

Exploring satisfaction of amusement parks in Indonesia

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Abstract: The rapid growth of amusement parks in Indonesia has elevated them to significant tourist hubs, prompting a detailed examination of visitor satisfaction within these settings. This study aims to analyze the satisfaction trends among tourists visiting top 11 amusement parks in Indonesia and assess whether their ratings accurately reflect their satisfaction. Moreover, it investigates the factors influencing satisfaction levels, employing an adjusted rating method to dissect tourists' ratings and compare them with sentiment analysis results derived from provided reviews. While acknowledging the fluctuating performance of these destinations, with most showing signs of improvement, the study highlights that only 5 destinations within the sample exhibit comovement between adjusted ratings and sentiment analysis results. Furthermore, a closer inspection reveals that some destinations have successfully minimized the prevalence of negative sentiments expressed in reviews. However, there is still 1 destination that is of concern because it has decreased customer satisfaction as indicated by a decrease in score and the addition of negative sentiment.

Keywords: amusement parks, rating, review, satisfaction, sentiment

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Introduction

Amusement parks have become an important part of the recreational industry around the world. In recent years, the amusement park industry has boomed, providing an increasing variety of attractions and activities for visitors every day (Anton Clavé et al., 2023; Rodríguez-Díaz & Pulido-Fernández, 2018). In general core characteristic of amusement park is a park that has closed space in permanent site with controlled access and hybrid consumption which consists of ride, show, or games together with shopping, food, or beverages (Liang & Li, 2023). In Indonesia, amusement parks have a long history and continue to grow along with cultural and economic changes. Initially, theme parks in Indonesia may have focused on the simple aspects of games and shows, but over time, they evolved into more complex recreation centers, encompassing a variety of attractions and facilities that attract visitors of different ages (Nuryanti, 1996).

The growth of amusement parks in Indonesia can be attributed to increasing urbanization and increasing people's purchasing power. This is due to theme parks have been historically regarded as hedonistic consumption destinations, which drives economic development (Milman & Tasci, 2018). Several big cities such as Jakarta, Bandung, and Bali have become the centre of some of the largest amusement parks in Indonesia. The theme park has become a popular culture icon, attracting local and international tourists, as well as being a source of income for the surrounding area.

In addition to the economic aspect, amusement parks also have a significant social impact. They become a gathering place for family and friends to have fun and relax, as well to increase social interaction. In a cultural context, amusement parks often reflect local values and traditions, through themes and attractions (Choi et al., 2020). That showcase elements of Indonesian culture.

Because theme parks transform their locations into focal points of tourism, it's essential to examine visitors' perspectives. (Başarangil, 2018). However, despite its growing popularity,

there's still a scarcity of research in the tourism field that utilizes 'big data' extracted from online reviews to analyze amusement parks e.g.(Albayrak et al., 2021) and (Guo et al., 2017)). In specific as far as our knowledge, there is no study yet to examine this issue in scope of Indonesia. That made this research become frontier to see the pattern of tourist satisfaction with amusement parks in Indonesia, especially because consumer satisfaction is the goal of every business (Kim et al., 2016). In more detail, there are 3 (three) research questions from this study to be explored:

1. How is the trend of tourist satisfaction with amusement parks in Indonesia?
2. Whether the rating given has reflected the satisfaction of the traveler.
3. What factors hinder the satisfaction of tourists.

Methodology

This study used data sources from Google Reviews, which have potential to act as interactive feedback system between users and management (Khan & Loan, 2022). The study was limited to amusement parks in Indonesia based on 4 main categories, namely:

1. The highest popularity, where all samples are the top 20 favorite destinations for tourists according to TripAdvisor in the category of water park and theme park attractions.
2. Available period, for which data is available daily from 2017 to 2023. There is destination that officially opened in early 2017 still included.
3. Adequacy of the number of reviews at least 50 reviews per month per destination.
4. Representing various categories from the type and owners.

