Unveiling tourist typology: using online reviews and LDA to understand motivations for visiting Kyoto's prominent temples

Rosanna Leung and Isabell Handler

Abstract

Purpose – *This study aims to identify motivations for visiting Kyoto's prominent religious attractions using latent Dirichlet allocation (LDA) text analysis of online reviews; establish linkages between push motivational factors and pull factors of the religious sites, forming distinct tourist typologies; and suggest strategies for Kyoto's destination marketing based on the findings.*

Design/methodology/approach – *This study analyzed 37,772 TripAdvisor reviews for Kyoto's top 25 religious sites from the pre-pandemic period (March 2020). LDA topic modeling extracts 18 underlying thematic dimensions from the review texts. Axial coding of these dimensions revealed five distinct tourist motivation typologies.*

Findings – *Five motivation typologies emerged: cultural seekers drawn to Japan's unique heritage, nature lovers attracted by scenic landscapes, chrono-seasonal experiencers seeking distinct seasonal views, crowd-avoiders prioritizing less congested visits and city wanderers engaging in local activities.*

Practical implications – *The findings offer valuable guidance for destination marketers and managers in Kyoto, enabling the development of targeted strategies to enhance visitor experiences and manage overcrowding at popular religious sites.*

Originality/value – *This research provides novel insights into nonreligious tourists' motivations for visiting religious sites in a crowded destination. By identifying distinct motivation-based tourist typologies, the study informs strategies for enhancing visitor experiences tailored to diverse needs, contributing to tourism literature and practical destination management.*

Keywords Travel motivation, Push-pull model, Crowdedness, Text analysis, Japan, LDA

Paper type Research paper

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Introduction

Kyoto, the ancient capital and long a magnet for travelers, is still one of the most popular cities for tourists in Japan. Historic monuments of ancient Kyoto are attractive because 17 of them are certified World Heritage Sites by the United Nations Educational, Scientific and Cultural Organization (UNESCO). It also has hundreds of religious sites to visit; to be precise, Kyoto prefecture boasts 243 Shinto shrines and 1,527 Buddhist temples (Kyoto Prefectural Government, 2014), ranging from the most famous sites of Fushimi Inari-Taisha, Kinkakuji and Kiyomuzudera, to lesser-known sites such as Bishamondo and Jingoji. Over the past two decades, Japanese mass media have been largely favorable, often citing the positive effect on the economy and employment from tourism. Crowdedness in popular tourist destinations can have a multitude of negative consequences, including putting the burden on public transportation and sanitation facilities, which leads to frustration for both residents and tourists, and residents may feel displaced in their own city, leading to social friction and a decline in the overall quality of life (Neuts & Nijkamp, 2012). The term 観光公害 (= kankou kougai), which is literally translated as "tourism pollution," and its equivalent

"overtourism" in English, have gained prominence in media reports. This term vividly portrays the unease experienced by local residents as they see an excessive surge of tourists flooding their city (The Japan Times, 2018). On the other hand, tourists cannot enjoy their trip because of overcrowding of popular tourist spots (Yomiuri News, 2023). To reduce the stress of local residents from getting on local buses full of tourists, the Kyoto City Government introduced tourist buses to send tourists directly from the central train station to the attraction spots (The Japan Times, 2024). However, according to the Japan National Tourism Organization (JNTO, 2024), the total number of international tourist arrivals to Japan has rebounded to pre-COVID levels and is projected to surpass those of 2019 in the coming months. Consequently, crowding at prominent religious sites in Kyoto is unavoidable, it raises an important question:

Q1. Will additional measures be necessary?

Many religious sites are immensely popular with both domestic and international visitors. While one can argue that the former may be motivated to visit for religious reasons, it can be assumed that few foreign visitors are followers of one of the two major local religions: Buddhism, whose main sites are known as temples, or Shinto, known for its shrines. Although past research has explored the motivation factors of nonreligious tourists (Bideci & Albayrak, 2016), none of them tried to establish the link between the push motivation and the pull factors of religious sites. The influence of excessive crowds within temples can disrupt the tranquility and contemplative atmosphere that many visitors seek (Jauhari & Sanjeev, 2010). However, prior studies also indicated that crowdedness did not reduce the travel motivation to popular destinations (Grayson & McNeill, 2009). Tourists have varied motivations. Identifying motivation typologies helps tourism practitioners understand why people travel (push factors) and choose specific destinations (pull factors) (Mo et al., 1993). Therefore, understanding and identifying tourist motivations typologies is crucial for developing sustainable tourism strategies in Kyoto.

This study aims to understand the motivations and experiences of nonreligious tourists visiting Kyoto's prominent temples and shrines. Analyzing online reviews identifies distinct tourist typologies based on their motivations, ranging from cultural exploration to nature appreciation and crowd avoidance. Moreover, visitors' perspectives on crowd density on site and the feasibility of promoting "less crowded" temples/shrines in marketing initiatives are of interest to the researchers. Recently, prior studies on tourists' motivation studies mainly adopted content analysis to count keywords and themes. The major limitation of content analysis is the inability to identify the connections among keywords. Latent Dirichlet allocation (LDA) offers a novel, data-driven approach to uncovering latent themes within large-scale tourist review data, enabling the identification of nuanced motivational factors that might be overlooked by traditional survey-based methods or manual content analysis (Yu & Egger, 2021).

The objectives of this study are:

- To identify motivations for visiting Kyoto's top religious sites through LDA text analysis of online reviews.

- To establish linkages between push motivational factors and pull factors of the religious sites, forming distinct motivation typologies.

- To suggest and recommend strategies for Kyoto's destination marketing based on the findings.

