

Integrating Augmented Reality with Social Media for Interactive Tourism Experiences

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Abstract—The research explores the integration of Augmented Reality (AR) with social media to enhance interactive tourism experiences. This qualitative descriptive study evaluates the effectiveness of utilizing AR as a tool for tourism promotion, focusing on the use of AR features in social media platforms such as Instagram. Conducted in Bangkalan, Madura, East Java, Indonesia, from September to October 2023, the study employed a closed questionnaire method, randomly distributed to 116 respondents from both within and outside Bangkalan. The key indicators evaluated include: (1) attraction of attention, (2) directive speech acts, (3) fostering desire, and (4) information accessibility. The findings reveal that a significant majority of respondents agree that integrating AR with social media effectively attracts attention (70.5%) and stimulates a desire to visit tourist attractions (72.8%). Additionally, respondents find the AR-enhanced information easy to understand (75.4%) and highly accessible (68.9%). In conclusion, this study demonstrates that the integration of AR with social media significantly enhances the promotion of tourism in Bangkalan, Madura. The effectiveness of AR features in achieving tourism promotion goals is affirmed, and the research suggests further investigation into the role of AR in augmenting social media content for tourism marketing.

Keywords—Augmented Reality, Tourism Promotion, Social Media, Information Technology, Marketing

I. INTRODUCTION

Information technology has advanced rapidly, making social media an essential tool for information dissemination, promotion, and sales across various sectors [1]. In the context of tourism, the ability to effectively reach and engage with potential visitors is crucial [2], [3]. This research focuses on promoting the tourist attractions of Bangkalan, Madura, through the creation and distribution of digital posters, utilizing the EPIC method (Empathy, Persuasion, Impact, and Communication) [4]. By leveraging this method, the aim is to create more compelling and effective promotional materials that resonate with the audience on multiple levels [5]. The Tourism Office of Bangkalan is dedicated to modernizing its approach to information dissemination, seeking to expand

its reach and attract more visitors by adopting contemporary digital strategies [6], [7].

Studies have shown that the use of Augmented Reality (AR) applications in tourist destinations, such as those implemented in Bali, significantly enhances the visitor experience by providing interactive and immersive content [8], [9]. Similarly, the integration of social media in the tourism industry, as observed in Spain, has been successful in boosting visitor engagement and increasing bookings, demonstrating the potential benefits of digital innovation in tourism marketing [10], [11]. Indonesia, with its rapidly growing digital landscape, ranks fourth in global social media usage, following India, the United States, and Brazil [12], [13]. This high level of social media penetration presents a unique opportunity for Indonesian tourism authorities to capitalize on digital platforms to promote their destinations more effectively and attract a larger international audience [14], [15]. By embracing these technological advancements, the Bangkalan Tourism Office aims to position itself at the forefront of digital tourism marketing [16], ensuring that its rich cultural heritage and scenic attractions are showcased to the widest possible audience [17].

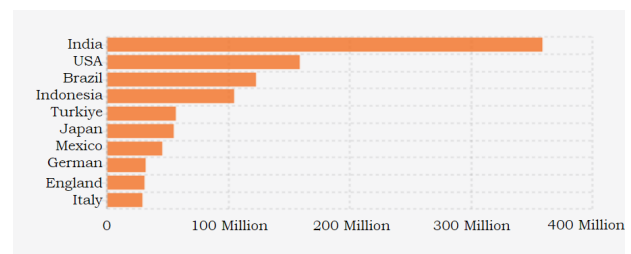


Fig. 1. Global Instagram User Position

In Fig. 1 shows **This research explores** using social media to promote tourism in Bangkalan, Madura, leveraging good internet access and extensive social media use [18], [19].