Based on the criteria, 11 amusement parks were chosen as sampled and elaborated in Table 1.

Table 1. Selected amusement parks as sample

No	Name of Amusement Park	Location	Year Opened	Land
1	Taman Mini Indonesia Indah	Jakarta Timur, DKI Jakarta	1975	147 ha
2	Dunia Fantasi	Jakarta Utara, DKI Jakarta	1985	21 ha
3	JungleLand Adventure Theme Park	Bogor, West Java	2016	35 ha
4	Taman Safari Indonesia Bogor	Bogor, West Java	1981	55 ha
5	Jawa Timur Park 1	Batu, East Java	2001	22 ha
6	Jawa Timur Park 2	Batu, East Java	2010	22 ha
7	Dino Park - Jawa Timur Park 3	Batu, East Java	2017	5 ha
8	Batu Night Spectacular	Batu, East Java	2008	3 ha
9	Bali Safari and Marine Park	Gianyar, Bali	2007	40 ha
10	Taman Safari Prigen	Pasuruan, East Java	1997	340 ha
11	Waterbom Bali	Badung, Bali	1993	5 ha

(Source: various source, mainly from the official website)

Data collection for this research gathered using scraping rating and review data from Google for the entire available data, which is done using web scraping via Python with the BeautifulSoup package. Total of 365.202 reviews were gathered for this study. Then data processing with limit the period since January 2017 to December 2023. For data cleaning, several processes are carried out such as:

1. Duplicate rating or review from the same user in the same day.
2. Incomplete data is omitted, including users who give ratings without giving review.
3. Limitation on the review of the attraction and amenities in the area of the amusement park.
4. To maintain the quality of the reviews provided, a rating and review data is used only from users who have reached the level of from Google (Bhandari & Noone, 2023). The selection of local guides is carried out using the criteria set by Google, namely having a valid Google Account, meeting the age of over 18 years, and signed up to participate (Google, 2024b).

After cleaning process, there were 174.587 reviews left for further analysis as followed in the Table 2.

Table 2. Data gathered for research

No	Amusement Park Name	Raw Data	Clean Data
1	Taman Mini Indonesia Indah	16.167	8.662
2	Dunia Fantasi	74.081	20.732
3	JungleLand Adventure Theme Park	23.571	13.580
4	Taman Safari Indonesia Bogor	62.021	21.922
5	Jawa Timur Park 1	13.357	8.193
6	Jawa Timur Park 2	48.115	25.016
7	Dino Park - Jawa Timur Park 3	33.362	19.649
8	Batu Night Spectacular	35.867	21.860
9	Bali Safari and Marine Park	20.035	11.827
10	Taman Safari Prigen	28.041	16.774
11	Waterbom Bali	10.585	6.372
	Total	365.202	174.587

(Source: Researcher's findings)

Adjusted Rating Analysis

When a person searches Google, they will see star ratings in the results. Google uses an algorithm and an average to determine how many stars are displayed on different review properties. Google generate review score for the place is form the average of all ratings published on Google Maps. All scores are rated on a scale from 1 to 5 stars, with 5 as the highest rating (Google, 2024a).

With the algorithm used, the rating that appears in Google Maps is an accumulation of all ratings given by the user. This has the disadvantage that changes made by tourist destinations are not directly reflected in the rating, especially for destinations that have had many reviews before.

To see the increase or decrease in performance represented by the rating given by travelers, the rating will be broken down based on performance over time. The rating will be based on data entered over the last 365 days, so it will represent the current performance at that time. The adjusted rating will be generated in the moving average, use the Equation 1.

$$adjusted\ rating = \sum_{i=0}^n \frac{rating\ score\ x\ number\ of\ rating}{total\ number\ of\ rating} \quad (1)$$

Social Sentiment Analysis

The content shared on social media has also become an essential source of information for travelers deciding amongst destinations (Chung & Koo, 2015). To gauge customer perceptions of the amusement park, this research applied sentiment analysis. Sentiment analysis is a natural language processing technique that evaluates opinions and sentiments through computational text analysis. Before processing the analysis, the review data is processed through several stages, including:

1. Adjustments to abbreviations and typos become standard words.
2. Uniformity of the language used into English. Translate is done using Google Translate, considering several studies show that Google Translate is considered quite comprehensive in translating (de Vries et al., 2018; Groves & Mundt, 2015)

The sentiment of each review was analyzed using model called VADER (Valence Aware Dictionary for Sentiment Reasoning). VADER is a lexicon and rule-based sentiment analysis tools developed by (Hutto & Gilbert, 2014). VADER stands out because it can determine whether a sentence is positive, neutral, or negative, as well as gauge its intensity. Additionally, it considers punctuation, capitalization, degree modifiers, contrastive conjunctions, and negations (Mathayomchan & Taecharunroj, 2020). VADER has been applied in much research including tourism (Alaei et al., 2019).

An example of the use of VADER in comments from amusement park visitors in Indonesia as Table 3. Review 1 shows that the text has a positive score of 0.184 and a neutral score of 0.816, resulting in a compound score of 0.402 which tends to be positive. In contrast review 2

shows the opposite, which compound score become -0,953 and tend to be negative. Additionally, review 3 shows that sentiment analysis has a negative score (0.245) which is higher than a positive score (0.242) so that the compound score produces a number of -0.263 which in general sentiment becomes negative.

Table 3. Examples of VADER sentiment analysis of reviews

Review	Text	Negative Score	Positive Score	Neutral Score	Compound Score	Sentiment
1	One of the family favorite holiday destinations because of its many choices of rides	0,000	0,184	0,816	0,402	Positive
2	Very disappointing all the visitors were photographed when they were about to enter but when our group wasn't photographed. It was confirmed that the camera was broken, then the group behind us was photographed	0,245	0,000	0,755	-0,953	Negative
3	very exciting holiday place but quite tired walking around on foot	0,245	0,242	0,514	-0,263	Negative

(Source: Researcher's findings)

To compare the results from VADER, sentiment analysis also employs TextBlob. TextBlob is a Python library designed for processing text data, offering a straightforward API for various natural language processing tasks like part-of-speech tagging, noun phrase extraction, sentiment analysis, classification, and more (Loria, 2018). TextBlob is fundamentally a construct of the comparison of positive versus negative posts. The sentiment score presented throughout this analysis is the result of the total percent of positive posts less the percent of negative posts, thus resulting in a sentiment score that is necessarily bounded between -1 and +1 (Widmar et al., 2020).

An example of the use analysis of TextBlob as Table 4. The review 1 shows sentiment score 0.342857, which means the score of the review is positive. Conversely, review 2 shows a score of -0.01111 which indicates a negative score. Meanwhile, if the score is 0.00000, it shows the results of a neutral analysis.

Table 4. Examples of TextBlob sentiment analysis of reviews

Review	Text	Sentiment Score	Subjectivity	Overall Sentiment
1	the right place to play and learn science and culture at de bagong there are free blood and eye examination services	0,343	0,668	Positive
2	we went there on january 5 2024 many of the rides were closed and paid 130k. the employees there were busy with themselves and gossiping. if the reason is rain at least there is ticket refund or half price return.	-0,011	0,261	Negative
3	there is lot of education that we can learn there	0,000	0,000	Neutral

(Source: Researcher's findings)

