

Perceptions and Preservations: Analyzing Tourist Sentiments in Thailand's National Parks through Aspect-Based Sentiment Analysis

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Abstract

This study delves into tourist perceptions within Thailand's national parks by utilizing advanced sentiment analysis to evaluate online visitor reviews. Focusing exclusively on Thailand, this research reveals unique insights into tourist experiences shaped by the country's rich biodiversity, conservation efforts, and distinctive management strategies. By employing Aspect-Based Sentiment Analysis (ABSA), this study systematically dissects visitor sentiments, offering a nuanced understanding of aspects such as natural beauty, visitor amenities, and conservation practices. The findings underscore Thailand's strength in balancing ecological preservation by enhancing visitor experiences and highlighting its leadership in conservation and park management. This research contributes significantly to sustainable tourism practices, providing valuable insights for park authorities to optimize visitor satisfaction and environmental stewardship. The application of sentiment analysis in this context not only advances the academic understanding of tourist experiences, but also presents practical implications for ongoing improvements in the tourism sector, aligning with global discussions on sustainable tourism.

Keywords

Aspect-Based Sentiment Analysis; Tourist Perceptions; National Park Conservation; Thailand Tourism.

1. Introduction

Tourism, one of the world's largest economic sectors, plays a pivotal role in the growth and development of many nations[1]. It not only contributes significantly to GDP but also acts as a catalyst for cultural exchange, fostering mutual understanding and appreciation among diverse groups of people[2]. Over the past few decades, the tourism landscape has evolved, with travelers seeking more authentic, enriching, and sustainable experiences[3]. This shift in tourist preferences has brought national parks at the forefront of the tourism industry. Thailand's national parks, renowned for their stunning natural beauty and rich biodiversity, have become increasingly significant in nature-based tourism. National parks not only serve as sanctuaries for wildlife and natural habitats but also play a crucial role in attracting tourists, contributing to the country's socioeconomic development. The increasing popularity of these parks has led to growing interest in understanding tourist perceptions, as these insights are vital for sustainable management and enhancing visitor experience.

Recent studies, such as the one conducted on Phu Kradueng National Park (PKNP)[4], provide valuable insights into tourist perceptions using comprehensive assessment frameworks like Dickman's 5As, which encompass Attractions, Activities, Accessibility, Accommodations, and Amenities. This framework has proven effective in evaluating various aspects of the tourist experience, from the natural beauty and climate of the parks to the range of activities available, such as hiking, trekking, and camping. Accessibility is also a critical factor, with a focus on

maintaining the integrity of the natural environment, while ensuring the safety and convenience of tourists. The type and quality of accommodation play a significant role in shaping tourist experiences, as seen in PKNP, where most visitors prefer staying in tents, highlighting the importance of aligning accommodations with the natural context of the parks. Furthermore, amenities, although perceived as less critical due to their nature-oriented context, still contribute to the overall satisfaction of tourists visiting these parks.

In recent years, the digital revolution has further transformed the tourism sector[5]. Online platforms, especially travel review sites such as TripAdvisor, have become indispensable tools for travelers[6]. These platforms not only assist tourists in planning their trips but also provide a wealth of data in the form of user reviews[7]. Sentiment analysis, a subfield of artificial intelligence, has emerged as a powerful tool for analyzing vast amounts of unstructured data [8]. By gauging the sentiments expressed in online reviews, stakeholders can gain a deeper understanding of tourist satisfaction, preferences, and areas of concern[9]. This, in turn, can guide policymakers and park authorities to formulate strategies to enhance the tourist experience while ensuring sustainability of the natural environment[10]. In the context of Thailand, a country with rich cultural and natural heritage, understanding tourist perceptions through sentiment analysis becomes even more crucial[11]. Although there is a substantial body of research on national park tourism, the application of sentiment analysis, especially in the context of Thailand, remains underexplored[12].

