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Review-Progress in Tourism Management

Progress in tourism management: A review of website evaluation in tourism research

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ABSTRACT

This paper reviews tourism studies published from 1996 to July 2009 that pertain to methodological approaches to website evaluation. The paper analyzes the initial work and continues up to recent developments in website evaluation. In general, prior research can be divided into five evaluation approaches: counting, automated, numerical computation, user judgment, and combined methods. The strengths and weaknesses of each method are examined. Research gaps and opportunities for future studies are discussed.

1. Introduction

Since the launch of commercial Internet applications in the early 1990s, many researchers have noted the potential of the World Wide Web in business, and advocated incorporating the Internet into the tourism industry (Burger, 1997; Clyde & Landfried, 1995). The rapid development of information technology in general and the Internet in particular has dramatically changed the tourism industry (Ho & Lee, 2007). It is widely accepted that the Internet can serve as an effective marketing tool in tourism (Buhalis, 2003; Buhalis & Law, 2008). It is a valuable tool for both suppliers and consumers for information dissemination, communication, and online purchasing. The rapid growth in the number of online users and the increasing rate of online transactions provide clear evidence of the popularity of the technology. Businesses, including customer-oriented and information-intensive tourism enterprises, are increasingly adopting e-business models to achieve their organizational goals. Maintaining an effective website has thus become vital for a business to strengthen its customer relationships and gain a larger market segment.

Academic researchers have long advocated the importance of assessing website effectiveness. Lu and Yeung (1998), who were pioneers in the field, proposed a framework for evaluating website performance, in which the usefulness of a website is estimated based on its functionality and usability. Evans and King (1999), Stern (2002), and Stout (1997) stated that website performance can be determined by network statistics such as hit rate and log analysis. However, Fletcher, Poon, Pearce, and Comber (2002) noted that network statistics are subject to many limitations, including misleading and incomplete information, and Patton (2002) stated that practitioners should not analyze server log data.

As a newly emerging research area, website evaluation has no globally accepted definition yet. However, the US Department of Health and Human Services (2006) broadly characterizes website evaluation as the act of determining a correct and comprehensive set of user requirements, ensuring that a website provides useful content that meets user expectations and setting usability goals. In general, prior studies on website evaluation fall into two broad categories: quantitative and qualitative. Quantitative studies usually generate performance indices or scores to capture the overall quality of a website. For instance, Faba-Perez, Guerrero-Bote, and de Moya-Anegon (2005) introduced a technique that compares web page measures such as text elements and link formatting. Suh, Lim, Hwang, and Kim (2004) used automated tools to analyze numerically measurable data, such as traffic-based and time-based data, on websites. Likewise, Cox and Dale (2002) built a scoring system with binary classifications for websites of various industries. Hardwick and MacKenzie (2003) applied three different scoring systems to evaluate 19 miscarriage-related websites. Lastly, Yeung and Lu (2004) conducted a longitudinal study of the functional characteristics of commercial websites in Hong Kong based on selected quantitative site attributes, and found that the websites were only marginally enhanced after 2.5 years.

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In qualitative studies, the researchers assessed website quality without generating indices or scores. For instance, Heldal, Sjovold, and Heldal (2004) argued that the combination of branding, human–computer interaction, and usability could enhance website evaluation. Liang and Lai (2002) used a consumer-based approach to derive functional requirements for e-store design, and the empirical findings based on three e-bookstores showed that the quality of e-store design had a direct effect on the purchase decision making of students. Kim and Stoel (2004) used the WebQual scale to examine the dimensional hierarchy of apparel websites. The sample comprised female e-consumers, and the empirical results showed that the quality of websites selling apparel products could be conceptualized as a 12-dimension construct.

In the context of tourism, Jang (2004) stated that online information search will become a major trend among travelers; with online reservations for travel products and services becoming an important application (Law & Hsu, 2006). Corigliano and Baggio (2006) argued that the quality and performance of commercial websites need to be monitored. In brief, website evaluation is of interest to academic researchers and industrial practitioners. Law and Bai (2006) found that published articles have presented various approaches and made efforts to improve the quality of commercial websites. Leung and Law (2006) reviewed information technology publications in leading tourism journals for the 1985–2004 period and found that networking was the most popular research area, with the highest growth rate. These studies demonstrate that travel website-related studies have become important to both industrial practitioners and academic researchers.

Recently, review articles on tourism website evaluation have been published. Morrison, Taylor, and Douglas (2004) reviewed the application of the Balanced Scorecard (BSC) method in tourism website evaluation studies, and proposed a modified BSC method for future tourism and hospitality website evaluation. The authors also predicted that benchmarking will be a major approach in future research in this area. A benchmarking approach combines user perceptions with website performance to help owners identify the strengths and weaknesses of their own websites and in comparison with those of their competitors and the best practical examples in the industry. Hashim, Murphy, and Law (2007) focused on website design frameworks in their review of articles published from the 1990s to 2006. The authors extracted five dimensions of website quality based on the most researched online features of tourism and hospitality websites: information and process, value added, relationships, trust, and design and usability. They also found that the most popular attributes of hotel websites were reservations, contact information, promotions, and products and services. Similarly, Law and Bai (2006) reviewed published articles on website design and development in the *Journal of Information Technology & Tourism* and the proceedings of ENTER conferences (organized by the International Federation for Information Technology and Travel & Tourism [IFITT]), which are the largest publication channels on technology applications in travel and tourism. The authors found that the importance of website design is widely recognized, and that a number of website development evaluation instruments have appeared in the tourism field. Additionally, Buhalis and Law (2008) analyzed e-tourism related studies in the past 20 years and predicted the future of the e-tourism for next 10 years.

These studies give a basic overview of the historical development of website evaluation studies related to framework establishment and evaluation. In terms of the coverage of the studies, Morrison et al. (2004) examined articles published mainly in tourism journals and conference proceedings up to 2003, Law and Bai (2006) analyzed only studies from two academic publications that are affiliated with IFITT, Hashim et al. (2007) examined the website attributes and dimensions identified in published articles on website evaluation. Lastly, the aim of Buhalis and Law's (2008) study is to provide a general overview on Internet application to the tourism industry.

This study attempts to provide an updated and comprehensive overview of prior tourism research that pertains to methodological approaches to website evaluation. Only the studies which investigated website assessment method are selected, and prior studies that are related to new website evaluation measurements or success factors are discussed. As Han and Mills (2006) commented that the use of the web in tourism marketing began in 1995, we review articles published from 1996 to early July in 2009. Murphy, Forrest, Wotring, and Brymer (1996) conducted a pioneer study that attempted to evaluate tourism and hospitality websites in an early stage of web development.