By utilizing social media's wide reach, the study aims to effectively promote local tourism [20], [21]. It also analyzes social media usage data in Indonesia to understand its impact on Bangkalan's tourism sector [22]. Fig. 2 illustrates social media use in Indonesia:

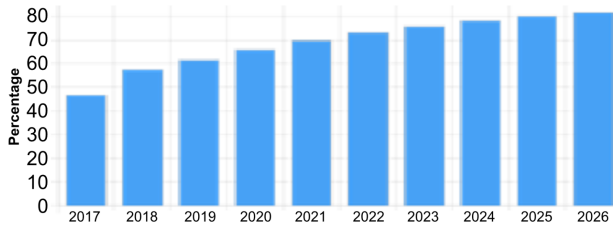


Fig. 2. The User of Social Media in Indonesia 2017-2026

This research uses Instagram to promote tourism in Bangkalan, Madura, with digital posters in Indonesian, English, and Madurese [23]. **It examines how** directive speech acts enhance engagement, leveraging social media's reach and visuals to boost tourism [24]. The study highlights social media's potential to increase visits and showcase Bangkalan's natural beauty.

II. LITERATURE REVIEW

Social media is essential in tourism marketing, reaching audiences and influencing travel decisions. Platforms like Facebook, Twitter, and Instagram enhance destination appeal and impact the industry positively. Integrating IT improves interactions through photos, videos, reviews, and promotions [25]. Tourists rely on social media for information and recommendations, giving destinations a competitive edge [26]. Effective strategies include engaging visuals, influencer collaborations, and live streaming [27].

The study can be strengthened by incorporating the Uses and Gratifications Theory and the Elaboration Likelihood Model (ELM). These theories explain why visually appealing digital posters and influencer endorsements effectively capture audience attention and enhance persuasiveness [28]. Despite engagement challenges, understanding audience preferences and using appropriate strategies can address these issues.

III. METHODS

From September to October 2023, a qualitative descriptive study examined IT use in promoting tourism in Bangkalan, Madura. **The study included 116 selected respondents**, considering factors like gender, region, social media usage, and duration of use. Data from TikTok, Facebook, and Instagram tourism posters were numerically analyzed [29]. The population was divided into subgroups (strata) based on **age, gender, and social media usage frequency**, and each stratum was randomly sampled to represent all relevant groups, minimizing selection bias and enhancing generalizability [30]. **This technique ensures a more accurate reflection** of the diverse demographics in tourism promotion via social media [31], [32]. Primary data was collected via a Google Forms

questionnaire, assessing the posters ability to attract attention, clarity, interest, and accessibility [33]. Researchers calculated and interpreted average responses, visualizing the process in a methodological diagram [34], [35].

This research used SPSS for basic statistical analysis and NVivo for qualitative data analysis. Algorithms included regression analysis to measure relationships between variables and Content Analysis for text data from questionnaires [36]. The pseudocode for the regression analysis process is as follows: Load Data, Clean Data, Define Variables, Apply Regression Model, and Interpret Results.

A flowchart of this process can be seen in Fig. 3. The system architecture of this entire methodology is displayed in Fig. 3, showing the interaction between data collection, analysis, and interpretation of results.

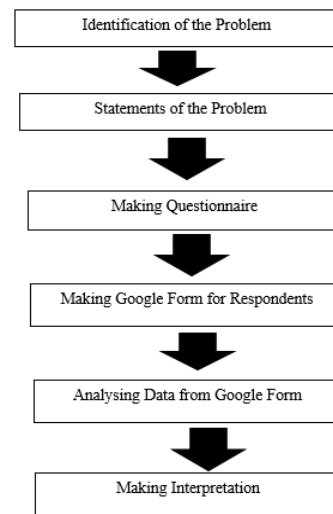


Fig. 3. The Procedure of the Research

Researchers analyzed Google Forms data to identify patterns and key variables influencing IT use in tourism promotion [37]. This revealed how IT enhances digital tourism posters effectiveness, boosting tourism in Bangkalan, Madura [38]. Creative visuals like infographics and successful social media campaign examples make data more accessible and highlight practical applications. The study combines numerical results and context for a comprehensive understanding of social media's impact on tourism promotion [39].