In light of these findings, this study aims to delve deeper into the perceptions and expectations of tourists visiting Thailand's national parks. By focusing on various elements that contribute to a visitor's experience, this study seeks to provide actionable insights for park management and policymakers aimed at enhancing the sustainability and attractiveness of these natural treasures while ensuring a high-quality experience for visitors. This study aims to bridge this gap by providing insights into the perceptions and experiences of tourists visiting national parks in Thailand through sentiment analysis. By delving deeply into the sentiments expressed in online reviews, this study seeks to offer a comprehensive understanding of the current trends, challenges, and opportunities in national park tourism in these two countries.

2. Literature Review

2.1. Review of Previous Studies on Tourist Perceptions in National Parks

National parks, often referred to as the 'of a country's natural heritage', have been the subject of extensive research over the past few decades. Their significance in promoting biodiversity conservation while offering recreational and educational opportunities has been well-documented[13]. Eagles (2009) emphasized that national parks, by their design, serve as a bridge between conservation and tourism, providing a platform where both can coexist and benefit from each other[14].

The motivation behind visiting national parks has been a subject of interest for many researchers. According to Tuan and Navrud (2008), tourists are primarily driven by the unique natural and cultural experiences that these parks offer[15]. This sentiment was echoed by Merwe and Saayman (2008), who found that pristine landscapes, diverse flora and fauna, and the opportunity to engage in various recreational activities were among the top reasons tourists cited for visiting national parks[16]. Their study on Kruger National Park, one of the largest conservation areas in South Africa, identified nature, activities, and attractions as key travel motives for visitors. However, the influx of tourists into these protected areas also brings a set of challenges. As highlighted by Ferguson et al. (2022), increased visitation, if not managed properly, can lead to environmental degradation in national parks, including soil erosion, habitat destruction, and wildlife disturbances [17]. Their study on the impact of the COVID-19 pandemic on outdoor recreation visitation in New England's National Forests provides

empirical evidence of the challenges posed by dramatic increases in recreation visitation. This sentiment was further reinforced by Kim and Ritchie (2014), who pointed out that the attraction of tourists to these parks, if not preserved, could lead to a decline in visitors in the long run[18].

The socioeconomic impacts of national park tourism have also been a focal point of many studies. According to a comprehensive review by Lee and Back (2015), local communities surrounding national parks often derive significant economic benefits from park-related tourism, including employment opportunities, increased income, and business growth[19]. However, they also highlight the need for an equitable distribution of these benefits to ensure the long-term sustainability of tourism initiatives. This was further emphasized by Smith and Krannich (1998), who argued that while national parks can act as catalysts for local economic development, it is essential to ensure that local communities have a stake in and benefit from tourism activities[20].

The educational role of national parks has also been explored. According to a study by Brown and Raymond (2007), national parks serve as "outdoor classrooms," providing visitors with unique opportunities to learn about nature, conservation, and cultural heritage[21]. They argue that this educational aspect not only enhances visitor experience, but also fosters a deeper connection between tourists and the natural environment, promoting conservation efforts.

The literature on national park tourism is vast and varied, covering a wide range of topics, from tourist motivations and impacts to management strategies and future challenges. As interest in sustainable tourism continues to grow, it is expected that national parks will remain at the forefront of research and discussion in the coming years.

Moreover, national park tourism represents a unique intersection of environmental conservation, cultural preservation, economic development, and recreational enjoyment. As these parks are increasingly sought as destinations for their natural beauty, rich history, and diverse ecosystems, understanding the multifaceted aspects of tourism within these spaces is crucial. This section delves into six key areas of research that collectively paint a comprehensive picture of national park tourism. These areas include Biodiversity & Ecosystems, Visitor Experience & Amenities, Conservation & Management, Cultural & Historical Significance, Economic Impact, and Natural Beauty & Scenic Landscapes. Each of these themes not only stands on its own in terms of academic and practical importance but also interweaves with others to form a holistic view of what it means to engage sustainably and responsibly with these natural treasures.