2. Methodology

In the present study, information on published articles was gathered from Science Direct (http://www.sciencedirect.com), EBSCOHost (http://search.ebscohost.com), and Google Scholar (http://scholar.google.com.hk), which are three of the largest and most popular online databases and search engines. The searching keywords included *web site/website quality, web site/website evaluation, web site/website assessment, and web site/website measurement.* In addition, attempts were made to trace references cited in published articles. After careful screening of the articles, published studies were found that are directly pertained to the issue of website evaluation in the tourism and hospitality field.

In total, 75 published articles were determined to be relevant to this study. Table 1 categorized the papers on the basis of industry sectors, regions, and evaluation instruments. The table also lists the number of published articles in each category on an annual basis. Apparently, in the category of industry sectors, the most popular one is for hospitality websites which were covered by 37 prior studies using different methods. Destination websites were the second most popular categories with 17 entries, and travel websites were the third most popular category with nine publications. In addition, Europe was the most investigated region with 24 papers, and Asia was the second most investigated region. As well, counting method was the most adopted instrument which was used by 25 prior studies with user judgment being the next with 11 publications.

The next section provides an overview of these published articles. The section following that identifies research gaps by comparing and contrasting these prior studies. The last section concludes the study and offers suggestions for future research.

3. Findings

Table 2 lists the related publications on tourism website evaluation studies. The list is in chronological order in terms of publication year. The ten columns in Table 2 briefly describe each publication's author/s and publication year, industrial sector, geographical region, research method, target sample of evaluation, instrument, evaluation/measurement, dependent variable/s, independent variable/s, and unit of analysis.

In general, published articles covered 23 industrial sectors. These industrial sectors have been categorized into nine main categories included: i) hospitality websites that refer to hotel website (HWs), restaurant websites (RWs), lodging websites (LWs) ii) destination websites include regional tourism authority/organization websites (RTAs/RTOs), attraction websites (AWs), destination management/marketing organization/system websites (DMOs/DMSs), national tourism organization websites (NTOs), rural destination websites (RDWs), attraction websites (AWs), visitor information center

Table 1
Paper distribution by the industry sectors, regions and evaluation instruments.

Categories		1996	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total
Industry sectors	Hospitality websites	2		2	3	1	6	6	4	1	6	1	3	2	37
	Destination websites		1	1		1	1	2	4	2	3	2	2		19
	Travel supplier websites				1	1		1		1	1	1	1		7
	Airline websites						2		1				1		4
	Online travel guides											1			1
	Online travel magazines											1			1
	Travel websites	1					1	1			1	4		1	9
	Travel search engine websites										1				1
	Travel blogs											1			1
Regions	Asia						3	5	2	1	2	2	3	2	20
	North America	2			1	1	2	1	4	2	2		1	1	17
	Europe			2	1	1	5	2	2	1	5	1	4		24
	Africa									1					1
	Oceania				1		1			1	1				4
	Worldwide	1	1	1	2	1		2	1	2	2	4			17
Evaluation Instrument	Counting	2		3	1		5	3		2	5		3	1	25
	User judgment				1	2	1	1	3	1		1		1	11
	Automated						1	1			2		2		6
	Numerical computation							2				1	1	1	5
	No actual evaluation	1	1		2			1	1		1	3			10
	Counting & User judgment					1	1		1		1				4
	Counting & Automated						2		3						5
	User judgment & Automated							1	1			1	1		4
	Numerical computation & No actual evaluation									1	1	1			3
	Counting & Numerical computation										1				1

websites (VICs), city tourism website (CTWs), official tourism website (OTWs), iii)Travel supplier websites which comprise travel agency websites (TAWs), brick-and-mortar travel retailer websites (BMTRs), tourism operator websites (TOWs), small and medium enterprise websites (SEMs), iv) airline websites (ALWs), v) travel search engine websites (TSEs), vi) travel blogs (TBs), vii) online travel guides (TGs), and viii) online travel magazines (TMs), and ix) travel websites (TWs).

On the basis of the prior studies' evaluation methods, five evaluation approaches were determined, including: i) counting (C), ii) user judgment (U), iii) automated (A), iv) numerical computation (N), and v) No actual evaluation (No).

3.1. Coverage of industrial sectors and evaluation instruments

These tourism website evaluation studies could be divided into two major categories: i) new evaluation model/instrument development, and ii) website evaluation using an adopted or modified model/instrument. The following subsection analyzes these categories in detail.

3.2. New evaluation model/instrument development

In general, the new evaluation model/instrument development studies aimed to elaborate a new approach to travel-related website evaluation. Each of these approaches was usually developed for a specific industrial sector. For instance, Murphy, Forrest, and Wotring (1996) employed a qualitative method to collect basic functionality measurements from restaurant website suppliers, and these measurements were used to evaluate U.S. restaurant websites. Similarly, in their hotel website evaluation study, Murphy, Forrest, Wotring, and Brymer (1996) counted the features of hotel websites, and subsequently sought feedback from hotel managers.

Some of these studies developed new evaluation frameworks but did not use them to evaluate actual websites. That is, the new frameworks were not applied or tested on publicly available websites.

In general, information for website measurement and evaluation was collected by researchers in two ways. The first was to collect information or suggestions from consumers, suppliers, and researchers. For instance, van der Pijl, Haperen, Slikker, and Smits (1996) employed a qualitative research method to collect consumer perceptions of IT service and provided the results to suppliers, and to help suppliers think from the position of consumers. This research model measured consumer satisfaction with IT service, and divided service quality into two aspects of: i) client satisfaction and the theoretical perspective of quality, and ii) client satisfaction and the causal perspective of quality. Jung and Baker (1998) attempted to develop a framework to evaluate the market effectiveness of the World Wide Web in National Tourism Organizations (NTOs) from the perspective of suppliers. A questionnaire was used to collect the views of NTO suppliers, and a qualitative method was adopted to collect the views of researchers. The findings of this study indicated that most NTO professionals considered a website to be an effective marketing medium. Several factors that should be included in website design were identified, including ease of use, joy of use, content, interactivity, transaction support, added value, appearance, and clear navigation paths. Specifically, the study posited that website effectiveness can be measured by the number of hits, time spent, booking rate, interactivity, repeat visits, and feedback. However, Tierney (2000) argued that website effectiveness evaluation should go beyond counting the number of hits and page viewings. Tierney (2000) extended the study of Schonland and Williams (1996) and recommended that a Net Traveler Survey be used in future website evaluation studies. Buhalis and Spada (2000) developed a comprehensive list of success factors of destination management systems (DMSs) by collecting the views of researchers, suppliers, and consumers. Additionally, Hu (2009) modified an electronic service quality (e-SQ) model and adopted a fuzzy multiple-criteria decision making model to determine a list of success factors to assess service quality of travel websites.

Other studies reviewed the measurement methods described in the literature, and then categorized the collected attributes. For instance, Mills and Morrison (2003) developed an e-satisfaction

Table 2
Travel and tourism-related website evaluation studies from 1996 to July 2009.