Insights gained can inform destination marketing efforts, enhance visitor experiences and promote sustainable practices that balance the preservation of Kyoto's cultural heritage with the demands of modern tourism.

Literature review

Motivation to visit religious sites

Religious attractions such as cathedrals, temples and mosques attract not only pilgrims but also global tourists for recreational, educational and cultural purposes (Woodward, 2004). In the past five decades, tourism scholars have explored visitors' motivation to visit religious sites, and there has been an increased interest in the topic since the early 2000s (Kim et al., 2020). Prior research investigated nonreligious visitors' travel motivations and intentions, and the results showed they are interested in experiencing the local heritage (Hughes et al., 2013; Liro, 2021); the fame of the site (Hughes et al., 2013), recreation and gaining new knowledge (Zhang et al., 2021) from religious sites.

The theme of travel motivation has seen a past abundance of research articles, and it has proved equally popular among researchers of religious sites. Although the distinction between pilgrims and tourists has been contested, research papers can still be differentiated by the focus on the travel experience and the motivation of religious tourists (Albayrak et al., 2018; Faria et al., 2021; Hamaya, 2021; B. Kim & Kim, 2019; Lin & Fu, 2020; Moufahim & Lichrou, 2019; Poria et al., 2003; Raj, 2012; Taheri, 2016; Tsai, 2021), and the notion of pilgrimage (Dowson, 2020; Terzidou et al., 2018; Tsai, 2021) and the travel motivation of nonreligious tourists (Drule et al., 2012; Liro, 2021; Rodrigues & McIntosh, 2014; Zhang et al., 2021). Zhang et al. (2021) reported on Chinese travelers on the Camino de Santiago pilgrimage route and identified motivational factors such as experiencing the natural environment, local people and culture, personal growth and cross-cultural engagement. Secular travelers also mentioned intrinsic motivators to monasteries in Romania (Drule et al., 2012) and New Zealand (Rodrigues & McIntosh, 2014), encompassing factors such as becoming a better person, gaining insight, personal reflection, nostalgia, socialization and peacefulness.

Prior research has also shown that nonreligious visitors' motivations depend heavily on the site's characteristics. Visitors to specific religious sites like Canterbury Cathedral (Hughes et al., 2013) or English cathedrals in general (Woodward, 2004) were hardly ever drawn by religious motives. Travelers' motives for Taiwan's Royal Lords Festival (Tsai, 2021) or sites such as Jerusalem (Dowson, 2020) were also linked to whether the visitor was of the same faith as practiced on the site in question (Rodrigues & McIntosh, 2014).

Tourist push motives and destination pull attractiveness

Understanding the dynamics of tourist motivations and the decision-making process helps understand why tourists choose certain destinations over others and how destinations can attract and retain visitors. This knowledge empowers destination managers to create a more appealing and sustainable tourism experience while effectively competing in the global tourism market. Push and pull factors supply a comprehensive and versatile model for understanding the complex dynamics of human behavior in the context of tourism and travel (Dann, 1977). In this study, push factors are the sociopsychological needs and wants of the nonreligious tourists from the religious sites in Kyoto, whereas pull factors are the reasons for going to the prominent Japanese temples. Various studies have examined the relationship between the destinations' attractiveness. The findings indicated escape and relaxation as the most important push motives and accessibility as the most important pull motive (Hsu et al., 2009; Nikjoo & Ketabi, 2015). Additional factors for push were knowledge-seeking (Yousefi & Marzuki, 2015), family togetherness (Kim et al., 2003) and safety (Pansiri, 2014; Yousefi & Marzuki, 2015) for pull travel motives.

Prior studies also adopted push and pull to investigate the motivation for visiting religious sites. Tourists visit temples mainly to discover new things, mentally relax (Choe et al., 2015), visit new places and buy devotional items (Liro, 2021). Many studies identified factors related to religious issues, such as offering families prayers and achieving goals related to

religious beliefs (Hassan et al., 2022; Wang et al., 2016). However, these factors were not relevant to the goals of this study; therefore, religious attributes were excluded. This study aimed to identify emerging topics in travel motives using topic modeling. The push and pull model has been one of the most popular motivation models in tourism research for decades (Bichler & Pikkemaat, 2021; Liro, 2021); therefore, it was considered the best choice for the present study. However, these studies examined push and pull factors independently but did not establish a linkage between destination attractiveness and visitor motivation. Therefore, this study attempts to fill this research gap by using online reviews to establish the linkage between tourists' push motivation and destination pull factors. Understanding this linkage could help destination marketing organizations (DMOs) to match the tourist's motivation with the uniqueness of the destination.

Crowded tourist destinations

Crowding refers to the level of carrying capacity of a destination, and crowdedness characterized by the convergence of a significant number of individuals in a confined space (Jurado et al., 2013) can profoundly influence the motivations underlying travel decisions. Crowdedness can be considered from the destination's environmental and tourists' sociopsychological perspectives (Rasoolimanesh et al., 2019). du Cros & McKercher (2015) distinguish between absolute carrying capacity, which refers to "the maximum number of people that can enter a place before its fabric begins to get damaged," and relative carrying capacity, which is a qualitative construct determined by how the volume of visitors affects the desired experience" (p. 38).

The relationship between crowdedness and tourist motivation reveals a nuanced interplay between these two factors. Several studies highlight the positive influence of crowdedness on tourist motivation. For some individuals, crowded environments offer the allure of vibrant atmospheres, social interactions and the opportunity to immerse oneself in a bustling environment (Grayson & McNeill, 2009). However, other research shows that crowdedness can negatively influence tourist motivation. Excessive crowds can lead to discomfort, increased waiting times and difficulties in fully enjoying the tourist destination (Jacobsen, Iversen & Hem, 2019). The presence of large crowds may hinder individuals' ability to connect with their surroundings, thus diminishing motivation to explore and engage with the destination (Yin et al., 2020). Consequently, some tourists may actively seek alternative, less crowded destinations or engage in activities that offer more solitude and tranquility, highlighting a contrasting motivation driven by the desire to avoid crowds (Garms et al., 2017).