2.2. Sentiment Analysis in Tourism Research

Sentiment analysis, particularly in the context of big data, has been increasingly used in tourism research to understand and interpret large volumes of tourist feedback. Alaei et al. (2019) discussed how sentiment analysis can be used to capitalize on big data in tourism, providing a comprehensive understanding of tourist experiences and preferences[8]. Additionally, models such as VADER, a parsimonious rule-based model for sentiment analysis of social media texts [22], have been instrumental in analyzing tourists' opinions and emotions expressed online. The early stages of sentiment analysis in tourism focused on deciphering the overall positive or negative sentiments. One of the foundational studies in this area was conducted by Nayoan, Hidayatullah, and Fudholi (2021), who developed an aspect-based sentiment analysis model for Indonesian tourism reviews[23]. Their work demonstrated the potential of sentiment analysis to extract meaningful insights from hotel reviews.

Aspect-based sentiment analysis (ABSA) has significantly advanced the analysis of online reviews in the tourism sector. This approach goes beyond general sentiment categorization by delving into the specific elements of a review. For example, a study on the sentiment analysis of tourism in Thailand during the COVID-19 pandemic by Leelawat et al. (2022) used machine

learning to analyze Twitter data[24], providing nuanced insights into tourist sentiments during a critical period.

ABSA's applications in tourism are extensive, ranging from hotels to airlines. A notable study by Tokarchuk, Barr, and Cozzio (2022) estimated tourism carrying capacity in urban contexts using sentiment analysis, showcasing ABSA's utility in managing tourist influx and experiences[25]. However, challenges remain, such as handling reviews in multiple languages and colloquial expressions. Mehraliyev, Chan, and Kirilenko (2022) conducted a thematic and methodological review of sentiment analysis in hospitality and tourism, highlighting these challenges and the need for more sophisticated approaches[26].

The future of the ABSA in tourism is tied to advancements in AI and machine learning. Real-time sentiment analysis and the integration of ABSA with other data sources, such as social media, are promising areas for future research. This evolution will enable the tourism industry to gain deeper and more actionable insights from customer feedback, ultimately enhancing the tourist experience. Sentiment analysis, and more specifically aspect-based sentiment analysis, has transformed the way the tourism industry approaches feedback. By providing detailed aspect-specific insights, ABSA allows businesses to address concerns proactively, enhancing the overall tourist experience. Sentiment analysis, also often referred to as opinion mining, has revolutionized the way researchers and businesses understand and analyze user-generated content. The tourism sector, with its vast array of online reviews, has been a significant benefit of this analytical approach. In the context of national parks and related areas, sentiment analysis provides valuable insights into visitor experiences, perceptions, and sentiments.

This literature review underscores the importance and relevance of sentiment analysis in tourism research, particularly in the context of national parks. The use of advanced analytical techniques, such as deep learning models, provides a deeper and more nuanced understanding of tourist perceptions, which is essential for sustainable management and enhancement of visitor experiences in Thailand's national parks.

3. Methodology

In this study, we adopted a mixed-methods approach to systematically analyze tourist sentiment in Thailand's national parks, with a primary focus on aspect-based sentiment analysis (ABSA) of online visitor reviews. The methodology was structured to encompass both quantitative and qualitative analyses, providing a comprehensive understanding of tourists' perceptions. Figure 1 shows the data processing pipeline.

3.1. Data Collection

The study's data collection was centered on online tourist reviews of various national parks in Thailand. These reviews were meticulously sourced from a range of popular travel and tourism websites to ensure broad representation of tourist experiences and viewpoints. The foundational stage of our research involved collecting a vast dataset of online reviews from TripAdvisor, a platform known for its extensive user-generated content on travel experience. We focused on gathering reviews of national parks in Thailand and leveraging the diversity and volume of TripAdvisor's data to gain comprehensive insights into tourist sentiment.

