photographic tourism research. 36.36% have been used to record tourist behaviour. 36.36% used dairies with tourist/visitor employed photography, while another 36.36% used researcher photography. 72.72% of these studies used thematic analysis to examine their dairies. Lastly, 36.36% used diaries in Asian countries.

Visual analysis (VA=11) was used most often in the tourism management (36.36%) research according to this data set. 36.36% of these articles examined destination imagery. 45.45% used researcher-found images. While 36.36% of these studies were conducted in Asia. However, a balance of quantitative and qualitative data analysis was used overall.

Anthropological inquiries (AL=4) were conducted between 1983 and 1986 and once more in 2012. Maps (M=4) and global positioning systems (GPS=2) were hardly used after 1998. In contrast, photographic collections (PC=4), experiments (EX=3) and focus groups (FG=3) were first used in 1997, but have seen little use since. Online groups (OG) were first used in 2012, and have been used three times so far.

Other methods that have been used rarely, include; government statistics (GS=3), Computer Image Analysis (CIA=2), field visits (FL=2), reflexive approach (RA=2), cognitive approach (CA=1), gratification theory (GC=1), grounded theory, (GD=1), Mise-en-scène analysis (MSA=1), phenomenological approach (PHA=1), photo ranking (PR=1), Q methodology (QM=1), Snapshot approach (SA=1), tourist text (TX=1) and unmanned aerial vehicles (UAL=1).

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
UAL																																						1		**1**
TX							1																																	**1**
SA																																1								**1**
QM																													1											**1**
PR																															1									**1**
PHA									1																															**1**
MSA																																							1	**1**
GD																																			1					**1**
GC																																			1					**1**
CA													1																											**1**
RA																															1						1			**2**
GPS																				1																1				**2**
FL																													1					1						**2**
CIA																																2								**2**
OG																																	1	1		1				**3**
GS																																2				1				**3**
FG																			2							1														**3**
EX																												2											1	**3**
PC																			1											1				2						**4**
M																				1													1		1				1	**4**
AI					1		1	1																										1						**4**
VA																			1				1		1		1		1			1	1	2				1	1	**11**
D			1					1											1						1	1			1					3		1	1			**11**
EA							1																						1			1	1	3	3		1		1	**12**
Q							1																		1	1					1	1	2		3		1	3	1	**15**
OS							1	1					1						1			1			1	2		1	1				3	3	4	1			1	**22**
L	1				1	1				2				3	1	1	2		2	1	1	1	4	3	2			1	3	1	2			2	2	1		3		**41**
INT							1	1	1			3	1	1			1		1				2		2	4	1				2	3	6	6	5	1	2			**44**

Note: INT = interviews (44), LR = literature (41), OS = observation (22), Q = questionnaire/survey (15), EA = ethnographic approach (12), D = diary (11), VA = visual analysis (11), AI = anthropological inquiry (4), M = maps (4), PC = photographic collections (4), EX = experiment (3), FG = focus group (3), GS = government statistics (3), OG = online groups (3), CIA = Computer Image Analysis (2), FL = field visits (2), GPS = GPS (2), RA = reflexive approach (2), CA = cognitive approach (1), GC = gratification theory (1), GD = grounded theory, (1), MSA = Mise en scène analysis (1), PHA = phenomenological approach (1), PR = photo ranking (1), QM = Q methodology (1), SA = Snapshot approach (1), TX = tourist text (1), UAL = unmanned aerial vehicle (1)

Fig. 7. The accompanying methods used in photographic tourism research

Qualitative Data Analyses & Tests

Critical analysis (CRI=37) was used the most, over the longest period of time in qualitative investigations of photographic tourism research (Fig. 8). 27.02% of studies inspected tourist perception using critical analysis. 32.43% critically analysed data with researcher-found images. The greatest use of critical analysis was seen in North American reports (21.62%).

Content analysis (CTA=34) was used in 23.52% of tourism management studies. The most common fields that used content analysis were tourist perception (38.23%) and destination image (26.47%). Content analysis of online photography was first used in 2008 and has grown in use since. European studies (35.29%) used content analysis the most followed by Asian research (20.58%).

Thematic analysis (TA=23) was most prevalent in cultural tourism research (17.39%). Overall, thematic analysis was used to explain tourist behaviour in 34.78% of the studies. 26.08% of tourist/visitor-employed photography and 34.78% of diaries were decoded using thematic analysis. The highest usage of thematic analysis in photographic tourism research was seen in South American studies (34.78%).

Semiotic analysis (SEA=9) was first noted in 1984 and has been in use periodically since. An equal proportion of studies have looked at tourist perception, tourist behaviour and destination imagery.