The influence of crowdedness on tourist motivation is highly subjective and can be shaped by a range of personal and contextual factors such as cultural background, personal preferences and travel goals. Tourists perceive crowdedness at a destination depending on their motives for visiting and expectations of the destination (Neuts & Nijkamp, 2012). Prior studies have confirmed that perceived crowding contributes toward a destination's image (Tapachai & Waryszak, 2000) and tourists' perceptions of crowding influence their intentions to visit a destination (Jurado et al., 2013; Neuts & Nijkamp, 2012). Furthermore, the perceived image of crowdedness at a destination plays a pivotal role in shaping tourists' subsequent decision-making and behaviors (Pike & Ryan, 2004; Tapachai & Waryszak, 2000). Therefore, the tourists decide to visit or revisit a destination, and their choice to recommend that destination to their peers is based upon their travel experiences and later perceptions toward a destination (Papadopoulou et al., 2023; Pike & Ryan, 2004; Tapachai & Waryszak, 2000).

To conclude, this study investigates tourists' motivations for visiting prominent religious sites in Kyoto, examining online reviews and any comments regarding the widely reported crowding often depicted in the media. While existing literature has explored motivations for religious site visitation, push-pull factors in destination attractiveness, and the impacts of crowding on tourist experiences, there remains a gap in understanding how these factors

interact in the context of popular, nonreligious visits to religious sites in crowded destinations like Kyoto.

By using LDA to analyze a large corpus of online reviews, this study seeks to uncover nuanced motivational factors that traditional survey methods may not capture. This approach allows for identifying motivational typologies grounded in tourists' own words, potentially revealing new insights into the complex interplay of motivations, attractions and crowding in this unique context.

The findings from this empirical investigation will be used to extend existing theoretical frameworks and provide evidence-based recommendations for DMOs to enhance visitor experiences and manage crowding issues effectively. By bridging the gap between theoretical concepts and real-world tourist behaviors, this study aims to contribute to the academic understanding of tourist motivations and practical destination management strategies.

Methodology

Text mining of tourists' travel behavior from travel review sites

Travel reviews serve as valuable sources of information about tourists' interests and activities during their trips. They offer insights into the emotions and experiences of tourists, essentially acting as a record of their journeys (Pan, Lee, & Tsai, 2014). Analyzing travelers' reviews on social networks can help DMOs identify tourists' travel patterns (Zheng et al., 2012), travel behavior (Vu et al., 2015) and activities that tourists perform in each tourist attraction (Leung et al., 2016; Vu et al., 2016). Moreover, analyzing online review content can reveal tourists' travel motivations, experiences and satisfaction levels.

Text analysis is the most common method to examine online reviews. Key terms can be grouped into various themes or areas. It involves categorizing key terms into themes or areas and quantifying the frequency of each keyword or expression, allowing for a comprehensive overview of the tourists' travel experience (Bornarel et al., 2021; Huang & Yi, 2021; Stoleriu et al., 2019). Prior studies also adopted statistical models (Gao et al., 2018), text analysis software such as Leximancer introduced sentiment analysis (Kirilenko et al., 2018) and Natural Language Processing (NLP) (Stamolampros et al., 2019). Most studies applied NLP and text mining techniques to conduct topic modeling, concept analysis and sentiment analysis. However, keyword categorization may be subjective and lack systematic rigor. To overcome these limitations, researchers analyzed online reviews using machine learning techniques such as LDA and naïve Bayes modeling to compute the probability that a particular review is positive or negative based on its combination of terms and develop a mixture of dimensions to topics (Godnov & Redek, 2016; Martin-Fuentes et al., 2020; Mehraliyev et al., 2020).

Data collection

TripAdvisor is one of the most popular travel and tourism websites worldwide, ranked second after Booking.com (Statista, 2022). For this research, online reviews posted in English on TripAdvisor under the category "Sacred & religious sites" in Kyoto City were examined. This category uniquely encompasses all temples and shrines in Kyoto. However, due to the sheer number of these sites and the study's focus on crowdedness, only the reviews of the top 25 religious sites were included. Furthermore, to gain a more realistic pre-pandemic perspective, only reviews posted before March 2020 were considered, with the earliest review dating back to October 2010. A total of 37,772 reviews were extracted (or scraped) using Parsehub, a web scraping tool, for analysis.

This study investigates the motivation of nonreligious tourists at prominent temples in Kyoto. It was important to acknowledge that our data set may potentially include religious tourists.

To address this, the researchers undertook an extensive literature review on the travel motivations of religious tourists, exploring aspects such as prayer, retreats, worship, visits to places of miracles and participation in religious festivals (Faria et al., 2021; H. Kim et al., 2019; Liro, 2021; Nyaupane et al., 2015; Raj, 2012; Scaffidi Abbate & Di Nuovob, 2013; Tsai, 2021). Despite diligent efforts to detect analogous expressions through text analysis, this study found a notable absence of these key terms in the review. Furthermore, examining the reviewers' geographical origins revealed that most did not originate from countries where Buddhism or Shinto is the primary religion. These observations suggested that nonreligious tourists contributed to most of the reviews.