IV. RESULT AND DISCUSSION

In this study, 116 respondents were randomly selected based on gender, region of origin, social media usage, and duration of use. This ensured a balanced representation of diverse characteristics influencing perceptions of IT in tourism promotion. The respondent characteristics are detailed in the following paragraph:

A. Respondent Identity

- Distribution of Respondent Identity Based on Gender

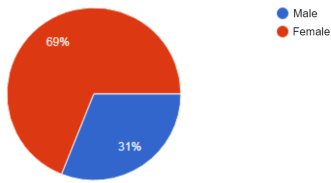


Fig. 4. Distribution of Respondent Identity Based on Gender

The questionnaire data in Fig. 4 reveals that 69% of respondents were female (86 individuals) and 31% were male (36 individuals), indicating predominance of female participation.

- Distribution of Respondent Identity Based on Region

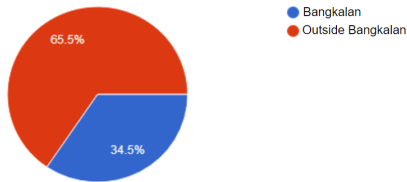


Fig. 5. Distribution of Respondent Identity Based on Region

The data processing in Fig. 5 reveals that 65.5% of respondents (76 individuals) are from Bangkalan, while 34.5% (40 individuals) are from outside Bangkalan. This indicates a greater distribution of respondents from Bangkalan.

- Distribution of Respondent Identity Based on Social Media Usage

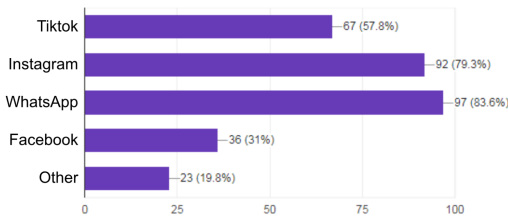


Fig. 6. Distribution of Respondent Identity based on Social Media Usage

The data shows in Fig. 6 that WhatsApp (83.6%) and Instagram (79.3%) are the most widely used platforms, followed by TikTok (57.8%), Facebook (31%), and others (19.8%).

- Respondent Identity by Social Media Usage

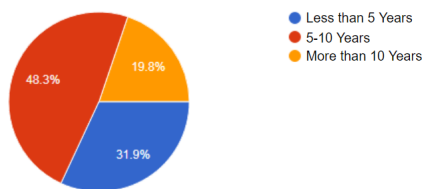


Fig. 7. Respondent Identity by Social Media Usage

The analysis shows in Fig. 7 that 48.3% of respondents have used social media for 5 to 10 years, 31.9% for less than 5 years, and 19.8% for over 10 years.

Most respondents (48.3%) have used social media for 5 to 10 years. Newer users (<5 years) are 31.9%, and 19.8% have over 10 years of experience. Below is a description of respondents daily social media usage duration:

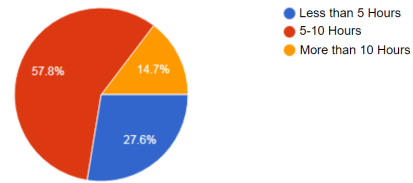


Fig. 8. Duration of Social Media Use in a Day

Data shows in Fig. 8 that 57.8% of respondents use social media for 5 to 10 hours daily, 27.6% for less than 5 hours, and 14.7% for over 10 hours.

Most respondents (57.8%) use social media for 5 to 10 hours daily. About 27.6% use it for less than 5 hours, and 14.7% for over 10 hours.

B. Application of Technology Information on Instagram

Social media is crucial for promoting products, services, and tourist destinations due to its easy information dissemination. Key features include:

- Instagram Reels: Short, engaging videos.
- Instagram Stories: Real-time updates with interactive features like polls and Q&A sessions.
- Hashtags and Geotags: Increase content visibility.
- Facebook Advertising: Targets specific demographics.
- TikTok: Viral content aimed at younger audiences.

Millennials use Instagram to share experiences and get information, making it effective for tourism promotion.

C. Respondent Perception on the Application of Information Technology for Tourism Promotion

The following explains the use of social media for tourism promotion, based on questionnaire responses and four research variables. Detailed data analysis results are presented below.

- Variable "Attracts Attention"

The "attention-grabbing" variable measures how well tourism posters on social media capture interest, assessing their effectiveness in attracting visitors to Bangkalan, Madura.