Author/s (year)	Sector	Region	Methodology	Target Sample	Instrument	Evaluation/ measurement	Dependent Variable/s	Independent Variable/s	Unit of analysis
Murphy, Forrest, and Wotring (1996)	RWs	US	Qualitative, Quantitative	Researchers	C	Home page; Search-engine results; Classification; Website basic functions; Website communication functions and audiences	Produced marketing strategies based on the performance of each factor	Website performance factors	Web content analysis from suppliers' perspectives
van der Pijl et al. (1996)	TWs	Worldwide	Qualitative	Consumers, Practitioners	No	IT services: Client satisfaction and quality perspectives	Quality of IT services	Factors related to IT services	Gathering perspectives from both clients and practitioners on IT services
Murphy, Forrest, Wotring, and Brymer (1996)	HWs	US	Quantitative, Qualitative	Consumers, Practitioners	C	Home page; Search-engine results; Classification; Website basic functions; Website communication functions and audiences	Promotion and marketing service, information, interactivity and technology, and management	Website performance factors	Website content counting combined with practitioners' perspectives on e-commerce
Jung and Baker (1998)	NTOs	Worldwide	Quantitative, Qualitative	Researchers, Practitioners	No	Success factors of Web design: Internet value for marketing; website design factors	Views about Internet value for marketing; measurement of percentage of using each method and rating factor of website design	Internet value for marketing and factor of website design	Users' views of using the Internet for NTOs with the importance and percentage of website design
Gilbert et al. (1999)	HWs	Worldwide	Quantitative, Qualitative	Practitioners	C	RM (Relationship marketing) model	Percentage of web features' appearances	Web features	Counting web features, combining with interviewing hotel senior marketing directors
Frew (1999)	DMSs	Austria; England; I reland; Scotland	Qualitative, Quantitative	Researchers	C	Database, distribution, management, and operation	Weighted score of DMS implementation characteristics and counting results	DMS implementation characteristics	Counting the appearances and rating the importance of the of DMS implementation characteristics
Morrison et al. (1999)	HWs	UK	Quantitative	Researchers	C	Technical, Marketing, Internal and customer critical success factors	Evaluation results of website performance	Website performance/ effectiveness features of a BSC (Balance scorecard) model	Counting and evaluating website performance
Tierney (2000)	DWs	US	Quantitative	Consumers	No	Test website effectiveness based on consumers' point of view in Initial prophase; Post; Second Prophase	Website effectiveness	Percentage of initial prophase; Post; Second Prophase	Using an online survey to gather consumers' point of view on e-search
Buhalis and Spada (2000)	DMSs	Worldw–ide	Qualitative, Quantitative,	Researchers, Suppliers, Consumers	No	Success criteria from consumers/tourism sectors/public sectors/ investors/tour operators/travel agents' point of view	Listed set of success criteria	Success criteria	Analyzing needs and wants of stakeholders by an integrated method
Kaynama and Black (2000)	TAWs	Worldw–ide	Quantitative, Qualitative	Practitioners	U	E-QUALITATIVE (e-SERVQUAL)	Rating result of E-Qual factors	Seven website service dimensions of E-Qual	Rating website service performance by users

Benckendorff and Black (2000)	RTAs	Australia	Qualitative, Quantitative	Practitioners	C	Planning, site management, site design, and site content	Element performance	Elements of successful website development	Content analysis
Oertel, Thio, and Feil (2001)	DMSs	Europe	Quantitative	Researchers	C&U	Destination website in search engine, content, and functions	Different types of tourist behavior	Keyword search, functions, and content features	External benchmarking analysis
Jeong and Lambert (2001)	LWs	Worldwide	Qualitative, Quantitative	Consumers	U	Perceived usefulness, ease of use, accessibility, and attitude	Intention to use information; use of information; and recommendation	Website information quality factors	Website content analysis and weighted importance of website development factors
Perdue (2001)	Skires–orts	US	Qualitative	Consumers	U	Consumer experience: Speed and quality of site accessibility; ease of navigation; Visual attractiveness of the site; Quality of Information content	Overall resort quality as presented by the website	Website design factors	Content analysis based on consumers' experience
Blum and Fallon (2002)	AWs	Welsh	Quantitative	Consumers	C	Product; Price; Promotion; Place; Customer relations; technical aspects	Result of Marketspace model analysis	Website content factors in Marketspace model	Content analysis
Frey et al. (2002)	HWs	Switzerland	Quantitative	Laboratory Test	C&A	Service processes, customer relationship, value added services, creation of trust, and cybermarketing	Current use of Web technologies in the Swiss hotel industry	Web marketing functions	A benchmarking approach
Wöber et al. (2002)	HWs	Europe	Quantitative, Qualitative	Practitioners	A	Interactive features, navigational mechanisms, layout and multimedia characteristics, and content related features	Perceived ease of use and perceived usefulness	Website's ease of use and usefulness attributes	Web content extraction, content analysis and data mining
Schegg et al. (2002)	HWs	Switzerland	Quantitative	Consumers	C & A	Service process, customer relationships, value creations, trust and cybermarketing	Quality, technological standards, and website's strategies	Over 200 Website criteria	Conjunction with personal observations benchmarked
Lu et al. (2002)	TWs	China	Quantitative	Consumers	U	Information content, ease of use, and functionality	Users' perceptions and satisfactions on China tourism website	Functionality design features	Content analysis based on users' requirements and satisfaction
Jeong (2002)	LWs	US	Quantitative	Laboratory Test	C	Purpose/value commercial website evaluation matrix	Promotion, provision, and processing	Four factors, including timely, customization, logistic, and sensational	Counting based on a list of purpose values for commercial website evaluation matrix, to seek the values that lodging websites are likely to provide to their customers
Doolin et al. (2002)	RTOs	New Zealand	Quantitative	Laboratory Test	C	Level1-promotion; Level2-Provision Level3-Processing	The utility of using interactivity to measure the relative maturity of tourism websites	eMICA (extended Model of Internet Commerce Adoption)	Occurrence counting to evaluate website features
Wan (2002)	HWs, TOWs	Taiwan	Quantitative, Qualitative	Laboratory, Researchers	C & U	Value-added model: user interface; Variety of Information and online reservation	Ratings of websites of international tourist hotels and tour wholesalers	three criteria of user interface, variety of Information, and online reservation	Content analysis of the three criteria by rating the performance

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Table 2 (*continued*)