Discourse analysis (DA=6) was first used in 2004 and was used in fifty percent of the studies to examine tourist perception. Likewise, half of researcher-found images had been assessed using discourse analysis. In contrast, a third of ethnographic analysis studies (EA=6) had been used to explain the authors' observations, while a third of ethnographic analysis studies were from Asia.

Qualitative triangulation (TRI=4) has been used since 2012, whereas visual elicitation (VE=4) was first used in 2004. Seldom-used analyses included textual analysis (TXA=3), inter-coder reliability (ICR=2), argument analysis (AA=1), descriptive analysis (DPA=1), Foucauldian analysis (FUA=1), genre analysis (GNA=1), metaphor analysis (MA=1), non-representational approach (NRA=1), power analysis (PWA=1), repertory grid (RG=1), respondent validation (RV=1) and sociological analysis (SA=1).

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
SA																																		1						**1**
RV																													1												**1**
RG									1																																**1**
PWA																																							1		**1**
NRA																														1											**1**
MA																						1																			**1**
GNA																														1											**1**
FUA																																		1							**1**
DPA																			1																						**1**
AA																																				1					**1**
ICR																															1					1					**2**
TXA																			1											1								1			**3**
VE																										1						1							1	1	**4**
TRI																																		1	2		1				**4**
EA							1																1						1						1		1			1	**6**
DA																										1	1			1					1		1	1			**6**
SEA						1	1												1	1					1								1	2			1			**9**
TA			1					1					1	1			1						3	1	1	4			1	1		1		2	3	1				**23**
CTA					1	1				1									2					2	1	1	1	1		3	2		2	5	6	2	2		1	**34**
CRI	1				2					1				3	1	1	1			1	1	2	3	2	2			1	3	1	2		2	5		1	1	1	1	**37**
Total																																								

Note: CRI = critical analysis (37), CTA = content analysis (34), TA = thematic analysis (23), SEA = semiotic analysis (9), DA = discourse analysis (6), EA = ethnographic analysis (6), TRI = triangulation (4), VE = visual elicitation (4), TXA = textual analysis (3), ICR = inter-coder reliability (2), AA = argument analysis (1), DPA = descriptive analysis (1), FUA = Foucauldian analysis (1), GNA = genre analysis (1), MA = metaphor analysis (1), NRA = non-representational approach (1), PWA = power analysis (1), RG = repertory grid (1), RV = respondent validation (1), SA = sociological analysis (1)

Fig. 8. Qualitative data analyses and tests used in photographic tourism research

Quantitative Data Analyses & Tests

The quantitative data analyses and tests used in photographic tourism research (Fig. 9) were first used in 1995, surprisingly.

Chi-square (CHQ=9) was first used in 2009 and has been used the most out of all of the quantitative tests. 77.7% of its applications were in tourism management research. Chi-square has been used to analyse 44.4% of tourist photography and a third of online photography.

Geo-reference (GEO=6) was first used in 1998 and has in increased in usage since, with half of the studies exploring tourist behaviour with online photography in Asia.

Analysis of variance (AOV=6) techniques such as ANOVA were first used in 1995. Half of all ANOVA methods were used in tourism management research. While another fifty percent evaluated tourist behaviour. Two-thirds of the studies used analysis of variance with questionnaires and surveys and one-third with online photography. 33.3% of the Asian studies used statistical variance methods on researcher-found images and eye-tracking data.

Factor analysis (FA=6) was first used in 1995 and had been used intermittently thereafter. Half of all factor analysis tests were in tourism management articles. Factor analysis was used in a third of tourist experience studies and an another third in destination image research. Two-thirds of researcher-found images were numerically evaluated using factor analysis.

Mapping analysis (MAP=5) has been used since 2012 with eighty percent of researchers employing technological devices such as eye-tracking and aerial photography. Sixty percent of mapping analysis was administered in tourism management studies. Forty percent used a questionnaire survey as an accompanying method. Eighty percent of research using mapping analysis was conducted in Asia.

Frequency analysis (FQA=4) was used a few times after 1995. A quarter of tourism management studies used frequency analysis. Three-quarters of the examination were in the field of tourist behaviour. Seventy-five percent of papers used frequency analysis to assess questionnaires and surveys. Half of all frequency analysis was conducted in Asian studies.

Correlation coefficients (CRR=3), regression analysis (RA=3) and triangulation (TRI=3) have been used a little since 1997. While 3D virtual reconstruction (3DR=2), Cronbach's alpha (CBA=2), cluster analysis (CLU=2), eye movement analysis (EMA=2), mean (M=2), Root Mean Square (RMS=2), Receiver Operating Characteristic (ROC =2), ratio (RTO=2), t-tests (TT=2), varimax rotation (VR=2), Eigenvalues (EGV=1), kernel-based approach (KBA=1), least-square cross validation (SCV=1), presence of skew (PSK=1), Standard Deviation (SD=1) and Structural Equation Modelling (SEM=1) have been rarely employed after 2006.