Data Source and Sampling:

- 1) Platform Selection: TripAdvisor, chosen for its wide user base and global influence.
- 2) Time Frame: Reviews were collected from November 28, 2005, to October 28, 2023.
- 3) Review Selection Criteria: Inclusion of reviews pertaining specifically to the top seven national parks in Thailand, written in English for consistency[27].

Automated Data Extraction:

- 1) Tools Used: Employed Octoparse for automated web scraping.

2) Extracted data points: Extracted relevant review text, user ratings, dates of visits, and other pertinent details.

Throughout the research process, strict adherence to ethical research practices was maintained. This included ensuring anonymity and confidentiality of the data sources, thus upholding the integrity and ethical standards of the study.

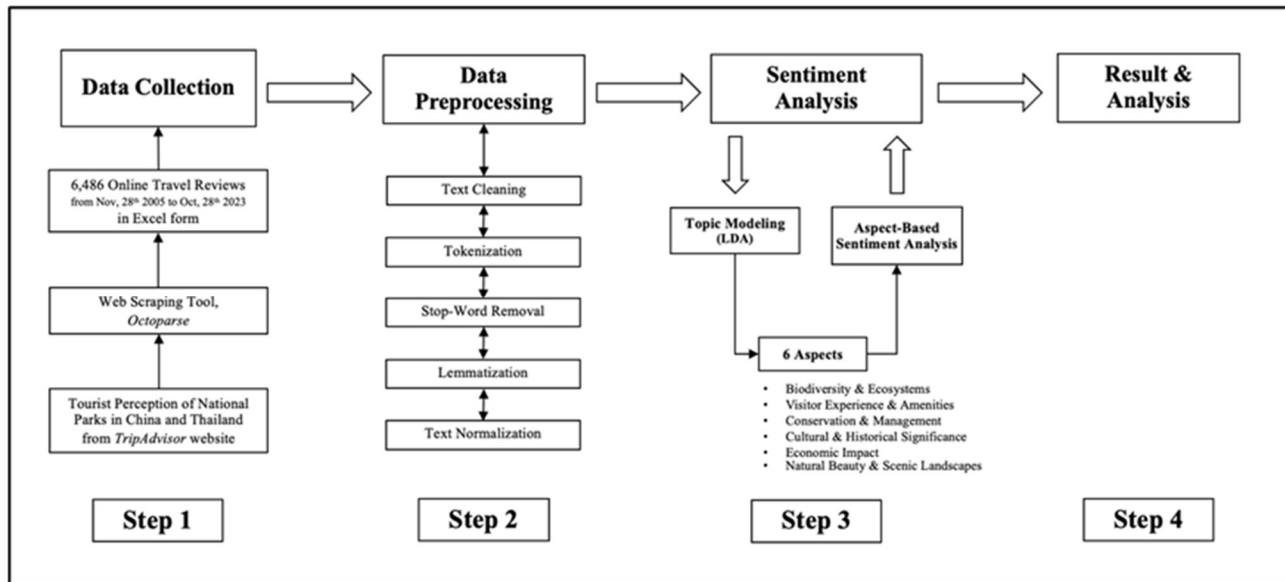


Figure 1. Data Processing Pipeline

3.2. Data Preprocessing

Given the unstructured nature of online reviews, preprocessing is vital for transforming raw data into a format suitable for analysis.

Data Cleaning: Handling Missing Values: Identified and imputed missing values where feasible, discarded incomplete records to maintain dataset integrity.

Removing Duplicates and Filtering Outliers: Ensured data uniqueness and consistency.

Data Transformation:

- 1) Tokenization: Implemented to breaks down text into individual words or tokens.
- 2) Stop-Word Removal and Lemmatization: Enhanced data quality by removing common words and reducing words to their base forms, considering the context.
- 3) Text Normalization: Included lowercasing and removal of special characters and numbers for uniformity.