Author/s (year)	Sector	Region	Methodology	Target Sample	Instrument	Evaluation/ measurement	Dependent Variable/s	Independent Variable/s	Unit of analysis
Law and Leung (2002)	AWs	Asia, North America	Quantitative, Qualitative	Laboratory Test, Researchers	C	An e-travel business framework: Information quality; System use; System quality; Service quality; Customer loyalty	Result of reservation service quality	Commercial website success factors	Frequency counting to present website quality
Aksu and Tarcan (2002)	HWs	Turkey	Quantitative, Qualitative	Researchers, Practitioners	S	Website address, purpose of, reservation, language, links, feedback	Examination result and needs of website application for five-star hotels in Turkey	Websites and Web applications of five-star hotels in Turkey	Using counting method and interviews with managers to discover the needs of web applications in this industry
Wöber (2003)	DWs	Europe	Quantitative	Laboratory Test	A	Resource database and maintenance engine; Search engine; Protocol processing engine, and Website analyzer and management report engine	Effectiveness of European city tourism web portal	Success indicators for destination websites	Web content and web usage mining by an automated website analytical tool
Mills and Morrison (2003)	TWs	Worldwide	Quantitative	Laboratory Test	No	E-satisfaction model: TW interface; Perceived quality of TW Services and perceived value of TW; Customer online TW experience and Customer Satisfaction with TW	Customer online TW experience and customer satisfaction with TWs	Web interface, quality of TW services, and perceived value of TWs	Developing a website evaluation model based on laboratory test but with no case study
Huang and Law (2003)	HWs	China	Qualitative, Quantitative	Practitioners, Consumer	N	Product; Place; Price; Promotion; People; Packaging; Programming and Partnership; Customer; Needs & Wants; Cost to Customer; Convenience; Communication; Search Engines; Management Links; Useful Skills	Overall Performance Score of 8Ps, 4Cs, and website promotion	8Ps, 4Cs, and website promotion criterions	Content analysis
Feng et al. (2003)	DMOs	China and US	Quantitative	Laboratory Test	C	Modified BSC (Balanced scorecard) model: Marketing strategies; Web page design; Marketing information; Technical quality	Websites' actual performance	Dimensions of a BSC model	A benchmarking process to identify a set of critical success factors and evaluate hotel websites by content analysis
Scharl et al. (2003)	HWs	Europe	Quantitative	Practitioners	U & A	Ease of use and website usefulness	Web usage	Criteria of a website's easy of use and usefulness	Web mining and a supplier survey on the effectiveness of hotel website
Chung and Law (2003)	HWs & TAWs	Singapore	Quantitative	Practitioners	C	Basic information; E-commerce; Promotions; Secondary information; Services, and technology	Effectiveness of websites	Consumers' perceptions and website feature performance	Gathering consumer perceptions of attributes together with website feature analysis

Liang and Law (2003)	HWs	China	Quantitative	Consumers	U	Facilities, customer contact, reservations, surrounding area and management of websites	Website functional performance	Website functionality dimensions	Gathering consumer perceptions of attributes together with website feature analysis
Gilbert and Powell-Perry (2003)	HWs	Worldwide	Quantitative	Laboratory Test	C	Relationship marketing model: information, reservation, loyalty program, newsletter, special gestures, feedback, customer service, public relations, value-added services, employee Website, channel member Website, and customized research.	Hotel websites on the use of new technologies and multimedia	Web marketing criterions	Frequency counting
Chung and Law (2003)	HWs	Hong Kong	Quantitative	Practitioners	N	Facilities, customer contact, reservations, surrounding area, and management of websites	Website performance	A conceptual framework of hotel website performance	Content analysis combined with weighted established evaluation factors
Shchiglik and Barnes (2004)	ALWs	Worldwide	Qualitative, Quantitative	Consumers	U	PAWQI (Perceived Airline Website Quality Instrument): site quality, information quality, interaction quality, and airline-specific quality	Perceived airline website quality	Four website quality dimensions	Gathered consumers' perceptions of airline website quality
Aaberge et al. (2004)	DWs	Norway	Qualitative	Laboratory Test	U	Technical functionality; The scope and correctness of the description of the object	Consumers' perceptions and websites' actual performance	Website content features	Benchmarking process
Gupta et al. (2004)	SEMs	Welsh	Quantitative	Practitioners	U & A	Access, information, design, e-commerce/ immediacy and customer relationship	Development of customized CRM solutions	Design features and e-commerce functionality,	Content analysis with consumer satisfaction
Ham (2004)	LWs	US	Quantitative	Laboratory Test	C & U	Impression; Content usefulness; Accuracy; Navigation; Accessibility; Online reservations; Timeliness of information	Website effectiveness	Evaluation criteria of limited-service of chain lodging operations	Content analysis based on frequency counting
So and Morrison (2004)	NTOs	East Asia	Quantitative	Laboratory Test	C &A	Modified BSC(Balanced scorecard) model: Technical; Marketing; Customer perspective; Destination information perspective	Website effectiveness evaluation from customers' perspective	Dimensions of modified BSC model	A benchmarking approach

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Table 2 (*continued*)

Author/s (year)	Sector	Region	Methodology	Target Sample	Instrument	Evaluation/ measurement	Dependent Variable/s	Independent Variable/s	Unit of analysis
Kaplanidou and Vogt (2004)	DMOs	US	Quantitative	Consumers	U	Navigation, content, accessibility performance, and website usage and satisfaction	Importance and performance of website factors	Website performance factor	Detect consumers' perception on website importance and performance
Douglas and Mills (2004)	DMOs	Caribbean	Quantitative	Laboratory Test	C & A	Modified BSC Balanced scorecard) model: Technical aspects; User friendliness; Site attractiveness, and marketing effectiveness	Website visitor retention	Dimensions of a modified BSC model	A benchmarking approach
Kline et al. (2004)	HWs	US	Quantitative	Laboratory Test	C & A	Modified BSC (Balanced scorecard) model: User friendliness; Site attractiveness; Marketing effectiveness, and Technical aspects	Strengths and Weaknesses of the B&B Websites	Dimensions of Modified BSC model	A benchmarking approach
Law, Ho, and Cheung (2004)	HWs	China and the US	Quantitative	Consumers	N	Facilities, customer contact, reservations, surrounding area, and management of websites	Website functional performance	Website functionality Dimensions	Content analysis from consumers perspective and comparison of the DMO website functionality performance between China and US
Zhou and DeSantis (2005)	CTWs	North America, Europe, Asia, Australia and Africa	Quantitative	Researcher	C	Website content and functions	City tourism website usability	The factors of website content and functions	Content analysis based on counting method
Law (2005)	HWs	World–wide	Quantitative	Consumers	N & No	No specific indication (hotel guests' preferences and fuzzy assessments of website attributes)	Hotel website performance	Website attributes	A fuzzy multi–criteria analysis model based on content analysis and user behavioral approach
Mich et al. (2005)	RDWs	World–wide	Qualitative	Researchers	U	Identity, content, services, location, maintenance, usability, and feasibility	Website quality	Website quality factors	Content analysis based on users' perspective
Choi and Morrison (2005)	BMTRs	US	Quantitative	Laboratory Test	C	Modified BSC(Balanced scorecard) model: Technical; Customer; Marketing effectiveness; and travel agency	Effectiveness of evaluated website	Dimensions of a modified BSC model	A benchmarking approach
Shi (2006)	VICs	Australia	Quantitative	Laboratory Test	A	Web content accessibility guidelines 1.0 (WCAG)	Web accessibility	Attribute of web content accessibility guidelines 1.0 (WCAG)	Content analysis by automatic method
Han and Mills (2006)	NTOs	World–wide	Quantitative	Laboratory Test	C & N	An online promotion evaluation instrument: Aesthetics features; Informative features; and interactive features	Marketing effectiveness of destination websites	The factors of website promotion, and design features	Benchmarking process