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
SEM																																							1		**1**
SD																																						1		**1**
PSK																														1										**1**
SCV																																1								**1**
KBA																																1								**1**
EGV																			1																					**1**
VR																			1										1											**2**
TT																			1																1					**2**
RTO																																1	1							**2**
ROC																																							2	**2**
RMS																																						2		**2**
M																																1						1		**2**
EMA																																						2		**2**
CLU																																1				1				**2**
CBA																																		1				1		**2**
3DR																														2										**2**
TRI																											1								1			1		**3**
RA																			1														1	1						**3**
CRR																			1														1				1			**3**
FQA																	1															1				1	1			**4**
MAP																																		1					3	1	**5**
FA																	1		2										2										1		**6**
AOV																	1		1																1	1		2		**6**
GEO																				1							1						1				1		1	1	**6**
CHQ																															1	2		1	2	1		2		**9**
Total																																								

Note: CHQ = chi-square (9), GEO = geo-reference (6), AOV = analysis of variance (6), FA = factor analysis (6), MAP = mapping analysis (5), FQA = frequency analysis (4), CRR = correlation coefficients (3), RA = regression analysis (3), TRI = triangulation (3), 3DR = 3D virtual reconstruction (2), CBA = Cronbach's alpha (2), CLU = cluster analysis (2), EMA = eye movement analysis (2), M = mean (2), RMS = Root Mean Square (2), ROC = Receiver Operating Characteristic (2), RTO = ratio (2), TT = t-tests (2), VR = varimax rotation (2), EGV = Eigenvalues (1), KBA = kernel-based approach (1), SCV = least-square cross validation (1), PSK = presence of skew (1), SD = Standard Deviation (1), SEM = structural equation modelling (1)

Fig. 9. Quantitative data analyses and tests used in photographic tourism research

Countries

Finally, the analysis of the countries being studied with this data set using photography in tourism research (Fig. 10) exposed that pure literature reviews (~NA=26) were the longest and most researched focusing on general tourism. However, the area of tourist perception (34.61%) had been investigated the most with two-thirds using researcher-found images, while 46.15% did not refer to any images in their studies.

The United States (USA=13) has been using photography in tourism research the longest. One-third of this research discussed tourism history. Tourist perceptions (30.76%), tourist behaviour (30.76%) and destination imagery (30.76%) were studied equally. 53.84% of articles used researcher-found images. 38.46% applied interviewing methods, 30.77% used observation and 30.77% sourced literature material, whereas 46.15% used critical analysis in their studies.

The United Kingdom (UK=10) used photography in tourism research initially in 1995. Sixty percent of the research from the UK was in general tourism. Half of all studies investigated tourist perception. Fifty percent used respondent-based photography such as tourist/visitor-employed photography and volunteer-employed photography. Qualitative and quantitative analysis techniques methods were applied equally. Sixty percent of studies used content analysis.

Studies collecting data from various countries (~V~=8) were first noted in 1992 and have increased in frequency from 2007 with 37.5% focusing on tourism management.

Australia (AUS=7) first used photography in tourism in 2003. 42.85% of the studies have been in the tourism management sector, while 57.14% of studies were in the field of tourist behaviour. 57.14% used questionnaires or surveys. However, 57.14% preferred the use of statistical analysis techniques.

Canada (CAN=5) initially published photographic tourism research in 1990. Most studies have been in general tourism (80%). Twenty percent of these articles examined destination image. Sixty percent used respondent-based photography like tourist/visitor-employed photography and volunteer-employed photography. Another sixty percent used interviewing methods.

Mexico's (MEX=4) earliest study was conducted in 1987. Half of the Mexican studies address cultural tourism viewpoints. Fifty percent of studies have examined tourist behaviour and the other half tourist perceptions. Half of the articles used tourist photography. However, all of the authors have used interview techniques with fifty percent using an additional questionnaire or survey to gather data. Seventy-five percent of these papers had used thematic analysis to interpret their data.

Researchers from Hong Kong (HKG=4) and China (CHN=3) first used photography in tourism after 2004 and have demonstrated a strong preference for online photography. These researchers have tended to integrate their research with more technological innovations such as eye-tracking and geo-referencing. In addition, qualitative methods such as ethnographic approaches and the advanced use of statistical analysis and testing have been used most, with less than half discussing tourism destination management issues.