Data preprocessing and corpus processing

The chosen text analysis method was LDA, also known as topic modeling, which can detect hidden semantic structures, or networks, within the data, based on the cooccurrence of terms within the documents or, in this case, reviews. The underlying assumption is that if a review is related to a specific topic, words associated with that topic will appear more frequently than words related to other topics.

Before applying LDA for topic modeling, this research uses essential text preprocessing steps on the training data. These steps function as a cleaning process, removing noise and preparing the text for meaningful topic extraction. The first step is text import of reviews, which is converted into a raw text corpus in R. The next step is tokenization, which breaks down the text into individual words or meaningful units (tokens). During tokenization, irrelevant characters like punctuation marks and white spaces are eliminated to focus on the core elements of each sentence. Following tokenization, stopword removal tackles common words that hold little meaning within the context of topic modeling. Examples include "the," "a" and "is." By removing stopwords, we reduce the overall size of the data while sharpening the model's focus on content-rich terms that carry more weight in topic identification. This study focused on travel motivations and crowdedness, so a preliminary frequency analysis of individual words was conducted. Those which were very frequent but did not contribute any meaning to the aim of this research, such as country and city names like "Kyoto" and "Japan," and terms related to religious sites such as "temple" and "shrine," were removed. Finally, the resulting corpus was converted into a document term matrix (DTM), excluding terms with a frequency lower than five.

The final text preprocessing step is stemming. Stemming reduces words to their root form. For instance, words like "walking," "walked" and "walks" would all be transformed to their root "walk." This process helps capture the underlying meaning of words and improves the model's ability to identify thematic relationships within the text data. Once the text data is cleaned through these preprocessing steps, a bag-of-words (BoW) representation is created. This representation treats each document as a collection of word counts, disregarding the order in which the words appear. The BoW serves as the input for the LDA training process.

Data analysis by latent Dirichlet allocation

The analysis process adhered to the framework outlined by Welbers et al. (2017). Of all the data items scraped from TripAdvisor, only the titles and the review text were used for analysis using R software with statistical-computational packages. The R packages are vital for text analysis and manipulation, including *quanteda*, *tm*, *topicmodels* and *lda* (Blei et al., 2003). Initially, titles and review texts were merged into a single body of text, a corpus, for overall processing and analysis. Subsequently, strings, numbers, single-digit letters and English stop-words (commonly used words in English) were removed. The remaining words were then stemmed using *tm_map* function (RDocumentation, 2020). LDA itself acts as an inference process applied over the BoW data. The goal is to uncover latent topics,

essentially hidden thematic structures residing within the collection of documents. The training process culminates in two key outputs: topic-document distributions and word-topic distributions. Topic-document distributions represent the probability of a document belonging to a particular topic, while word-topic distributions indicate the probability of a word appearing in a specific topic. The first step in the LDA process involved constructing a document-term matrix (DTM) from the corpus of stemmed words. Stemming reduces variations of the same word to their root form, effectively merging them into a single word. This DTM served as the foundation for further analysis. A DTM is a mathematical matrix that illustrates the frequency of terms occurring in TripAdvisor's reviews. Figure 1 illustrates the data analysis process of this study, which was modified from Welbers et al. (2017).

Calculate the optimum number of token list

The corpus holding the review title and review body was processed with more than 2.6 million words at the beginning and was reduced to approximately 1.4 million words after data cleaning and preprocessing. As this research does not have the number of topics predefined from the literature or topics created after the qualitative inspection of reviews, the "optimum" number of topics was computed using four different metrics (*Griffiths2004*, *CaoJuan2009*, *Arun2010* and *Deveaud2014*), and the package of *ldatuning* in R, as suggested by Arun et al. (2010), Murzintcev (2020) and Schweinberger (2022). The best number of topics shown in Figure 2 indicates that the optimum number of token lists calculated by the four metrics lies between 14 and 18 (illustrated in the circle). After reviewing all the LDA results, based on the research objectives, 18 token lists were included for data analysis.

Findings

Identify the push and pull stemmed words by latent Dirichlet allocation

LDA generated ten relevant stemmed words for each token list (hereafter refer as topic), as presented in Table 1. The topics were listed according to the total frequency of all the stemmed words in each topic, which means T1 had the highest stemmed word occurrences among the reviews, and T18 ranked the lowest among all topics.

Tourist motivation typologies for Japanese religious sites

Axial coding is a process by which topics are sorted into their components (Corbin & Strauss, 1990). This coding established the relationship process among topics. At this point, the 18 topics generated from LDA were reassembled to explain the attractiveness of Kyoto and the push motivations of nonreligious tourists' motivation for visiting Japanese religious sites. Then, topics were grouped using axial coding according to their interrelationships and

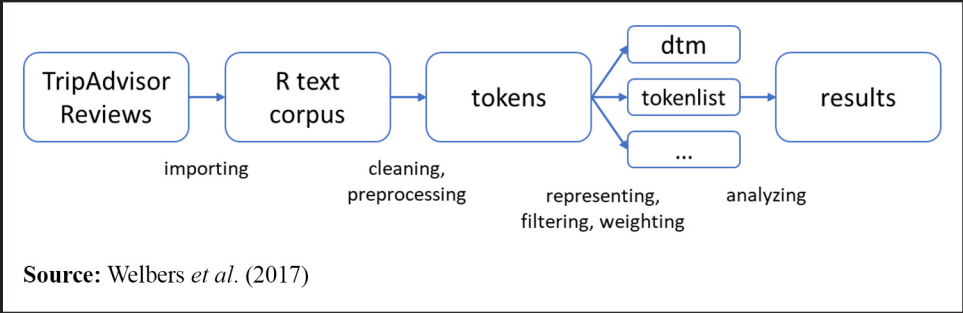**Figure 1** Text analysis process, modified from Welbers et al. (2017)