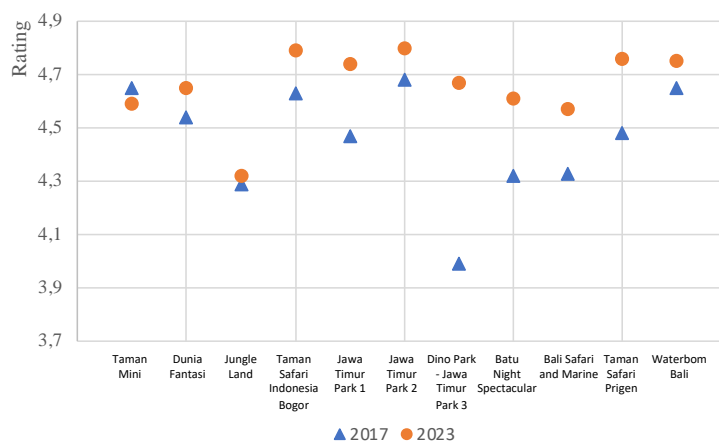
Pearson correlations (Pearson & Filon, 1898) were estimated to investigate the potential of a relationship between the sentiment measures of review and rating given. This is necessary to confirm whether the rating given is in line with the reviews written by visitors.

Results and Discussions

Trend of Tourist Satisfaction with Amusement Parks in Indonesia

In general, almost all amusement parks have shown an improvement in rating score in the past seven years. When looking at the rating improvement, the highest increase was in the Jawa Timur Park 3 destination which jumped 0.68 points to 4.67 by the end of 2023. It followed by Batu Night Spectacular with an increase of 0.29 points, Taman Safari Prigen which rose 0.28 points, and Jawa Timur Park 1 which increased 0.27 points. Taman Mini Indonesia Indah is the only amusement park that experienced a slight decrease in rating 0.06 points.

With this improvement, in short, amusement parks in Indonesia have had a good rating with a score above 4.50. The exception is the Jungle Land destination, which, although undergoing improvements, still has a score of 4.32 at the end of 2023. As for Taman Mini Indonesia Indah despite experiencing a decrease in score, it still has a good rating reaching 4.59. This shows that amusement parks in Indonesia in general are still maintained and continue to make improvements to improve customer satisfaction.



(Source: Researcher's findings)

Figure 1. Comparison end of year adjusted rating between 2017 and 2023

When looking at trends in more detail from year to year at Table 5, there are several interesting things that can be explored. First, there are changes in tourist satisfaction which are reflected in the increase or decrease in the rating given per year. This can be seen from the relatively high standard deviation, especially in Jawa Timur Park 3, JungleLand, and Jawa Timur Park 1. On the other hand, some destinations tend to have low standard deviations, such as Dunia Fantasi and Taman Safari Indonesia Bogor. This shows that the amusement parks tend to have ratings that do not change significantly in the measurement period.

Second, the peak of tourist satisfaction with amusement parks mostly was at the end of 2021, when the tourism sector is reopened after pandemic Covid-19. Several destinations continue to make improvements, so that tourist satisfaction will continue to increase until 2023 such as what happened in Jawa Timur Park 1, Jawa Timur Park 2, and Taman Safari Prigen. Meanwhile, if latter there is a decrease in tourist satisfaction, it is slightly lower from the peak in 2021. In this case, further research is needed both from the aspect of improvement conducted by business actors and from the behavioral aspect of tourists that occur in the pandemic conditions which encourages an increase in tourist satisfaction.

Third, all time data published in Google has not captured the improvements that occurred in the last three years, so it tends to be understated. For example, the all-time rating of East Java Park 1 in Google has a rating of 4.54, but nevertheless the amusement park has made quite positive improvements so that the rating given by tourists throughout 2023 which is reflected in the adjusted rating reaches 4.74. Different gap between the adjusted rating and all-time rating values published also occurred in several other destinations such as Jawa Timur Park 2, Jawa Timur Park 3, Batu Night Spectacular, Bali Safari and Marine Park, and Taman Safari Prigen with

a score difference of more than 0.1 point. This shows that the all-time rating published on the web tend to be bias.

This shows that customer satisfaction continues to move dynamically, so it needs to be measured periodically. The all-time rating published in Google Review is quite relevant in describing tourist satisfaction with the destination, but it not fully reflects customer satisfaction in the current satisfaction from customer of amusement parks.

