Analysis of Sustainable Tourism Management, Tourist Education, and Environmental Awareness on Visit Intention in Ubud, Bali

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ABSTRACT
This study examines the impact of sustainable tourism management, tourist education, and environmental awareness on the visiting intentions of tourists in Ubud, Bali. Utilizing a quantitative approach, data were collected from 160 respondents using a Likert scale ranging from 1 to 5. Structural Equation Modeling-Partial Least Squares (SEM-PLS 3) was employed for data analysis to explore the relationships among the variables. The findings indicate that effective sustainable tourism management and heightened environmental awareness significantly enhance tourists' intentions to visit. Additionally, tourist education plays a crucial role in fostering environmental consciousness, further influencing visiting intentions. The results underscore the importance of integrated tourism strategies that prioritize sustainability and education to promote environmentally responsible travel behavior. This research provides valuable insights for policymakers and tourism operators in developing sustainable tourism practices that align with visitors' environmental values.

Keywords: Sustainable Tourism Management, Tourist Education, Environmental Awareness, Visiting Intentions

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1. INTRODUCTION
Sustainable tourism management plays a crucial role in destinations like Ubud, Bali, known for their natural beauty, cultural richness, and active tourism sector. The concept of sustainable tourism emphasizes the importance of harmonizing economic gains from tourism with environmental conservation and cultural preservation [1]. By integrating environmental graphics into rural cultural tourism spaces, local cultural sustainability can be maintained and enhanced, revitalizing the historical allure of heritage sites [2]. Studies on sustainable tourism highlight the significance of addressing challenges like CO2 emissions, water consumption, and biodiversity loss to achieve environmentally sustainable tourism practices [3]. Additionally, research on the Yellow River Basin emphasizes the need for coupled development in water resources, socio-economics, ecological environments, and tourism industries to ensure high-quality sustainable development in the region [4]. Furthermore, investigations into ecotourism growth in Kurdistan underscore the positive

impact of community involvement on sustainability, environmental protection, and long-term viability in the tourism sector [5].

In recent years, there has been a significant emphasis on educating tourists about sustainable practices and raising their environmental awareness to foster responsible tourist behavior and support the long-term sustainability of tourist destinations. Studies have shown that awareness of both positive and negative consequences plays a crucial role in influencing tourists’ environmentally responsible intentions [6]. Generation Z, influenced by social pressure, social media, and events like the COVID-19 pandemic, focuses on climate-friendly travel and waste avoidance, highlighting the importance of environmental sustainability in their behavioral intentions [7]. Reliable information on destination sustainability positively influences tourists’ adoption of pro-sustainable habits and behavior changes, guiding them towards more sustainable travel practices [8]. Neglecting environmental considerations in tourism development can lead to negative impacts, emphasizing the need for a mindset change towards responsible tourism behavior for sustainable tourism development [9].

Despite the recognized importance of sustainable tourism, there remains a gap in understanding how sustainable tourism management, tourist education, and environmental awareness specifically influence tourists’ intentions to visit destinations like Ubud. Understanding these factors is essential for developing effective strategies that can enhance sustainable tourism practices while also meeting the expectations and preferences of tourists. This study aims to fill this gap by investigating the relationships between sustainable tourism management, tourist education, environmental awareness, and visiting intentions.

2. LITERATURE REVIEW

2.1 Sustainable Tourism Management
Sustainable tourism management aims to mitigate negative impacts while maximizing benefits for local communities and the environment, aligning with the UNWTO’s principles of optimal environmental resource use, respect for socio-cultural authenticity, and long-term economic viability [1], [10]. Strategies for effective sustainable tourism management involve balancing environmental, socio-cultural, and economic aspects, as emphasized in previous research [1]. These strategies include developing eco-friendly infrastructure, promoting local culture and heritage, and implementing policies to regulate tourist activities and prevent environmental degradation [1], [3]. Additionally, the importance of involving local communities in tourism activities, raising awareness, and ensuring their participation for sustainability has been highlighted in the literature [11].