Source: Welbers *et al.* (2017)

Figure 2 Graphical representation of the best number of token list generated from four metrics

Source: Authors' own creation
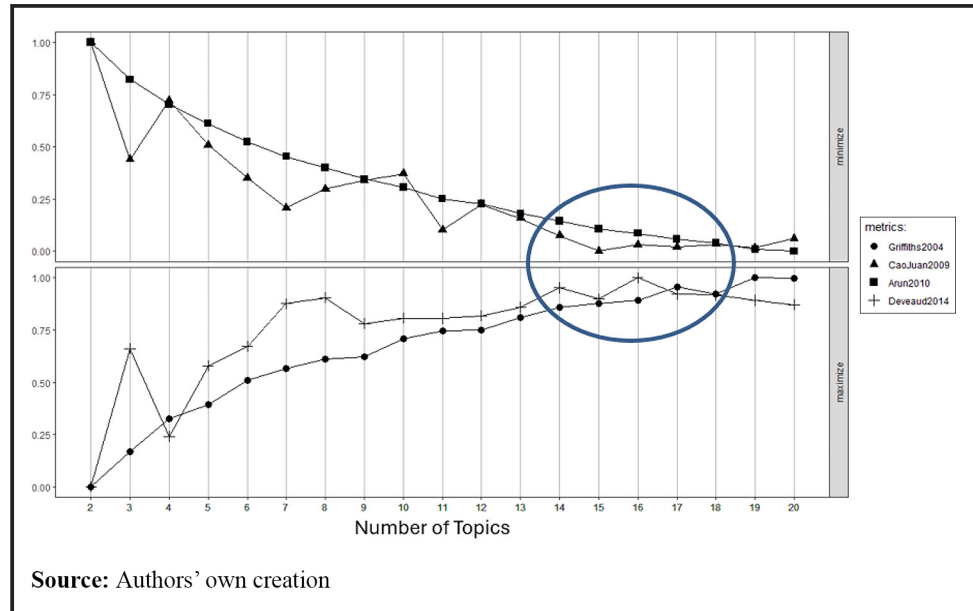
Table 1 Topics and stemmed words generated by LDA

Topics					Stemmed words					
T1	interest	recommend	site	experi	high	tour	guid	histori	uniqu	cultur
T2	walk	path	back	end	start	side	rout	area	turn	point
T3	beauti	blossom	autumn	leav	tree	season	color	visit	cherri	colour
T4	shop	souvenir	food	street	lot	tea	tradit	stall	sell	area
T5	day	afternoon	time	night	experi	late	light	visit	close	rain
T6	top	mountain	hike	climb	step	hour	shoe	prepar	stair	wear
T7	walk	view	great	lot	citi	hill	good	long	nice	enjoy
T8	gate	thousand	mountain	tori	orang	torii	red	trail	uniqu	fox
T9	area	main	entranc	build	ground	fee	yen	enter	site	free
T10	statu	buddhist	hall	impress	build	structur	wooden	insid	buddha	allow
T11	photo	opportun	pictur	tourist	take	good	spot	crowd	peopl	hard
T12	time	visit	trip	hour	worth	make	day	spend	enjoy	thing
T13	visit	worth	nice	place	busi	pretti	impress	bit	lot	cool
T14	place	breathtak	beauti	miss	stun	absolut	favorit	incred	visit	amaz
T15	beauti	surround	peac	enjoy	place	feel	seren	quiet	love	tranquil
T16	station	Bus	train	stop	easi	minut	walk	line	access	locat
T17	crowd	Earli	tourist	morn	avoid	arriv	group	peopl	school	pack
T18	garden	landscap	Zen	sit	famous	bamboo	pond	small	rock	paint

Source: Authors' own creation

the characteristics of the tourists' motives for visiting Kyoto's religious sites. Five typologies were identified. The first typology is novel Japanese culture seekers, who are interested in the unique Japanese cultural experience (T1), unique red Torri gates (T8), the impressive wooden Buddhism structures and statues (T10) and Zen garden (T18). The second typology is the scenic nature lover who is the mountain hiker (T6) aimed at hiking on path walk routes near religious sites (T2), visiting breathtaking places (T14) to enjoy the city views (T7) and serene and peaceful atmosphere (T15). The third type is a diverse experiencer attracted by different views of Kyoto at different times (T5) and seasons (T3). The fourth typology is the crowd-avoider who strategically escapes from the crowd at prominent religious sites (T17) and uncrowded photogenic locations (T11). The last typology is the city wanderer who

spends time enjoying Kyoto (T12) and visiting busy but pretty tourist spots (T13) by local transportation (T16). They spend money shop at traditional stalls (T4) and the temple entrance fee. Table 2 illustrates the five axial-coded motivation typologies with the associated topics.

Characteristics of the five motivation typologies of tourists

Kyoto's abundance of Japanese history, culture and captivating natural landscapes attracts international tourists seeking diverse experiences. Through an analysis of nonreligious traveler reviews, five distinct motivational typologies have emerged, illuminating the multifaceted appeal of Kyoto's sacred sites. This analysis delves into motivational and behavioral factors related to cultural immersion, relaxation in natural settings, time to visit, crowd avoidance and city exploration. Subsequent sections explore these typologies, providing insights into nonreligious tourists' motivations and guiding the development of marketing strategies to enhance visitor experiences, at the same time, addressing challenges such as overcrowding.