- Clear and Attractive Poster Images on Social Media

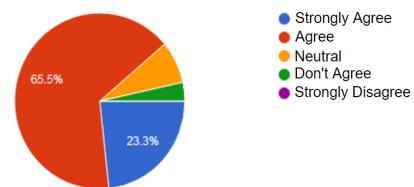


Fig. 9. Respondents Perception of Clear and Attractive Posters

The results show in Fig. 8 that 88.8% (103 respondents) find the poster appealing, demonstrating its effectiveness in attracting attention to Bangkalan, Madura.

- Poster Visuals Look Clear and Attractive on Social Media

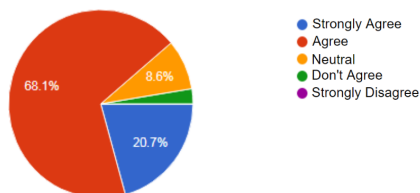


Fig. 10. Respondents Perceptions of Clear and Attractive Visuals

Most respondents found the poster in Fig. 10 interesting, with 20.7% strongly agreeing and 2.6% disagreeing, showing its effectiveness in attracting attention to Bangkalan, Madura.

- Poster Visuals Look Clear and Attractive on Social Media

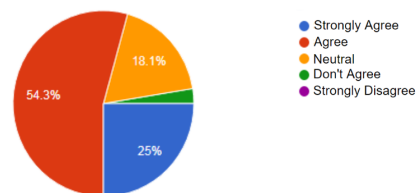


Fig. 11. Respondents Perceptions of Clear and Attractive Poster Colors

The questionnaire results show in Fig. 11 that 79.3% of respondents find the poster's colors attractive, enhancing Bangkalan tourism's visual appeal and effectiveness.

- Information provided on Digital Tourism Posters is clear and legible on Social Media

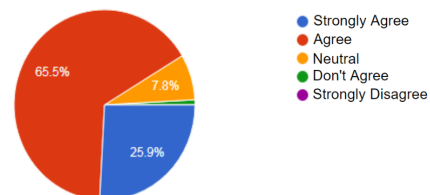


Fig. 12. Respondents for Clear Digital Tourism Info

The questionnaire results show in Fig. 12 that 91.4% find tourism posters clear and readable.

TABLE I
PERCENTAGE 'ATTRACTS ATTENTION' SCORING

No	Indicator	SA	A	N	D	SD
1	Clear and Attractive poster images on Social Media	23.3%	65.5%	7.8%	3.4%	0%

No	Indicator	SA	A	N	D	SD
2	Poster visuals are visible and attractive on social media	20.7%	68.1%	8.6%	2.6%	0%
3	Poster colors are visible and attractive on social media	25%	54.3%	18.1%	2.6%	0%
4	Information provided on Digital Tourism Posters is clear and legible on Social Media	25.9%	65.5%	7.8%	0.9%	0%
Average		23.84%	62.4%	11.56%	2.24%	0%

Note :

SA : Strongly Agree

A : Agree

N : Neutral

D : Disagree

SD : Strongly Disagree

The data shows in Table I that 62.4% of respondents agree that the social media posters catch their attention, indicating their effectiveness in attracting interest to Bangkalan, Madura.

Next, let's discuss respondents perceptions of the "clarity" variable.

- Variable "Directive Speech Acts"

The Directive Speech Act of Extending an Invitation is Straightforward

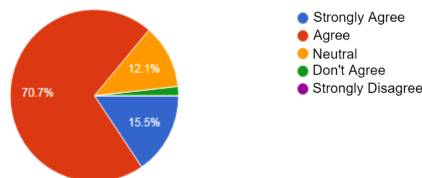


Fig. 13. Respondents Perceptions of the Clear Directive Invitations

Most respondents in Fig. 13 that 86.2% find the invitations on tourism posters clear, while 12.1% are neutral and 1.7% disagree.