Park and Gretzel (2006)	TSEs	US	Quantitative	Laboratory Test	No	A novel research framework on search engine: Relative advantages, compatibility, complexity, trust, and subjective norm	Individuals' willingness to adopt and/or recommend travel search engines	The attributes of catching travel search engine performance	Analysis on consumers' perspective
Bai et al. (2006)	HWs	Worldwide	Quantitative	Laboratory Test	C	Operational Framework for Customer Relationship Marketing (Basic; Reactive; Accountable; Proactive; Partnership)	Mutual relationship (company type and size)	e-RM 5 features	Content analysis and website classification counting
Baloglu and Pekcan (2006)	HWs	Turkey	Quantitative	Laboratory Test	C	Interactivity, navigation, and functionality	Website effectiveness and marketing practices	Website design characteristics	Content analysis
JärveRiinen (2006)	TWs	Europe	Quantitative	Laboratory Test	C	Different website features for consumers in different experience levels	Features offered for inexperienced customers, features offered for more experienced customers	Website usability features	Comparison of website performance between experienced and inexperienced customers
Chan and Law (2006)	HWs	Hong Kong	Quantitative	Laboratory Test	A	An Automatic Website Evaluation System (AWES): website usability; Interface effectiveness; Information, Ease of navigation, and user friendliness	The factors performance in design quality	Website design features	Using an automated system to evaluate website performance
Zafiropoulos and Vrana (2006)	HWs	Greece	Quantitative	Practitioners, Consumers	U&C	A framework for the evaluation of hotel websites: Facilities, guest contact, reservation/price information, surrounding area, management of website, and company profile	Hotel website overall performance	Website function features	Hierarchical cluster analysis (HCA)
Roney and Özturan (2006)	TAWs	Turkey	Quantitative	Practitioners	C	Information, before-sale and after-sale activities	Consumer attractions	Information quality	Content analysis by frequency counting
Essawy (2006)	HWs	UK	Qualitative	Consumers	U	Interface, information, service, negatively affected the purchase and revisit intentions	Purchase intention, revisit/ recommendation	Usability dimension	Protocol analysis methodology
Beldona and Cai (2006)	RDWs	US	Quantitative	Laboratory Test	C	Content, interactivity and promotional value	Website effectiveness	Website quality factors	Content analysis
Au Yeung and Law (2006)	HWs	HK	Quantitative	Researchers, Consumer Laboratory Test	N	Language, layout and graphics, information architecture, user interface and navigation, and general.	Usability hazards index	Usability dimensions	Numerical calculation process based on consumer and professionals evaluation results

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Table 2 (*continued*)

Author/s (year)	Sector	Region	Methodology	Target Sample	Instrument	Evaluation/ measurement	Dependent Variable/s	Independent Variable/s	Unit of analysis
Law (2007)	TWs	Worldwide	Quantitative	Consumers	N & No	No specific indicators	Consumers' perceptions of quality of travel websites	Multiple website attributes	A fuzzy multiple-criteria decision-making model based on users' assessment
Choi et al. (2007)	TWs, TBs, TGs, TMs OTWs	Macau	Qualitative, Quantitative	Researchers	A & U	Narrative and visual information	Keywords for each website sub-category, and performance of website sub-categories	Most frequent ratings of words or phrases in rank order; attractions and visual information and website content and design factors	Content analysis, ranking and counting percentages
Lu et al. (2007)	TWs	China	Quantitative	Consumers	N	Website content and design	Users' perceptions and satisfactions	Content and design features	Content analysis and calculating by a fuzzy AHP model
Stockdale and Borovicka (2007)	RWs	Austria	Quantitative	Laboratory Test	U	IS Success Model: information, system service quality	Intention to use and users' satisfaction	Website quality	Website evaluation based on users' judgment
Park et al. (2007)	TAWs	Worldwide	Quantitative	Laboratory Test	No	Ease of use, content, fulfillment, responsiveness and privacy, visual appeal, and security/privacy	Willingness to use a website	Website quality	Factor analysis based on consumers experiences
Ho and Lee (2007)	TWs	Worldwide	Quantitative	Consumers	No	information quality, security, website functionality, customer relationships, and responsiveness	Purchasers' perceptions/ expectations of e-travel service quality	e-travel service quality scale factors	Factor analysis based on consumers' perceptions
Park and Gretzel (2007)	DWs	Worldwide	Qualitative	Researchers	No	Ease of use; Information quality; visual appearance; Fulfillment; responsiveness	Web evaluation; e-quality, e-satisfaction, and -loyalty	Destination evaluation factors	Categorization of review studies by meta analysis
Qi, Leung, et al. (2008)	HWs	HK	Quantitative	Laboratory Test	A	An Automatic online Website Evaluation system	Website content design	HTML, image, external scripts, external CSS files, and multimedia files	Evaluation of website performance by an automatic process
Bauernfeind and Mitsche (2008)	DMOs	Europe	Quantitative	Researchers	A&C	Data envelopment analysis (DEA), linguistic offer, interactivity, and tourism content	Website efficiency of tourism organizations	Input and output Factors	Benchmarking combining withData Envelopment Analysis (DEA)
Hanai and Oguchi (2008)	LWs	Japan	Quantitative	Consumers	C	Surrounding area, transportation, building, service, payment options, price considerations, and facilities	Information quality	Lodging information on a website	Correspondence analysis of lodging information
Harison and Boonstra (2008)	ALWs	Holland	Quantitative	Researchers	C	Performance: Financial overview; Customer satisfaction; Traceability; Accessibility, Online sales process: Contact; Sales; After-sales; Customer support	Website performance and consumer satisfaction	Performance factors and online sale process indicators	Content analysis, checking website performance on each indicators