Table 5. Trend of adjusted rating compared to all-time rating

No	Amusement Park Name	End of Year Adjusted Rating							Standard Deviation	All time Rating
		2017	2018	2019	2020	2021	2022	2023		
1	Taman Mini Indonesia Indah	4.65	4.61	4.62	4.53	4.59	4.30	4.59	0.12	4.51
2	Dunia Fantasi	4.54	4.62	4.66	4.70	4.71	4.67	4.65	0.06	4.62
3	JungleLand Adventure Theme Park	4.29	4.44	4.48	4.40	4.01	4.25	4.32	0.16	4.35
4	Taman Safari Indonesia Bogor	4.63	4.65	4.71	4.75	4.81	4.79	4.79	0.07	4.72
5	Jawa Timur Park 1	4.47	4.57	4.63	4.66	4.73	4.74	4.74	0.10	4.54
6	Jawa Timur Park 2	4.68	4.68	4.72	4.77	4.78	4.80	4.80	0.05	4.69
7	Dino Park - Jawa Timur Park 3	3.99	4.43	4.59	4.67	4.70	4.68	4.67	0.26	4.49
8	Batu Night Spectacular	4.32	4.54	4.52	4.54	4.61	4.58	4.61	0.10	4.47
9	Bali Safari and Marine Park	4.33	4.46	4.49	4.55	4.67	4.62	4.57	0.11	4.46
10	Taman Safari Prigen	4.48	4.62	4.67	4.67	4.69	4.72	4.76	0.09	4.64
11	Waterbom Bali	4.65	4.65	4.72	4.74	4.89	4.83	4.75	0.09	4.69

(Source: Researcher's findings)

Remarks: Bold number indicate the peak of the rating. All-time ratings published in Google Maps use a 1-digit decimal round number.

Satisfaction of the Traveller Based on Rating Given

Furthermore, when looking at the given rating, it is necessary to check further whether it has reflected the satisfaction of the traveler. Using sentiment analysis, a score has been obtained between -1 and +1 from each review given. The score is then aggregated into a trend to do comparison between the adjusted rating results and the sentiment analysis results. In general, results show varying variations between destinations. The results of the sentiment analysis are then compared using correlations as shown in Table 6.

Based on the correlation results obtained, comovement between rating and review It is divided into 2 groups, namely positive correlation and negative correlation. The first group for positive correlations is shown by 5 main destinations, namely Taman Mini Indonesia Indah, Jawa Timur Park 1, Jawa Timur Park 2, Jawa Timur Park 3, and Waterbom Bali. This shows that the comments given by tourists are in line with the reviews given, in tourists who give high ratings are accompanied by positive comments. So that 5 destinations can be confirmed that the ratings and reviews given can reflect customer satisfaction.

Furthermore, in the second group, destinations such as Dunia Fantasi, Taman Safari Indonesia Bogor, Batu Night Spectacular, and Taman Safari Prigen showed the opposite results shown by negative correlation results. The opposite comovements shows that customer satisfaction cannot be fully reflected in the ratings and reviews given. This can be affected by subjectivity of the rating. Some visitor give the highest rating even though they have complaints written in reviews, as well as some sample in Table 7.

Table 6. Correlation of adjusted rating compared to sentiment analysis

No	Amusement Park Name	Sentiment with TextBlob			Sentiment with VADER		
		2017	2023	Correlation with Adj Rating	2017	2023	Correlation with Adj Rating
1	Taman Mini Indonesia Indah	0.279	0.158	0.760	0.410	0.205	0.720
2	Dunia Fantasi	0.200	0.197	-0.510	0.411	0.395	-0.640
3	JungleLand Adventure Theme Park	0.179	0.230	-0.170	0.225	0.338	-0.110
4	Taman Safari Indonesia Bogor	0.233	0.161	-0.760	0.358	0.249	-0.510
5	Jawa Timur Park 1	0.208	0.224	0.570	0.251	0.295	0.040
6	Jawa Timur Park 2	0.131	0.193	0.820	0.179	0.455	0.820
7	Dino Park - Jawa Timur Park 3	0.158	0.292	0.630	0.206	0.420	0.630
8	Batu Night Spectacular	0.186	0.149	-0.700	0.231	0.214	-0.430
9	Bali Safari and Marine Park	0.212	0.195	-0.500	0.260	0.284	0.220
10	Taman Safari Prigen	0.207	0.174	-0.830	0.259	0.278	-0.570
11	Waterbom Bali	0.267	0.360	0.750	0.377	0.600	0.810