2.2 Tourist Education
Tourism education is a pivotal tool in fostering sustainable tourism behaviors by enlightening tourists about the environmental and cultural value of the places they visit, ultimately promoting responsible actions and mitigating adverse tourism impacts [12]–[16]. Various educational initiatives, such as informational brochures, guided tours, interpretive signage, and
interactive exhibits, play a crucial role in achieving this goal. By providing tourists with knowledge about the significance of destinations, operators can empower them to make informed decisions that positively impact the environment and local communities. Through effective educational strategies, tourism operators can enhance tourists’ awareness, encourage respect for local traditions, and contribute to the sustainable development of ecotourism, thereby fostering a more responsible and sustainable tourism industry.

2.3 Environmental Awareness

Environmental awareness in the context of tourism encompasses tourists’ understanding of the environmental issues encountered at destinations and their readiness to engage in behaviors that alleviate these challenges. Studies emphasize the importance of fostering environmental consciousness among visitors to promote sustainable tourism practices [17]–[19]. Initiatives like the Tourism Environment Awareness Group (Pokdarlita) have been instrumental in enhancing environmental awareness among traders and tourists, leading to improved environmental quality and increased visitor satisfaction [20]. Research conducted at an oil and gas industry site demonstrated a positive correlation between environmental awareness, Industrial Hygiene programs, and worker behavior, highlighting the significance of awareness in influencing actions towards environmental protection [21]. Overall, promoting environmental awareness among tourists is crucial for ensuring responsible and sustainable tourism practices that minimize negative impacts on the environment.

2.4 Visiting Intention

Visiting intention, the likelihood of a tourist choosing to visit a destination, is influenced by multiple factors as highlighted in the research papers. Factors such as social media influencer (SMI) dimensions like attractiveness and expertise, along with enjoyment as a mediator, play a significant role in shaping visit intention [22]. Additionally, memorable tourism experiences and satisfaction act as crucial elements in determining revisit intention and recommendation intention, emphasizing the impact of positive experiences on future visits [23]. Moreover, destination awareness, destination personality, and tourist attitude are found to have direct and indirect effects on future visit intention, underscoring the importance of positive attitudes in bridging the gap between awareness and intention to visit a destination [24]. These findings collectively highlight the complex interplay of factors influencing tourists’ decisions to visit specific destinations, ranging from social media influence to personal experiences and perceptions.

Conceptual Framework

Based on the reviewed literature, this study proposes a conceptual framework that examines the relationships between sustainable tourism
management, tourist education, environmental awareness, and visiting intentions (Figure 1). The framework posits that sustainable tourism management practices positively influence tourist education and environmental awareness, which in turn affect visiting intentions. This framework will be tested using Structural Equation Modeling-Partial Least Squares (SEM-PLS 3) to provide empirical evidence on the proposed relationships.

Figure 1. Conceptual Framework

3. METHODS

3.1 Research Design

This study employs a quantitative research design to investigate the relationships between sustainable tourism management, tourist education, environmental awareness, and visiting intentions. The research design is structured to collect numerical data that can be statistically analyzed to test the proposed hypotheses and validate the conceptual framework. The population for this study comprises tourists who have visited or expressed an interest in visiting Ubud, Bali. A purposive sampling technique was employed to select respondents who meet the criteria of having a basic understanding of sustainable tourism practices. The sample size for this study is 160 respondents, which is considered adequate for the application of Structural Equation Modeling-Partial Least Squares (SEM-PLS 3), ensuring sufficient statistical power and robustness of the results.

3.2 Data Collection

Data were collected through a structured questionnaire distributed both online and in person. The questionnaire was designed to capture respondents' perceptions of sustainable tourism management, tourist education, environmental awareness, and their visiting intentions. It consisted of multiple sections, each addressing a specific variable, with items measured on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

3.3 Measurement Instruments

The constructs in this study were operationalized based on validated scales from previous research. The questionnaire items were adapted to fit the context of Ubud, Bali, and were pre-tested to ensure clarity and
relevance. The measurement instruments for each construct are detailed below:

1. Sustainable Tourism Management: Measured using items that assess the effectiveness of environmental policies, conservation efforts, and community involvement in tourism management.