Bevanda et al. (2008)	TAWs	Republic of Croatia	Quantitative	User based	A	Visual Appearance; Ease of Use; Fulfillment; Navigability; Accessibility; Personalization; Interactivity; Information quality	Users' behavior and their requirements	Website design quality factors	Using an automated process to discover users' perception
Schmidt, Cantallops, and Santos (2008)	HWs	Spain & Brazil	Quantitative	Practitioners, Researchers	C	Promotion, multimedia, navigability, customer retention, privacy and security, and service promptness	Website performance	Website content and marketing factors	Content analysis based on counting method ,then adopted an exploratory factor analysis (EFA) to produce the final list of website characters
Qi, Law, et al. (2008)	DMOs	China	Quantitative	Researchers, Consumers, Laboratory Test	N	Language, layout and graphics, information architecture, user interface and navigation, and general	Usability hazards index	Usability dimensions	Numerical calculation process based on consumers and professionals' evaluation results
Hu (2009)	TWs	Taiwan	Quantitative	User based	No	Efficiency, Fulfillment; System availability; Security/privacy; Responsiveness; Compensation; Contact; Benefit; Customization/ personalization; Tangibility; Assurance/ trust; Continuous improvement;	Electronic service quality (e-SQ)	Website quality aspect	A genetic-algorithm-based method fuzzy multiple-criteria decision making (MCDM) problem model
Xiong et al. (2009)	HWs & RWs	U.S.	Quantitative	Researchers	C	Website content accessibility Guidelines	Website accessibility	Attributes within website content accessibility guidelines	Content analysis by frequency counting
Musante, Bojani, and Zhang (2009)	HWs	Singapore	Quantitative	Laboratory Test	U	27Website content items	Website attributes utilization and effectiveness for hotels of various class levels.	Content items	Rating content items for each selected website

model for travel website evaluation, which consists of three main dimensions: interface, perceived quality, and value. Park and Gretzel (2006) developed a framework for travel search engine evaluation. Introducing innovation diffusion theory (IDT), which was originally proposed by Rogers (1995), and comparing it with the technology acceptance model (TAM), Park and Gretzel (2006) established a model that comprises five measurements: relative advantage, compatibility, complexity, trust, and subjective norm. Ho and Lee (2007) conducted a comprehensive review and collected a list of attributes for measuring e-travel service. These attributes were then grouped into five dimensions: information quality, security, website functionality, customer relationships, and responsiveness. Park, Gretzel, and Sirakaya-Turk (2007) used a similar approach to create a comprehensive list of attributes for evaluating travel agency websites. Moreover, Park and Gretzel (2007) published a review study focused on analyzing both tourism and IT related studies, producing a comprehensive list of success factors for destination marketing websites.

3.3. Website evaluation using an adopted or modified model/instrument

Prior studies that adopted or modified existing models/evaluation instruments to evaluate selected websites are grouped into this category. For example, Frew (1999) compiled a list of success factors in England, Ireland, and Scotland's DMSs, and a panel of experts was invited to indicate the importance of these factors. Frew (1999) then determined which of these factors existed on selected websites, and the score of importance and existence of the dimensions reflected the overall performance of the evaluated DMSs. Kaynama and Black (2000) modified Parasuraman, Zeithaml, and Berry (1985) service quality (SERVQUAL) model, and produced a new model called E-QUAL to measure online travel service quality. The overall performance of the selected websites measured using E-QUAL was based on the level of consumer satisfaction.

Prior studies in this category can be divided into five subgroups based on their evaluation method: counting, user judgment, automated, numerical computation, and combined method.

3.3.1. Counting methods

A counting method is used to evaluate a website's performance or to determine its content richness. This type of evaluation method has two requirements. First, a well-prepared checklist is required to verify the existence of attributes on a website. In general, most items on a checklist are taken from adopted or modified models. Second, a group of people is needed to do the actual counting in a laboratory. Depending on the nature of the study, the website assessors can be consumers, suppliers, practitioners, policymakers, researchers, or students.

Published articles provide the results of counting specific features of website content, together with the views of consumers and/or practitioners. For instance, Murphy, Forrest, Wotring, and Brymer (1996) applied a counting method to evaluate hotel website features and produced a set of evaluation factors. Chiang (2003) evaluated the effectiveness of business-to-business (B2B) online marketing in Singapore's hotel industry using Murphy, Forrest, Wotring, and Brymer (1996) research approach. Consumer expectations were then identified using a structured questionnaire with nine assessment factors covering basic information, e-commerce, promotions, secondary information, services, and technology on 26 hotel websites. Frew (1999) established a list of success factors for DMSs and used the list to evaluate destination websites in several European countries. The author then combined the attribute importance ratings to generate a score for each website.

For their evaluation of destination websites, Benckendorff and Black (2000) conducted content analysis of data collected from the Australian Regional Tourism Authorities (RTAs) to assess four major dimensions – planning, site management, site design, and site content – of the selected websites. On the basis of Benckendorff and Black's (2000) work, Baloglu and Pekcan (2006) conducted a website evaluation study that analyzed website content of a group of 4- and 5-star hotels in Turkey in terms of design characteristics and Internet marketing practices. Doolin, Burgess, and Cooper (2002) presented an extended model of Internet Commerce Adoption (eMICA) based on a benchmarking process and counting method to evaluate the level of website development in New Zealand's regional tourism organizations. The eMICA model has three distinct stages that incorporate three levels of the business process: web-based promotion, provision of information and services, and transaction processing.

Morrison, Taylor, Morrison, and Morrison (1999) applied the Balanced Scorecard (BSC) approach in the tourism context to evaluate 16 hotel websites in Scotland. The model includes multiple critical success factors based on four perspectives: technical, marketing, internal critical, and customer critical. The researchers also marked website performance based on the error rate and three levels of download speed. Each hotel website received a total score that represented the site's performance. This was the first tourism study to use the BSC in website evaluation. The approach was then modified by different researchers to match the specific needs of different industrial sectors or geographical regions. For example, Feng, Morrison, and Ismail (2003) evaluated destination marketing organization (DMO) websites in China and the U.S., and Choi and Morrison (2005) evaluated brick-and-mortar travel retailer websites in the U. Douglas and Mills (2004); Kline, Morrison, and John (2004) and So and Morrison (2004) also used modified BSC models in their studies. The latter studies, however, adopted automated instruments to assess the technical aspect.

Gilbert, Powell-Perry, and Widijoso (1999) evaluated the service quality of 143 hotel websites based on a modified relationship marketing (RM) model. Gilbert and Powell-Perry (2003) then applied the RM model to website facility testing and investigated the use of multimedia on hotel websites. Bai, Hu, and Jang (2006) modified the RM model for use as a strategic marketing model for hotel website feature analysis.

Some studies have evaluated websites using only the counting method. For instance, Zhou and DeSantis (2005) assessed the content of city tourism websites of North America, Europe, Asia, Australia and Africa. Law and Leung (2002) modified Liu and Arnett's (2000) model and analyzed the content of Asian and North American airfare websites. The empirical findings indicated that the latter group of sites provided more features than did their Asian counterparts. Similarly, Blum and Fallon (2002) assessed 53 Welsh visitor attraction websites using a checklist that was produced based on the Marketspace model, which was originally developed by Dutta, Kwan, and Segev (1998). The model includes six main factors: product, price, promotion, place, customer relations, and technical aspects. All of these features were counted for the website analysis. Jeong (2002) adopted Ho's (1997) value/purpose matrix to evaluate 35 lodging websites in the United States. This approach includes counting features and comparing their values, and then analyzing the quality of these features. The empirical findings indicated that very few of the lodging websites motivated potential customers to make online purchases. Also, Xiong, Cobanoglu, Cummings, and DeMicco (2009) evaluated the accessibility of US hotel and restaurants websites by Website Content Accessibility Guidelines 1.0 (WCAG). Research findings indicated that the overall accessibility of the US hospitality websites was low and the primary problem was a failure in providing alternative text for non-text elements.