Tools and Technologies: The Natural Language Toolkit (NLTK) to process and analyze the text data.

3.3. Aspect-Based Sentiment Analysis

A key feature of our methodology was the ABSA, which provided a detailed breakdown of specific aspects mentioned in tourist reviews. This analysis focused on elements such as natural beauty, amenities, conservation practices, accessibility, and overall visitor experience. ABSA enabled a granular understanding of what aspects of the national parks were most impactful on tourist experiences, highlighting both strengths and potential areas for improvement.

The core of this study was an advanced sentiment analysis conducted through natural language processing (NLP) techniques. This analysis categorizes the collected reviews into three distinct sentiment categories: positive, negative, and neutral. Each review was evaluated to assign an overall sentiment score that reflected tourists' experiences in each national park.

General Approach:

Tool Used: TextBlob within the Python environment for initial sentiment analysis, categorizing sentiments as positive, negative, or neutral.

Aspect-Based Sentiment Analysis (ABSA):

1) Aspect Extraction: Identified specific aspects or subjects in reviews related to national park experiences.

2) Predefined Topics for ABSA: Focused on six key aspects: Biodiversity & Ecosystems, Visitor Experience & Amenities, Conservation & Management, Cultural & Historical Significance, Economic Impact, and Natural Beauty & Scenic Landscapes.

Sentiment Classification:

1) Lexicon-based Approach: Sentiment scores are assigned to extracted aspects using predefined sentiment-laden words.

2) Aggregation of sentiment scores: Develop a comprehensive sentiment profile for each aspect across all reviews.

This research design, which integrates both qualitative and quantitative methodologies, provides a robust framework for a nuanced analysis of tourist sentiments in national parks. Our innovative approach to employing ABSA offers deeper insights into specific aspects of the park experience, transcending generic sentiment analysis. This methodology not only enriches academic understanding but also has practical implications for enhancing park management and sustainable tourism practices.

4. Result and Discussion

4.1. Overall Result of Sentiment Analysis Aspects

Table 1. The aspects-based sentiment analysis of national parks in Thailand

No.	Aspect	Sentiment Score (Thailand)
1	Biodiversity & Ecosystems	0.256
2	Conservation & Management	0.432
3	Cultural & Historical Significance	0.053
4	Economic Impact	0.310
5	Natural Beauty & Scenic Landscapes	0.369
6	Visitor Experience & Amenities	0.303

Based on Table 1, the results can be interpreted as follows:

Biodiversity & Ecosystems (0.256).

This aspect, scoring 0.256, indicated a moderate level of sentiment among tourists. While there is appreciation for the biodiversity and ecosystems of Thailand's national parks, this score suggests that tourists might not be overwhelmingly focused on or aware of these aspects, or that there might be areas for improvement in how these features are presented and experienced by visitors.

Moderate Sentiment: Indicates a level of appreciation but not a predominant focus for tourists.

Potential Improvement: Parks might enhance how biodiversity is showcased, or increase awareness among visitors about ecological significance.

Conservation & Management (0.432).

Scoring 0.432, which is one of the higher-rated aspects. This reflects a positive sentiment towards conservation efforts and management practices in national parks. This score suggests that tourists recognize and appreciate the efforts made to preserve natural resources and effectively manage parks.

High Positive Sentiment: Reflects strong appreciation for conservation efforts and effective park management.

Implications: Continuation and promotion of these practices could further boost park reputation and tourist satisfaction.

Cultural & Historical Significance (0.053).

With a low score of 0.053, this aspect suggests that cultural and historical elements are either less prominent in the tourist experience or not, as well highlighted in other aspects. This could be an area for further development, emphasizing the rich cultural and historical context of parks.

Low Sentiment Score: Suggests that cultural elements are either understated in the tourist experience or are not sufficiently emphasized.

Area for Development: Initiatives to better integrate and highlight parks' cultural and historical richness could enhance their overall experience.