- The Meaning Conveyed Through the Directive Speech Act of Extending an Invitation is Readily Comprehensible

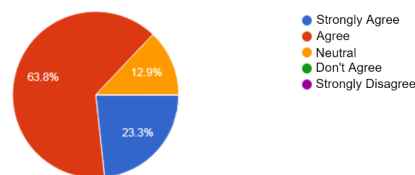


Fig. 14. Respondents Perceptions of the Clear Meaning of Invitations

Most respondents in Fig. 14 that 87.1% find the invitation's meaning in directive speech acts clear, while 12.9% are neutral. The majority find these invitations easily understood.

TABLE II
PERCENTAGE OF 'DIRECTIVE SPEECH ACTS' SCORING

No	Indicator	SA	A	N	D	SD
1	The directive speech act of extending an invitation is straightforward	15.5%	70.7%	12.1%	1.7%	0%
2	The meaning conveyed through the directive speech act of extending an invitation is readily comprehensible.	23.3%	63.8%	12.9%	0%	0%
Average		19.4%	67.25%	12.5%	0.85%	0%

The data indicates in Table II that 67.25% of respondents find directive actions on posters clear and effective. The "Foster Desire" variable measures how well these posters stimulate interest in visiting destinations.

- Variable "Foster Desire"

Social media tourism posters boost visitor interest; 51.7% agree, 30.2% strongly agree, 13.8% neutral, and 4.3% disagree. This highlights the posters impact on visitor intent.

- Getting Knowledge About Tourism Objects from Digital Tourist Posters

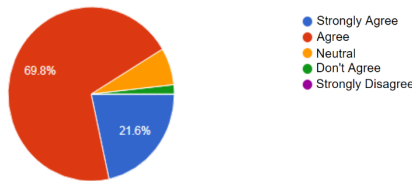


Fig. 15. Respondents views on digital tourism

The questionnaire results show in Fig. 15 that 91.4% of respondents gain knowledge about tourist attractions from digital tourism posters on social media, while 6.9% are neutral, and 1.7% disagree. This highlights the effectiveness of social media as a tourism promotion tool.

- Having the Desire to Visit Tourism Objects After Seeing Digital Tourism Posters on Social Media

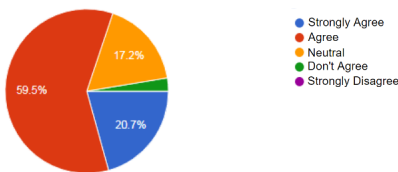


Fig. 16. Respondent' Desire to Visit from Posters

The questionnaire results show in Fig. 16 that 80.2% of respondents feel digital tourism posters on social media trigger their desire to visit attractions, while 17.1% are neutral, and 2.6% disagree. This indicates social media's effectiveness in stimulating interest in tourist destinations.

Infographics can show trends in tourist engagement and the impact of social media strategies on visitor numbers. Charts can illustrate content interactions with tourist responses, using line charts for engagement changes and bar charts for platform effectiveness. These visuals clarify findings and highlight practical applications.

- Having the Motivation to Visit Tourism Objects Through Digital Tourism Posters on Social Media

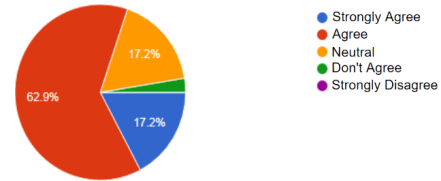


Fig. 17. Respondents' Motivation to Visit from Posters

The questionnaire results show in Fig. 17 that 80.1% of respondents feel motivated to visit tourist attractions after seeing digital posters on social media, while 17.2% are neutral, and 2.6% disagree. This indicates the effectiveness of digital tourism posters in influencing public interest and motivation to visit promoted destinations.

The research shows that digital posters on social media boost tourism engagement and visits. Tourism boards should invest in clear, appealing content. A data-driven approach with AR and VR is essential. The study supports aligning IT use with tech trends and consumer preferences. The average respondent's assessment of the "Growing Desire" indicator is shown in Table III:

TABLE III
PERCENTAGE OF VARIABLE "FOSTER DESIRE" SCORING

No	Indicator	SA	A	N	D	SD
1	Getting knowledge about tourism objects from digital tourist posters	21.6%	69.8%	6.9%	1.7%	0%
2	Having the desire to visit tourism objects after seeing digital tourism posters on social media	20.7%	59.5%	17.1%	2.6%	0%
3	Having the motivation to visit tourism objects through digital tourism posters on social media	17.2%	62.9%	17.2%	2.6%	0%
Average		19.83%	64.06%	13.73%	2.3%	0%

The data shows in Table III that 64.06% of respondents agree that tourism posters on social media generate a desire to visit attractions. This highlights the importance of social media and IT in promoting Bangkalan, Madura's tourism and increasing visits.