Spain (ESP=3), Greece (GRC=3), India (IND=3) and Peru (PER=3) have all published a few times between 200 and 2014. Two studies have been done at sea (~S~=2), two in Indonesia (IDN=2), two in Japan (JPN=2), and two in Norway. There are several countries from which a single study in the group originated, namely Switzerland (CHE=1), Germany (DEU=1), Denmark (DNK=1), Ecuador (ECU=1), Italy (ITA=1), South Korea (KOR=1), Malta (MLT=1), Malaysia (MYS=1), Namibia (NAM=1), New Zealand (NZL=1), Sweden (SWE=1), Turkey (TUR=1), Taiwan (TWN=1), Vietnam (VNM=1) and South Africa (ZAF=1).

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
ZAF																				1																				**1**
VNM																																		1						**1**
TWN																																							1	**1**
TUR																																			1					**1**
SWE																										1														**1**
NZL																								1																**1**
NAM																																		1						**1**
MYS																			1																					**1**
MLT																							1																	**1**
KOR																																						1		**1**
ITA																																		1						**1**
ECU																	1																							**1**
DNK																											1													**1**
DEU																				1																				**1**
CHE																																						1		**1**
NOR																																			1				1	**2**
JPN																								1															1	**2**
IDN																													1		1									**2**
~S~								1																												1				**2**
PER																																1		1	1					**3**
IND																						1						1					1							**3**
GRC																																		2		1				**3**
ESP																																	1		1	1				**3**
CHN																																	1	1				1		**3**
MEX									1					1												1									1					**4**
HKG																											1						1				2			**4**
CAN												1							1				1			1											1			**5**
AUS																									2							1			1			2	1	**7**
~V~														1															1	2			1		2	1				**8**
UK																	1		1				1					1	1	1	2				1	1				**10**
USA			1		1		1						1	1		1										2					1		1	2	1					**13**
~NA	1				1	1				2				1	1		1		1		1	1	2	1	2			1	2	3			1	2				1		**26**

Note: ~NA = not applicable (17), ~V~ = various countries (7), ~S~ = sea (1)

Fig. 10. Countries that have published photographic tourism research

CONCLUSIONS

This study’s aims were to review the current photographic tourism literature landscape to identify what contexts within tourism had been studied by researchers, the specific fields, the samples used, the sampling methods employed, the photographic methods and accompanying procedures employed, the data analysis techniques used and the countries where the studies were conducted.

The findings have highlighted the increasing frequency of photographic tourism research from 1997, with a specific rise in the number of tourism management studies from 2010 in Asian and European countries. In addition, the use of geographical characteristics to study tourism has also emerged recently. This is because of the growing access to large amounts of digital data, such as government statistics, geographical referencing and online photography. Also, the push for sustainable tourism practices has resulted in scholars adopting multidisciplinary approaches to address environmental concerns. Specific fields such as tourist perception, tourist behaviour and destination image are currently the preferred domains of photographic tourism research that use literature and tourist samples by purposive sampling. Researcher-found imagery is used as frequently as no imagery. However, the emergence of online photography continues especially in the area of tourism management. Established methods such as tourist/visitor-employed photography and researchers’ photography are seen more in the general tourism domain. The dominant accompanying

methods are interviews, literature reviews and observations, while questionnaires/surveys ethnographic approaches, diaries and visual analysis are also sometimes used. The traditional qualitative data analysis methods, such as critical analysis, still rule the tourism landscape, particularly in North America. However, following the recent appearance of quantitative analysis techniques from 1995 onwards, Chi-square and geo-referencing among others, have been employed with increasing frequency, mostly in Asian studies. This is possibly due to technological advancements, the access to large amounts of digital data, such as government statistics, geographical referencing, online databases and the easy access to sophisticated statistical analysis software. Thus, the use of statistical testing with numerous data sets will continue according to this review. European articles, however, have tended to use a mixture of textual and empirical devices, but with a slight preference towards qualitative analysis.

Photography-based studies in emerging fields in tourism research, such as 3D modelling in virtual tourism, have only been used a few times since 2006. Similarly, tourist motivation remains largely unexplored in studies focused on photography.

This study has thus been able to assess the current body of photographic tourism research within peer-reviewed academic journals. The results highlight that the continual development and evolution of both qualitative and quantitative methods for data collection and analysis is likely to continue to expand the tourism scholar's toolbox, with the additional value of enhancing the overall comprehension of results, increasing the validity and reliability of research, and broadening its practical applications. Moreover, it is clear that there is a wide space for future research in this area to continue to expand and deepen the available tourism literature involving photography. Finally, it is the vision of this study to provide a sense of perspective for future researchers in order to assist them in further development and innovation within the realm of photographic tourism research.

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