Economic Impact (0.310).

A sentiment score of 0.310 indicates moderate recognition of the economic impact of national parks. This suggests that, while some tourists acknowledge or experience the economic aspects of their visits, it is not a primary focus or a highly impactful part of their overall experience.

Moderate Recognition: Indicates some awareness of the economic aspects but not a central element of the tourist experience.

Consideration: Could explore ways to make economic contributions more visible or relatable to visitors?

Natural Beauty & Scenic Landscapes (0.369).

This aspect has a relatively high score of 0.369, indicating that the natural beauty and scenic landscapes of Thailand's national parks are significant drivers of positive sentiments. This score reflects the tourists' appreciation of the aesthetic and natural elements of parks.

Highly Appreciated: A key driver of positive sentiment, indicating a strong appreciation for the parks' aesthetics.

Focus Area: Continued preservation and showcasing of natural beauty should remain a priority.

Visitor Experience & Amenities (0.303).

Scoring 0.303 shows that the overall visitor experience and amenities are rated positively, but there may be room for improvement. This could imply that while parks provide a good experience overall, enhancing amenities and certain aspects of the visitor experience could lead to even higher satisfaction.

Positive but Room for Improvement: While overall satisfactory, there is potential to enhance certain aspects of amenities and visitor experiences.

Recommendation: Conducting detailed visitor surveys to identify areas for improvement could be beneficial.

Overall, sentiment analysis revealed a generally positive perception of Thailand's national parks, with particular strengths in conservation and management, and natural beauty. However, it also highlights potential areas for improvement, such as enhancing the visibility of cultural and historical aspects and improving certain elements of visitor experiences and amenities.

4.2. The Sentiment Analysis of Each National Parks

4.2.1. The Sentiment of National Parks

The sentiment comparison across national parks in Thailand in Table 2 provides a rich tapestry of visitor experiences and perceptions, offering a multifaceted view of what these parks offer and where they can improve. The following presents a complex image of how various aspects

of the parks are received by visitors, and a deep dive into this information reveals both the unique and shared attributes that shape visitor sentiment.

Table 2. The aspects sentiment across national parks in Thailand

Park	Biodiversity	Conservation	Cultural	Economic	Natural	Visitor
Suthep-Pui	0.290	-	0.063	0.319	0.428	0.290
Khao Sok	0.270	-	0.025	-	0.423	0.317
Khao Yai	0.245	0.333	0.100	0.273	-	0.244
Lanta	0.238	-	-	0.197	0.252	0.266
Ang Thong	0.275	0.463	-	0.500	0.419	0.326
Similan	0.224	-	-	-	0.287	0.250
Surin	0.264	0.500	-	-	0.582	0.309

Suthep-Pui National Park.

Biodiversity and Ecosystems: 0.290 indicates a positive sentiment towards biodiversity, suggesting that tourists appreciate the variety of flora and fauna.

Conservation & Management: Not available; this aspect was not highlighted in the reviews, possibly an area for increased focus or visibility.

Cultural and Historical Significance: A low score of 0.063 implies that cultural aspects may not be a major attraction or are underrepresented.

Economic: 0.319 - Reflects a moderate recognition of the park's economic impact, possibly value for money, or local economic benefits.

Natural Beauty & Scenic Landscapes: A score of 0.428 indicates that a park's natural beauty is a significant positive factor for visitors.

Visitor Experience: 0.290 - Suggests overall satisfaction but with potential room for improvement in amenities or facilities.

Khao Sok National Park.

Biodiversity and Ecosystems: 0.270–Shows appreciation for natural diversity, though not as high as some other parks.

Cultural and Historical Significance: -0.025, Negative score, indicating either a lack of cultural attractions or insufficient emphasis on them.

Natural Beauty & Scenic Landscapes: 0.423–Very positive sentiment, highlighting the park's scenic landscapes as a major draw.

Visitor Experience: 0.317–Positive, suggesting a good visitor experience overall.