Our findings align with regional studies on IT in tourism via social media. In Bali, Facebook and Twitter promoted local tourism, supporting our Instagram results [40], [41]. In Thailand, YouTube and TikTok enhanced engagement, similar to our digital posters [42]. In Europe, Instagram Stories and Facebook Live increased visits through real-time engagement [43]. These comparisons highlight Instagram Reels effectiveness in Bangkalan and support our contribution to Madura's tourism [44]. Future research should explore social media's effectiveness across regions to refine marketing strategies.

- Variable "How to Get Information"

The information acquisition variable measures how effectively social media informs about Bangkalan's tourist attractions. With increasing IT penetration, social media's role in tourism information grows, making this variable crucial.

- Information on Tourism Objects On Digital Tourist Posters Is Visible On Social Media

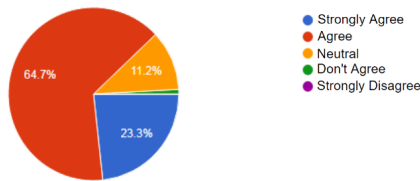


Fig. 18. Respondents' on Tourist Info Visible Online

The questionnaire results show in Fig. 18 that 88% of respondents agree or strongly agree that digital tourism posters are clearly visible on social media, while 11.2% are neutral, and 0.9% disagree. This indicates that the majority believe digital tourism posters effectively convey information visually on social media platforms.

- Tourist Facilities On Digital Tourism Posters are Clearly Visible on Social Media

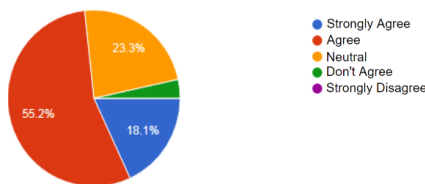


Fig. 19. Respondent' on Tourist Facilities Clear Online

The questionnaire results show in Fig. 19 that 73.3% of respondents agree or strongly agree that tourist facilities on digital tourism posters are clearly visible on social media, while 23.3% are neutral, and 3.4% disagree. This indicates that the majority believe these facilities can be clearly seen on social media.

The data shows in Table IV that 59.95% of respondents agree that social media posters effectively capture attention, proving that social media is an effective medium for promoting tourist attractions and facilities in Bangkalan, Madura, and successfully generating tourist interest and desire to visit.

TABLE IV
VARIABLE "HOW TO GET INFORMATION" SCORING

No	Indicator	SA	A	N	D	SD
1	Tourist information is clearly visible through tourist posters in the media social	23.3%	64.7%	11.2%	0.9%	0%
2	Facilities at tourism objects are visible on tourist posters on social media	18.1%	55.2%	23.3%	3.4%	0%
Average		20.7%	59.95%	17.25%	2.15%	0%

V. CONCLUSION

The research shows that using IT and social media to promote tourism in Bangkalan, Madura is effective. Key indicators include capturing attention, directive speech, fostering desire, and information accessibility. **Results** indicate 62.4% agree social media captures attention for Bangkalan tourism, 67.25% find the information easy to understand, 64.06% feel it fosters a desire to visit, and 59.95% agree that tourist information is easily accessible on social media. **These findings** suggest effective IT use in promoting tourism.

Using IT through social media can significantly boost tourism in Bangkalan. **Future research** should study social media captions effectiveness, long-term impacts of sustained campaigns, and the role of AR and VR in tourism advertising. These insights could optimize digital marketing strategies.

The study faced limitations in obtaining qualified respondents and relied on self-reported data, which may introduce biases. The questionnaire targeted active social media users, limiting demographic reach. Thus, findings should be interpreted cautiously, and further research with a more diverse sample is needed.

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