(Source: Researcher's findings)

As a part of the discussion, that not all ratings given can fully reflect satisfaction from the community. The comovement only reflects the similarity of patterns between positive ratings and sentiment from reviews. In the event that there are differences, this is a space for business actors to further evaluate what negative things are covered in the review so that it hinders tourist satisfaction.

Table 7. Sample of the inconsistency rating given

No	Review	Rating Given	Sentiment VADER	Sentiment TextBlob
1	Visited December 25, 2021 after PPKM. Sorry I am disappointed that all the games haven't been opened yet. With ticket price of 175k for just few games it feels too expensive.	5	-0,625	-0,638
2	Unfortunately, the game hasn't been fully opened after covid 19 and not all the rides are still functioning.	5	-0,450	-0,340
3	I was going to try riding the windmill but unfortunately it rained until the afternoon	5	-0,500	-0,477

(Source: Researcher's findings)

Factors Hinder the Satisfaction of Tourists

Furthermore, as a review to see the factors hinder the satisfaction of tourists, a more in-depth analysis of the review given. For this reason, a mapping of negative sentiments given by tourists is carried out to be further compiled in the form of wordcloud, especially for negative sentence to extract what word that appear most often.

In general, the main negative factors that hold back visitor satisfaction in all amusement parks are the factor of ticket prices and queues to attractions. This is reflected in the words "price", "ticket", "expensive", and "queue" which dominate the frequency of negative words appearing in the reviews given, as presented at Table 8.

If you look in more detail for amusement parks that have experienced an increase in ratings in the last 7 years, the majority have managed to reduce complaints from tourists about price and queue issues. Destinations that experienced the highest score improvements such as East

Java Park 3 and East Java Park 1 made improvements to reduce visitor disappointment since 2017. In East Java, Park 3 has succeeded in reducing negative comments related to "expensive" which is no longer dominant in 2023. In addition, East Java Park 1 also succeeded in reducing negative comments, namely "damaged" and "bored". East Java Park 2 also reducing negative comments "bad". The same thing with Waterbom Bali which dropped negative comments "queue" which dominated in 2017.

Table 8. Top of negative comment per amusement parks

No	Amusement Park Name	Change in Adjusted Rating 2017 vs 2023	Top of Word Negative Comment by Frequency	
			2017	2023
1	Taman Mini Indonesia Indah	-0,06	Ticket (23) Parking (22) Queue (20)	Queue (134) Time (115) Ticket (108)
2	Dunia Fantasi	0,11	Ticket (34) Expensive (28) Price (16)	Ticket (40) Price (13) Expensive (13)
3	JungleLand Adventure Theme Park	0,03	Hot (15) Parking (11) Queue (12)	Ticket (18) Queue (16) Closed (16)
4	Taman Safari Indonesia Bogor	0,16	Time (6) Price (6) Expensive (6)	Time (35) Parking (25) Expensive (24)
5	Jawa Timur Park 1	0,27	Tired (6) Damaged (4) Bored (4)	Service (9) Ticket (8) Time (6)
6	Jawa Timur Park 2	0,12	Bad (21) Queue (23) Tired (13)	Long (59) Ticket (57) Queue (52)
7	Dino Park - Jawa Timur Park 3	0,68	Expensive (9) Finished (9) Queue (7)	Ticket (15) Service (15) Tired (8)
8	Batu Night Spectacular	0,29	Ticket (34) Expensive (28) Price (16)	Ticket (40) Price (13) Expensive (13)
9	Bali Safari and Marine Park	0,24	Expensive (12) Time (11) Price (8)	Price (27) Ticket (25) Expensive (23)
10	Taman Safari Prigen	0,28	Ticket (31) Unfortunately (29) Expensive (15)	Expensive (13) Time (9) Tired (8)
11	Waterbom Bali	0,10	Expensive (11) Queue (9) Price (9)	Time (16) Price (14) Scary (10)