Khao Yai National Park.

Biodiversity and Ecosystems: 0.245 - Positive, yet lower than some other parks, possibly indicating room for enhancing biodiversity visibility.

Conservation & Management: 0.333–A strong positive score reflecting the park's conservation efforts.

Cultural and Historical Significance: 0.100 - Indicates some recognition of cultural elements but suggests potential for further development.

Economic: 0.273; Moderate score: tourists recognize economic aspects but not a dominant factor.

Visitor Experience: 0.244–Indicates satisfaction, but with a noticeable scope for improvement.

Lanta National Park.

Biodiversity & Ecosystems: 0.238–Positive, but suggests a need to enhance engagement with the park's biodiversity.

Economic: 0.197–Lower score, indicating that economic aspects are less influential in visitor experience.

Natural Beauty: 0.252 - Positive sentiment, although not as high as others, suggests room for further highlighting natural aesthetics.

Visitor Experience: 0.266 - Fairly positive, but improvements in amenities could enhance this score.

Ang Thong National Park.

Biodiversity and Ecosystems: 0.275 - Good appreciation for biodiversity, indicating a positive visitor response to the natural environment.

Conservation & Management: 0.463–Very positive, suggesting excellent management and conservation practices.

Economic: 0.500 - High score, one of the few parks with a strong economic impact, could be due to well-perceived value or local economic benefits.

Natural Beauty & Scenic Landscapes: A score of 0.419 indicated that natural beauty was a key attraction.

Visitor Experience: 0.326–Positive experience overall, with potential for minor improvements.

Similan National Park.

Biodiversity and Ecosystems: 0.224 - Positive but lower than others, suggesting a need for more engagement with biodiversity aspects.

Natural Beauty & Scenic Landscapes: 0.287–Positive sentiment, but there is room to enhance the visibility of the park's natural aesthetics.

Visitor Experience: 0.250 - Suggests general satisfaction but indicates areas for improvement in amenities.

Surin National Park.

Biodiversity & Ecosystems: 0.264–Indicates a positive sentiment, but highlights an opportunity for better showcasing biodiversity.

Conservation and Management: 0.500 - Very high score reflects excellent conservation efforts and park management.

Natural Beauty & Scenic Landscapes: 0.582 - The highest score among the parks, showing that natural beauty is a major draw for Surin.

Visitor Experience: 0.309–Positive overall experience, with potential for enhancing certain aspects of visitor services or amenities.

Each park had unique strengths and areas for improvement, as reflected in the sentiment scores. These insights are invaluable for park authorities to tailor their conservation efforts, visitor amenities, and overall park experiences to better meet tourist expectations and enhance the appeal of these natural treasures.

4.2.2. The Sentiment Analysis Aspects Across National Parks

Interpreting the data from Table 2, which presents sentiment analysis across various aspects of national parks in Thailand, we can derive insightful conclusions about how tourists perceive these different elements.

Biodiversity & Ecosystems: Scores ranged from 0.224 to 0.290, indicating a generally positive perception of biodiversity in these parks. Higher scores in parks such as Suthep-Pui and Ang Thong suggest a richer or more notable biodiversity experience at these locations.

Conservation and Management: The scores varied significantly, with Khao Yai at 0.333 and Ang Thong at 0.463. The absence of scores in some parks (indicated by '-') might suggest a lack of

prominent conservation efforts or less awareness among visitors. High scores in Ang Thong and Surin (0.500) reflect strong visitor appreciation for conservation efforts.

Cultural and Historical Significance: This aspect has lower and more varied scores, with Khao Yai at 0.100 and Ang Thong at -0.500. The negative score in Ang Thong could indicate a perceived lack of cultural or historical elements or possibly issues with how these elements are presented or maintained.

Economic Impact: The scores in this aspect (ranging from 0.197 to 0.500) suggest varying degrees of economic benefits or impacts perceived by visitors. Higher scores in parks such as Suthep-Pui may reflect a perception of positive economic contribution to the local community.