Japanese novelty culture seeker

Many tourists are not familiar with Japanese culture; therefore, they would like to learn and experience the unique Japanese culture (T1) by visiting the religious sites to see the red Torri gates (T8) and the wooden Buddhist structures and statues (T10). One of the reviewers mentioned: Red Torri gate is a symbol of shrines, so its unique look draws tourists' attention. *Along the way, you will pass the inner shrine, a pond and hundreds of red Torii gates – a unique feature of this shrine [...]. There are also statues of foxes along the trail* and *Expect many, many, many orange Toriis in an amazing temple that will blow you off for its uniqueness.* Checking out the temple and shrines' wooden structure and statues were also a focal point for tourists. For example, *Both buildings are a historical marvel with an impressive wooden structure on the outside and a tatami-covered floor within. Be sure to*

Motivation typology	LDA topics		Push factors for tourist motivation*	Pull factors for destination attractiveness**
Table 2 Tourists' motivations typologies for Japan's religious sites				
Japanese novelty culture seeker	T1	Unique culture experience	2	2
	T8	Unique red Torri gates	2	2
	T10	Impressive wooden Buddhist structures and statues	2	2
	T18	Famous Zen Garden Landscape	2	1, 2
Scenic nature lover	T2	Spatiotemporal navigation	1, 3	1
	T6	Mountain hikers	3	1
	T7	Enjoyable views	3	5
	T14	Breathtaking places	3	5
	T15	Seren and peaceful atmosphere	3	5
Chrono-seasonal experiencer	T3	Colorful seasonality experience	3	1, 3
	T5	Time of visits	3	3
Crowd-avoider	T11	Uncrowded photogenic locations	1	5
	T17	Early arrival strategy	1	3, 5
City wanderer	T16	Public transportation	1	3, 5
	T4	Shopping at traditional stalls	2	4, 5
	T9	Site entrance fee	3	4
	T12	Spend time to enjoy	3	5
	T13	Visit busy but pretty place	3	5

Notes: *Push factor: 1 = Escape and relaxation; 2 = Novelty and knowledge seeking; 3 = Pleasure and enjoyment; **Pull factor: 1 = Natural environment and recreation; 2 = Cultural and history; 3 = accessibility; 4 = Commercial activities; 5 = Perceived benefits
Source: Authors' own creation

check out the beautiful chandelier in the Amida Hall! and *If you want to see something different and impressive, this is one place to look at! The 1000 wooden statues are amazing.*

Zen Garden is a distinctive Japanese garden composed of carefully arranged rocks, moss, bushes and raked gravel or sand to represent ripples in water and create a unique experience for non-Japanese people. Tourists appreciate the garden design and gain knowledge about Japanese culture. For example, *A nice short visit to the place was peaceful and the Zen Garden was something that was a unique experience. We went on a conducted tour with a guide and were informed about the history which was so important to understand the culture.* Kyoto's historical significance, natural beauty, culinary delights and cultural experiences make it an irresistible destination for international travelers seeking an authentic and enriching Japanese experience.

Scenic nature lover

The second motivational typology is "scenic nature lover." The axial-coded topics related to this typology highlighted the characteristics and attractiveness of the natural environment near the religious sites, including path walk routes (T2): *try not to descend by the same route going down. We avoided the tori lined path and discovered some fascinating little shrines along the path down to the station [...]* for the mountain hikers (T6): *This was a very cool and colorful shrine, and the hike up the mountain through thousands of red/orange tori gates was beautiful [...] so comfy shoes is a good idea.* On the hill, they can have an enjoyable city view (T7): *Along the way up and around the hill you come across some nice other scenery as well, such as a great view over the city* which makes Kyoto a stunning and breathtaking place (T14) *it's not hard to imagine the views are truly breathtaking during the fall [...] how much more stunning the scenery would have been had the trees been alive with vibrant colors.*

Even for nonreligious visitors, temples and shrines serve as spiritual locations, imparting a peaceful and serene atmosphere (T15): *Peace and tranquillity even though there are many tourists. You can find a quiet spot and some peace. Lots of trees and a beautiful river. I thoroughly enjoyed my visit. The gardens are well kept and beautiful*, which encourages those who are seeking holiday trips for relaxation to visit. While tourists seek tranquility and escape in religious settings (Huang & Pearce, 2019), overcrowding can be a major source of frustration. However, rather than skipping the visit altogether, tourists have devised various strategies to overcome the crowds. One visitor describes the transformative experience of visiting a site at night when it was "empty," allowing for a true sense of peace: "GO AT NIGHT!!! The place was empty and we got to explore and experience the true peace and tranquility of this magical place." While tourists seek tranquility and escape in religious settings (Huang & Pearce, 2019), overcrowding can be a major source of frustration. However, rather than skipping the visit altogether, tourists have devised various strategies to overcome the crowds. One visitor describes the transformative experience of visiting a site at night when it was "empty," allowing for a true sense of peace: *GO AT NIGHT!!! The place was empty and we got to explore and experience the true peace and tranquility of this magical place.*

Chrono-seasonal experiencer

Tourists visit Kyoto at various times to appreciate its vibrant nature and experience the changing seasons. Japan is renowned for its natural beauty, particularly during cherry blossoms and autumn foliage. Therefore, selecting the appropriate season for travel is crucial. (T3): *Spring is best because of the cherry blossom trees that line the path. Maybe I should live in Kyoto to be able to appreciate fully all the seasonal changes*, and *My visit was in the autumn and the colour was superb! I have no doubt that a visit in spring during Cherry Blossom would also be fab!.* The scenery also transforms throughout the day (T5)

and evokes different tourists' emotions: *We lingered a little longer to experience the beautiful colours of twilight before we left and took with us fond memories and a mini Torii gate*, and *I went here three times, in the past three years, twice in daylight, once at night, and I have to say it's best when it's dark.* Kyoto's status as a top tourist destination fuels a strong desire for repeat visits, even among those who have experienced crowds. Tourists highlight the unique and valuable aspects of these sites, justifying their decision to visit despite the crowdedness, as evidenced by quotes like: *I'm afraid my list of "Must Visit" sights in Kyoto is expanding every time I make a visit* and *Be prepared for crowds [...] I'd still come back without hesitation.* Encouraging tourists to visit religious sites during various times and seasons enables them to experience a different side of Kyoto and alleviates crowding at the prominent sites.