(Source: Researcher's findings)

Conversely, the Taman Mini Indonesia Indah destination which experienced a decrease in score was also reflected in the increase in negative comments in its reviews. This can be seen from the emergence of negative words "queue" which has experienced an increase in the frequency of reviews from 30 times used in 2017 to 134 times in 2023. It's a basic flaw that parks usually involve significantly longer wait times compared to other tourist spots, which exacerbates the feeling of overcrowding for visitors, especially during busy times (Zhang et al., 2017). This needs to be the attention of the amusement park manager to immediately mitigate so as not to reduce customer satisfaction scores further. Several strategies can be done to reduce queues, such as to consider adopting crowds' management by using differential pricing based on peak and off-peak times. Furthermore, management can also implement an exclusive reduced-wait queue line for higher-paying customers (Milman et al., 2020).

The persistence of negative comments that appear in the reviews given can hold back the improvement of the amusement park's score. This makes customer satisfaction not optimal, because there are negative things that are the catalyst. For this reason, it is necessary for tourist destination managers to focus on several main issues that tourists often complain about related to ticket prices and long queues.

Limitations and Future Research

This research has several limitations that become room for future improvement. First, the study was limited to 11 of the most popular amusement parks in Indonesia, which were concentrated in a few locations. As for its development, several new amusement parks have emerged in Indonesia. In addition, the conglomerate group that owns Amusement Park is currently also continuing to expand in other areas. These developments can be further analyzed regarding the comparison of tourist responses to new amusement parks compared to existing amusement parks.

Second, this study has room for further analysis by looking more granularly at the responses of travelers based on age generation. This can provide insight for theme park operators to analyze market response to the intended segment. In addition, this study does not include the implementation of technology which based on several studies has an impact on customer satisfaction (Hu et al., 2021; Wei et al., 2019).

Finally, this study passed through the COVID-19 pandemic period from 2019 to 2022, where human movement was severely restricted, which had implications for activities in tourist destinations. Several studies show that there has been a shift in tourist preferences during the pandemic period (Bhinadi et al., 2021). It needs to be further investigated whether the post-pandemic era will again change tourist preferences, especially in amusement parks in Indonesia.

Conclusions

The results of the analysis show that there have been fluctuations in amusement parks customer satisfaction during 2017 to 2023, but almost all amusement parks have shown an improvement in rating score. This is a positive thing, where tourist destination managers continue to make improvements to increase customer satisfaction. However, from 11 amusement parks samples, there was 1 destination that experienced a slight decrease in score, namely Taman Mini Indonesia Indah. Even so, the rating score of these destinations is still quite high with an average of above 4.5 out of a scale of 5.0.

In addition, to check whether the rating reflects customer satisfaction, an analysis was carried out to see the comovement between the rating score given and the sentiment analysis of reviews written by visitors. As a result, 5 out of 11 destinations have a high correlation between the results of sentiment analysis and rating score. This shows that customers have alignment in the assessment in the form of reviews and rating scores.

To complete the analysis in looking at the satisfaction factor in more depth by dissecting negative comments to see what words are most conveyed by visitors. In general, some destinations have managed to reduce negative words that appeared in 2017 such as "expensive", "bad", and "queue". In some destinations, although the negative sentiment does not really disappear, but at least it can be minimized so that it can increase the tourist satisfaction score. As for the Taman Mini Indonesia Indah destination, which has decreased scores, it needs more attention to negative sentiment from the "queue" and "difficult" aspects which strengthen in 2023.

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