Natural Beauty & Scenic Landscapes: This aspect received consistently high scores across all parks, especially in Surin (0.582) and Khao Sok (0.423), indicating strong appreciation for the natural beauty and scenic landscapes in these areas.

Visitor Experience & Amenities: Scores ranged from 0.244 to 0.326, showing overall positive perceptions but with room for improvement. Parks like Ang Thong and Khao Sok scored higher, possibly due to better visitor facilities or experiences offered.

In summary, the analysis indicates that while there is general appreciation for aspects such as natural beauty and biodiversity in Thai national parks, there are variations in how tourists perceive conservation efforts, cultural significance, and economic impacts. These insights can be instrumental for park authorities in understanding areas of strength and potential improvement, guiding decisions to enhance overall visitor experience, and park sustainability.

4.3. Implications for Future Policy and Management

Our study leverages Aspect-Based Sentiment Analysis (ABSA) to provide a comprehensive overview of tourist sentiment across different national parks in Thailand. The analysis revealed both the strengths and areas for improvement in these parks, as perceived by visitors. These findings offer valuable insights for park authorities, conservationists, and tourism policymakers.

Biodiversity and Conservation: The general positivity in sentiments towards biodiversity and conservation efforts across most parks reflects the successful implementation of ecological preservation strategies. However, the varying degrees of sentiment scores suggest the need for continuous improvement and possibly better communication of these efforts to visitors.

Cultural and Historical Significance: The lower sentiment scores for cultural and historical aspects highlight an opportunity for parks to enhance the visibility and integration of these elements into the visitor experience. This could involve developing interpretive materials, guided tours, or interactive exhibits that showcase parks' rich cultural heritage.

Economic Impact: The moderate sentiment scores regarding the economic impact suggest that, while this aspect is recognized by tourists, it may not be a primary concern or focus during their visits. This aspect should be further explored to understand its significance in the overall tourist experience.

Natural Beauty and Scenic Landscapes: High sentiment scores for natural beauty and scenic landscapes affirm that they are key attractions for visitors. Parks should continue to prioritize the maintenance and presentation of their natural landscapes to attract tourists.

Visitor Experience and Amenities: The positive, yet varied, sentiment scores regarding visitor experience and amenities indicate that while tourists are generally satisfied, there is room for enhancement. Improving facilities, access, and visitor services can further enhance the overall experience.

Park-Specific Insights: Each park exhibits unique strengths and challenges. Customized strategies that cater to the specific needs and characteristics of each park could be more effective in enhancing visitor satisfaction and conservation outcomes.

4.4. Implications for Future Policy and Management

The insights derived from this sentiment analysis can guide targeted improvements to park management and conservation strategies. Emphasizing underrepresented aspects such as cultural heritage and enhancing visitor amenities can lead to a more holistic and satisfying tourist experience. Furthermore, this study underscores the importance of continuously monitoring and analyzing tourist feedback to adapt to and evolve in line with visitor expectations and environmental conservation needs.

4.5. Directions for Future Research

Future research could expand this research by incorporating a more diverse range of data sources, including reviews in other languages, to gain a more comprehensive understanding of tourist perceptions. Additionally, longitudinal studies could help understand how sentiments and perceptions change over time, especially in response to specific management interventions or global tourism trends.

5. Conclusion

In conclusion, our study leverages Aspect-Based Sentiment Analysis (ABSA) to provide a comprehensive overview of tourist sentiment across different national parks in Thailand. The analysis revealed both the strengths and areas for improvement in these parks, as perceived by visitors. Sentiment analysis of Thailand's national parks offers crucial insights into visitor perceptions, highlighting areas of success and potential improvement. These findings are instrumental in guiding future conservation efforts, enhancing visitor experiences, and ensuring sustainable management of these invaluable natural resources.

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