Crowd-avoider

Most tourists were cognizant of Kyoto's crowds through various sources such as statistics, news reports and review sites (The Japan Times, 2024). Numerous reviews in our data set comment on this phenomenon and offer strategies for avoiding crowds to ensure an enjoyable visit. For example, they suggest that tourists visit prominent religious sites early in the morning, particularly since large numbers of school children and tour groups tend to arrive simultaneously (T17): *This shrine is wonderful to visit but is so crowded with school groups and fellow tourists that you will pull your hair out! Make sure you go early or late to avoid the crowds.* Engaging in photography is paramount for visitors exploring religious sites in Kyoto, as it enables them to document and cherish their moments within the sacred settings. However, finding an ideal photo spot poses a challenge due to the bustling crowds that frequent the area: *This place is a mecca for photo opportunities.* Therefore, some reviewers provide tips for taking photos in crowded spots (T11): *[...] the place does get crowded [...] up for a bit of climbing, [...] have plenty of opportunities with a bit of patience to photograph the orange gates.* The significant impact of crowdedness on travel experiences necessitates meticulous planning by individuals using crowd-avoidance strategies. By planning their visits in advance, tourists can avoid overcrowded areas, optimizing their enjoyment throughout the trip. Even though the prominent temples in Kyoto are crowded, they do not demotivate tourists to visit (Grayson & McNeill, 2009).

City wanderer

The final motivation typology, labeled "city wanderer," represents tourists who delight in strolling through Kyoto's streets and engaging in vibrant activities, with visiting religious sites being one of their activities. Despite acknowledging the busyness of certain locations (T13), tourists expressed enjoyment in exploring them at leisure (T12): *It was busy, but the crowds did not take away from the beautiful setting* and *Make sure you keep walking past all the tourists [...] You could spend hours here, it was mesmerizing!.* Given that most tourists rely on public transportation, the accessibility of religious sites is of paramount importance to them. They access these sites via buses, trains and walking (T16): *The shrine is easily accessible on the JR Nara Line. The stop (Inari station) is 2 stops (approx. 10 minute train trip) from Kyoto station*, and *[...] it can be accessed by either taking the Eizan line to Demachi-Yanagi Station and walking 15 minutes, [...] or the #4 or #205 bus stops right by the shrine as well.*

No tourist can avoid commercial activities. Surrounding Japan's religious sites, an array of shops offers not only souvenirs but also a taste of authentic Japanese cuisine and tea (T4). For example, *We also enjoyed the shops and stalls in the roads leading up to the shrine. There were some lovely craft shops in amongst the usual souvenirs and a range of yummy street food stalls*, and *There are some small teahouses around the halfway mark of the walk where traditional food and drinks are served.* While certain religious sites provide complimentary admission, others necessitate tourists to purchase entry tickets (T4)

[. . .] although the area on the far left side is free of charge (you'll pass by that [. . .] the paid area which costs about 300 yen), and Wonderful, like in fairy tale, need entrance fee to go in, but too crowded and barely hard to get nice picture spot that have only you in it.

Kyoto is renowned for its rich historical significance and as a vibrant urban center, boasting convenient public transportation, arrays of impressive tourist attractions and diverse local shopping experiences for visitors to explore. Nevertheless, as noted by some tourists, while the city offers enjoyment and ample opportunities for exploration, the high levels of crowding detract from their overall experience.

Conclusion

Kyoto's religious sites are magnetic hubs for diverse visitors, extending beyond religious pilgrims to encompass tourists captivated by their cultural, historical and natural splendor. This study offers valuable insights into nonreligious tourists' motivations to visit Kyoto's religious sites, leveraging a textual analysis of TripAdvisor reviews. The research identifies five distinct tourist typologies, each highlighting unique aspects of visitor motivation and experience: Japanese novelty culture seeker, scenic nature lover, chrono-seasonal experiencer, crowd-avoider and city wanderer. The findings underscore the multifaceted appeal of Kyoto's prominent religious sites, extending beyond their spiritual significance to encompass cultural, historical and natural dimensions. The identified push and pull factors reveal a complex interplay of motivations, including the allure of Japanese cultural novelty, the aesthetic appeal of seasonal landscapes and the intrinsic draw of natural and urban environments. These results align with and expand upon previous research highlighting the importance of cultural heritage and scenic beauty in tourist motivation (Hughes et al., 2013; Liro, 2021).

Notably, the study illuminates the phenomenon of repeat visitation, driven by Kyoto's seasonal transformations and the desire to experience the city's beauty at different times. This finding suggests a strong potential for fostering long-term tourism sustainability through the promotion of diverse temporal experiences (Tan, 2017). However, the research also brings to light significant challenges, particularly overcrowding, which emerged as a consistent theme across reviews. The creative strategies used by tourists to mitigate crowding effects, such as off-peak visitation and nighttime exploration, offer valuable insights for destination management practices. These insights can inform targeted communication strategies and enhance visitor experiences by encouraging alternative approaches to site exploration. Understanding tourists' motivations unveils a complex interplay of cultural, historical and seasonal influences, underlining the importance of preserving the unique appeal of Kyoto's religious sites while addressing crowd-related challenges. By implementing strategic enhancements in experience offerings and crowd management, these sites can continue to enchant and engage a diverse spectrum of visitors in their urban adventure (Garms et al., 2017).