3.3.2. User judgment methods

Studies adopting user judgment methods evaluated user satisfaction or perceptions. Depending on the nature of a study, users were any combinations of academic researchers, industrial practitioners, policymakers, and consumers. However, most of the studies in this group chose consumers, including potential consumers, as evaluators to measure different aspects and levels of user satisfaction, and only a few involved practitioners in the evaluation process.

Jeong and Lambert (2001) tested a framework that evaluated the information quality of lodging websites based on consumer perceptions. Their model comprised four measures of information quality: perceived usefulness, perceived ease of use, perceived accessibility, and attitude. Perdue (2001) presented a conceptual model for evaluating North American ski resort websites, which assessed overall website quality, the visual attractiveness of the site, its information content, and existing resort images. In addition, Lu, Lu, and Zhang (2002) evaluated information content, ease of use, and functionality of China tourism websites from the Chinese users' perspectives. Mich, Franch, and Martini (2005) developed a modular approach called the "quality model factory", which extends the seven-loci meta-model, to evaluate unique destination websites. Shchiglik and Barnes (2004) developed a perceived airline website quality instrument (PAWQI) to evaluate websites from the perspective of consumers using a benchmarking process. Zafiropoulos and Vrana (2006) used a benchmarking process to evaluate hotel websites. Their model employed hierarchical cluster analysis (HCA) to classify the selected attributes. Extending the website usability literature, Essawy (2006) evaluated U.K. hotel websites using a protocol analysis method. The researcher conducted three four-person discussion groups that focused on website usability performance and further hotel website development. In a similar study, Stockdale and Borovicka (2007) developed an easy-to-use website evaluation instrument for travel and hospitality-related website evaluation, and conducted a pilot study using restaurant websites. This instrument originated from an existing information system e-commerce success model.

Aaberge, Grøtte, Haugen, Skogseid, and Ølnes (2004); Liang and Law (2003) and Lu, Deng, and Wang (2007) used similar approaches to evaluate website performance on the basis of consumer satisfaction. Kaynama and Black (2000) modified the SERVQUAL model and developed a new instrument, E-QUAL, to measure the quality of website service by collecting data from industrial practitioners.

3.3.3. Automated methods

Automated methods involve the evaluation of websites using software systems. Researchers have developed, based on their research purpose, different kinds of website evaluation software. The advantages of an automated method include consistency in evaluation and a relatively faster process, compared to human-based evaluation. For instance, Wöber (2003) and Wöber, Scharl, Natter, and Taudes (2002) used content mining and Web usage mining tools for hotel and inter-regional tourism portal development. Similarly, Bauernfeind and Mitsche (2008) applied data envelopment analysis (DEA) to evaluate destination website quality. Shi (2006) evaluated the accessibility of visitor information centers (VICs) using a freely available online tool, the Bobby online free portal (Watchfire, 2004). Chan and Law (2006) and Qi, Leung, Law, and Buhalis (2008) adopted different online evaluation systems to evaluate the quality of Hong Kong hotel websites. Moreover, Bevanda, Grzinic, and Cervar (2008) adopted data mining methods that detect consumers' perceptions and requirements for travel agent websites in a automated way. Specifically, the research evaluated website visual appearance, ease of use, fulfillment, navigability, accessibility, personalization, interactivity, and information quality.

3.3.4. Numerical computation

Numerical computation methods use mathematical functions to compute tourism website performance based on a number of aspects. Performance is usually represented by a set of numeric scores. Chung and Law (2003) developed five factors for evaluating the functionality performance of Hong Kong hotel websites. Overall site performance was calculated using a mathematical approach that combined the importance of each attribute based on user input. Huang and Law (2003) applied a statistical approach to mainland Chinese hotel website evaluation, which was modified from that of Chung and Law (2003) by integrating the importance of attributes and website performance. Au Yeung and Law (2006) evaluated the usability performance of 77 Hong Kong hotel websites using a heuristic algorithm for the optimization of mathematic functions by incorporating the perceived importance of different attributes using a sample of consumers, hotel managers, and IT consultants. The findings showed a significant difference between the websites of chain and independent hotels. Qi, Law, and Buhalis (2008) applied the approach but with a modified evaluation instrument to evaluate China's DMO websites. In addition, Law (2005, 2007) presented two approaches that used different fuzzy mathematical models for the evaluation of travel and hotel websites. Lu et al. (2007) combined the analytical hierarchy process (AHP) and fuzzy synthetic evaluation (FSE) to assess the website effectiveness of travel networks in China.

3.3.5. Combined methods

Researchers have also used different combinations of website evaluation methods. For example, Frey, Schegg, and Steiner (2002) evaluated hotel websites in Switzerland assisted by a software system that generated search reports, which contained counts for each search criterion, a list of all sub-links visited, the location of dead links, and global statistical data about the websites. Douglas and Mills (2004); Schegg, Steiner, Frey, and Murphy (2002); So and Morrison (2004) and Kline et al. (2004) adopted automated methods to count specific features of websites.

Some studies also combined user judgment with automated methods. For example, Gupta, Jones, and Coleman (2004) evaluated the performance of Welsh small to medium enterprise (SME) websites based on the perspective of suppliers, and download speed was tested using online software. Scharl, Wöber, and Bauer (2003) also applied this approach in their study of European hotel websites. Choi, Lehto, and Morrison (2007) used a data mining technique for website multimedia quality testing, and the performance evaluation was then combined with expert input. Han and Mills (2006) examined the marketing effectiveness of hospitality and tourism websites by combining counting and numerical computation methods into one benchmarked instrument. The numerical computation method adopted in their study followed the statistical technique of the Kruskal–Wallis test.

4. Research gaps

Fig. 1 summarizes the methodological approaches used in prior research on website evaluation in tourism and hospitality.

Five evaluation approaches, namely, counting, automated, numerical computation, user judgment, and combined methods, were adopted by tourism researchers. Each of these approaches has merits and limitations. For instance, a counting method can identify the existence of certain website features. These features, however, may not indicate the ease of use of the site. Also, it can be difficult to ask users to measure the download speed and file size of a website.