Theoretical contributions

This study offers significant theoretical contributions to understanding tourist motivations, particularly in the context of nonreligious visitors to religious sites in crowded destinations. First, it substantially broadens the comprehension of motivations for visiting religious sites by identifying five distinct typologies for nonreligious tourists: Japanese novelty culture seekers, scenic nature lovers, chrono-seasonal experiencers, crowd-avoiders and city wanderers. This expansion moves beyond the traditional focus on religious pilgrims (Albayrak et al., 2018; Faria et al., 2021; Wang et al., 2016), addressing a significant gap in the literature regarding nonreligious tourist behavior in these contexts (Drule et al., 2012; Rodrigues & McIntosh, 2014; Zhang et al., 2021). The findings reveal that nonreligious

tourists in Kyoto are motivated by a complex interplay of cultural immersion, scenic beauty, seasonal variations, urban exploration and strategic crowd management.

Furthermore, this research provides new insights into the established push-pull motivation theory, particularly in the context of crowded destinations. While previous studies often position crowdedness as a deterrent (Jacobsen et al., 2019; Yin et al., 2020), our findings reveal a more nuanced reality. Identifying the "Crowd-avoider" typology demonstrates that some tourists actively strategize to mitigate crowding effects rather than avoiding the destination altogether. Moreover, our results indicate that the pull factors of Kyoto's religious attractions often outweigh the potential discomfort from crowding, maintaining high visitor motivation. This finding supports and extends the work of Krajickova et al. (2022) and Neuts & Nijkamp (2012), who found that tourists often focus on the positive aspects of their visit despite crowding. It also challenges the notion that overcrowding universally deters visitors from recommending sites (Garms et al., 2017; Papadopoulou et al., 2023), suggesting a more complex relationship between crowding and visitor satisfaction.

Methodologically, this study introduces a pioneering data analysis approach by using LDA to extract latent dimensions of push and pull motivations from online reviews. Unlike traditional methods relying on predefined categories, LDA uncovers hidden thematic structures within text data (Blei et al., 2003). This approach enables the discovery of novel and unexpected motivations that researchers might not have anticipated (Yu & Egger, 2021), provides a more nuanced understanding of tourist behavior by identifying the cooccurrence of terms within reviews and allows for a data-driven approach to forming tourist typologies. Linking push and pull factors offers a deeper understanding of the relationship between destination attributes and tourist motivations.

By applying LDA to a large corpus of online reviews, this study expands the methodological toolkit for tourism motivation research, offering a model for future studies to uncover deeper insights into tourist behavior and preferences. The outcomes from the LDA model have expanded the discourse on destination travel motivation through novel applications and brought forth an understanding of tourists' push and pull motives concerning Kyoto's temples and shrines. This innovative approach not only contributes to the theoretical understanding of tourist motivations but also provides a robust foundation for future research in the field of tourism studies.

Practical contributions

This study offers valuable insights for DMOs and tour operators managing religious sites. By analyzing user-generated data like online reviews, DMOs can understand tourist motivations and tailor their offerings to both push and pull factors. This knowledge of visitor motivations is crucial for developing targeted marketing campaigns, creating tourism experiences that resonate with diverse interests and promoting a more sustainable approach. While overcrowding was not found to deter tourists from visiting temples in Kyoto, it poses a significant problem for Kyoto's residents and, therefore triggered strong resistance toward tourism development (Kyoto City Tourism Association, 2019). Understanding why tourists visit allows DMOs to address overcrowding by strategically promoting lesser-known sites with similar cultural or natural beauty, encouraging staggered visitation schedules and diverting visitors to alternative locations, alleviating the stress caused to residents.

Sensory marketing is a marketing strategy that engages a customer's five senses: sight, sound, smell, touch and taste. It aims to create a more memorable and impactful experience by stimulating these senses and appealing to emotions. It enhances the visitor experience by creating a more immersive previsit experience (Handler & Leung, 2024). DMOs can leverage virtual tours with nature sounds, highlight the serene atmosphere during off-peak hours, showcase nighttime illuminations and even incorporate subtle

cultural scents in marketing materials to pique visitor interest and encourage exploration of different sections. By leveraging these insights on tourist motivations and sensory marketing, DMOs managing Kyoto's culturally rich temples and shrines can tailor communication strategies to optimize visitor experiences. Highlighting specific features through sensory marketing in communication materials can attract different visitor types, ensuring a lasting appeal for Kyoto's religious sites and cultivating a sense of wonder and appreciation for their rich history (Ghosh & Sarkar, 2015).

Limitations and future studies

The major limitation of this research is that the data set used in this analysis was limited to the top 25 religious attractions listed on TripAdvisor and, therefore, consists solely of data from reviews of these sites. The choice of TripAdvisor and English reviews further excluded visitors from certain geographic regions who use different travel review sites in their respective countries or use a different language for their postings. Finally, this study centered on examining the motivation of nonreligious tourists, but it is important to recognize that the data collection process through TripAdvisor may not definitively preclude the inclusion of reviews authored by religious tourists. Finally, this study did not consider external factors such as the significance, size and access routes of the religious sites, which could also lead to bias in the perception and motivational factors of the 25 religious sites examined. Future research should extend the sample database by including all the religious attractions in Kyoto or the whole country. In addition, non-English reviews should also be included to comprehensively analyze the tourists' push and pull motivations. Furthermore, future studies can compare the motivation differences between nonreligious and religious tourists and compare religious sites versus nonreligious sites.

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