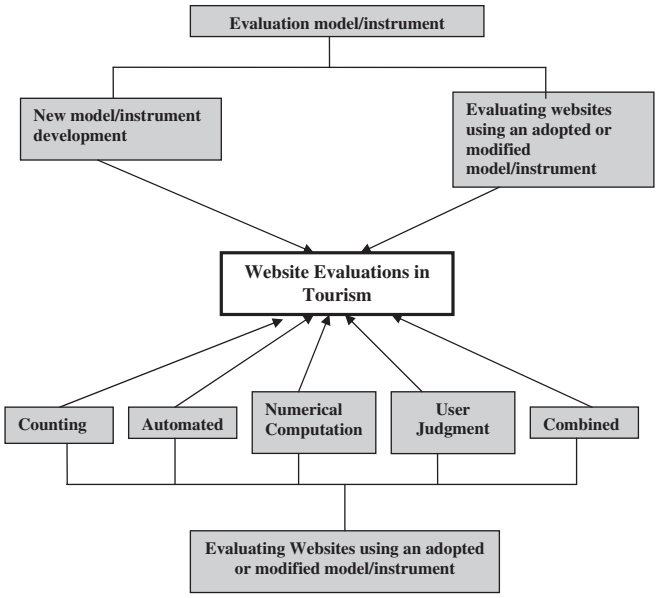

Fig. 1. Methodological approaches for the evaluation of tourism websites.

Hence, many researchers applied user judgment and automated methods in their studies. However, a user judgment method examines user satisfaction and may not provide a clear picture of overall website performance in numeric form; while an automated approach is useful for testing the technical performance of certain features of a website rather than the site's overall performance. In addition, an automated approach neglects user involvement. A numerical computation method appears to be a more advanced approach, using a mathematical computation process to produce numeric scores for performance evaluation. However, the weakness of this approach is the complicated process involved, which can be difficult for users to comprehend. A combined approach brings together the advantages of these different approaches. Such an approach, however, can still be modified in terms of sophistication levels.

Most tourism website evaluation research focuses on measuring website information and process, value added, relationship, trust and design, and usability aspects (Hashim et al., 2007). User involvement becomes especially important when measuring consumer service satisfaction and the perceived importance of attributes (Stockdale & Borovicka, 2007). It is, therefore, essential for future website evaluation research to keep refining the existing approaches rather than simply applying the existing approaches to different datasets. The adoption of a combination of methods provides a range of results that can satisfy the different needs of the entire range of stakeholders.

However, as noted by Morrison et al. (2004), it is difficult to unite all instruments to form a single standard for website evaluation. Still, the numerical computation approach appears to be promising as it is measurable, repeatable, and can likely be used to form a long-term strategy. However, the limitations, such as comprehension issues, that are associated with this approach need to be addressed before the approach can be more widely employed. In short, there are no absolutely right or wrong methodological approaches, nor a standard approach for all sectors in the industry. Researchers should choose the evaluation approach that is most appropriate for their specific research objectives, target markets, and stakeholders. In summary, the major challenges in tourism website evaluation are: i) the existing techniques are largely adopted from other disciplines and a truly tourism-oriented evaluation technique has yet to appear, and ii) methods involving human subjects are subject to personal bias. These issues could largely affect the empirical results of tourism website evaluation. In short, the tourism industry at present does not have, but urgently needs, commonly agreed-upon website evaluation techniques that are repeatable and measurable and have a good potential for long-term use. Although these repeatable and measurable techniques are unlikely applicable to all sectors in tourism, such techniques can be used to formulate plans for a specific business.

5. Conclusions and future work

The trend in the structure of evaluation instruments for tourism website evaluation is presented in Fig. 2. The following paragraphs explain the characteristics of these instruments and the future trend.

In the initial research in this field, researchers generally chose qualitative methods to examine the views of certain groups, including consumers, suppliers, and academic researchers, on the specific features or functions of tourism-related websites. A major limitation of these early studies is the non-generalizability of the findings, as only a limited number of people participated in the experiments. Also, although involving academic researchers in the process can ensure the validity and reliability of the instruments, researchers and their research assistants have limited experience in online purchasing. With time, however, website evaluation studies have evolved to include the application of quantitative methods on the basis of input from consumers and practitioners. Although the concern about the generalizability of the results remains, the findings of quantitative research appear to be more applicable to larger market segments than do those of qualitative research. Presently, many researchers are integrating quantitative and qualitative approaches in their website evaluation studies.

To date, there has been only limited research into tourism website evaluation, and that using the previously mentioned approaches has achieved only a moderate degree of success. These approaches may not be adequate to measure what motivates users to browse and make purchases on travel websites. In other words, consumers and practitioners do not have sufficient insight into how website performance may be accurately measured. The existing tourism literature simply does not have any commonly agreed-upon standards or techniques for website evaluation. Thus, a future research direction would be to investigate the feasibility of developing sector (or subsector)-specific standards for tourism website evaluation. Another direction for evaluation model/instrument research would be the development of new techniques for conducting research that focuses on the needs of consumers and practitioners, as the behavior of these users may change after they have used the Internet for some time.

Specifically, theories, algorithms, and models from other disciplines such as psychology, human–computer interaction, and engineering could, and should, be incorporated into the tourism website evaluation process. After all, tourism practitioners set up their websites, representing public places in the virtual environment, for

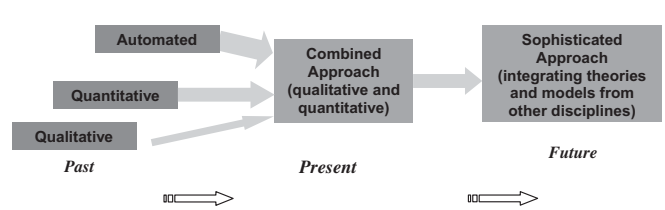

Fig. 2. A structured trend in website evaluation approaches in tourism.

information dissemination and sales. It is of paramount importance to be aware of the different range of human possibilities of intentions behind the websites. In addition, seeking the views of industrial practitioners and consumers remains important, as these groups are the ultimate suppliers and users of tourism websites.

This paper has analyzed prior studies that use diverse methodological approaches to tourism website evaluation. The findings are expected to benefit practitioners and researchers by helping them better understand what has been achieved thus far. For industry practitioners, the findings can serve as an index to help them identify the strengths and weaknesses of their websites and possibly determine their relative position in the marketplace. For academic researchers, this study is expected to offer insights into research gaps, which indicate areas for further research on tourism website evaluation in general and methods of evaluation in particular. As previously stated, the development of integrated approaches that incorporate different algorithms and theories from other disciplines, such as psychology and computer science, into the evaluation process would, and should, be a future research direction.

As not all databases were searched, it is possible that a few related published articles could have been missed in the data collection stage. In addition, this study focused on analyzing website evaluation techniques, and details of the attributes in different evaluation frameworks were excluded. It is likely that different tourism sectors would use different evaluation instruments. For this reason, it would be worthwhile for future research to analyze the attributes and dimensions of such instruments for individual industrial sectors and the tourism industry as a whole. As tourism website evaluation is a newly emerged area of research, more nontrivial trial-and-error efforts are needed before generalized conclusions can be drawn. After all, tourism websites are primarily built for consumers and industrial practitioners, and users need to be engaged in the actual evaluation process.

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