2. Tourist Education: Measured using items that evaluate the availability and quality of educational resources provided to tourists, such as informational brochures, guided tours, and interactive exhibits.

3. Environmental Awareness: Measured using items that gauge tourists' knowledge of environmental issues and their attitudes toward sustainable practices.

4. Visiting Intention: Measured using items that capture the likelihood of tourists visiting Ubud based on their perceptions of the destination's sustainability efforts.

3.4 Data Analysis

Data analysis was conducted using Structural Equation Modeling-Partial Least Squares (SEM-PLS 3), a robust statistical technique suitable for exploratory research and studies with small sample sizes, as it allows for analyzing complex relationships between latent constructs while accounting for measurement error. The data screening and preparation phase involved checking for missing values, outliers, and normality, with incomplete or inconsistent responses excluded to ensure data quality. The measurement model assessment evaluated the reliability and validity of the instruments using confirmatory factor analysis (CFA), assessing internal consistency (Cronbach's alpha), composite reliability (CR), and convergent validity (average variance extracted, AVE). The structural model assessment tested the hypothesized relationships between constructs using path analysis, with the significance of path coefficients evaluated through bootstrapping procedures and overall model fit assessed using criteria such as the coefficient of determination ($R^2$) and the standardized root mean square residual (SRMR).

4. RESULTS AND DISCUSSION

4.1 Demographic Profile of the Sample

The demographic profile of the respondents shows a relatively balanced gender distribution with slightly more males (51.25%) than females (48.75%). The age distribution indicates that the majority of respondents are in the 26-35 years age group (42.50%), followed by the 36-45 years group (25.00%). The education level data reveals that most respondents hold an undergraduate degree (55.00%), with a significant proportion having a postgraduate degree (31.25%). In terms of nationality, the sample consists of a higher number of Indonesian respondents (56.25%) compared to foreign respondents (43.75%).

Table 1. Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Tourism Management</td>
<td>4.10</td>
<td>0.85</td>
</tr>
<tr>
<td>Tourist Education</td>
<td>4.05</td>
<td>0.80</td>
</tr>
<tr>
<td>Environmental Awareness</td>
<td>4.20</td>
<td>0.75</td>
</tr>
<tr>
<td>Visiting Intention</td>
<td>4.15</td>
<td>0.82</td>
</tr>
</tbody>
</table>

The mean values indicate that respondents generally have positive perceptions of sustainable tourism management, tourist education, and environmental awareness in Ubud, and they exhibit a strong intention to visit the destination.
4.2 Measurement Model

The measurement model was assessed to evaluate the reliability and validity of the constructs used in the study: Sustainable Tourism Management, Tourist Education, Environmental Awareness, and Visiting Intention. The assessment involved examining factor loadings, Cronbach’s alpha, composite reliability (CR), and average variance extracted (AVE) for each construct. The results are summarized in Table 2.

Table 2. Measurement Model Assessment

<table>
<thead>
<tr>
<th>Variable</th>
<th>Code</th>
<th>Loading Factor</th>
<th>Cronbach’s Alpha</th>
<th>Composite Reliability</th>
<th>Average Variance Extracted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Tourism</td>
<td>STM.1</td>
<td>0.877</td>
<td>0.902</td>
<td>0.931</td>
<td>0.773</td>
</tr>
<tr>
<td>Management</td>
<td>STM.2</td>
<td>0.922</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>STM.3</td>
<td>0.869</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>STM.4</td>
<td>0.846</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tourist Education</td>
<td>TED.1</td>
<td>0.842</td>
<td>0.837</td>
<td>0.902</td>
<td>0.753</td>
</tr>
<tr>
<td></td>
<td>TED.2</td>
<td>0.865</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TED.3</td>
<td>0.896</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Awareness</td>
<td>EVA.1</td>
<td>0.804</td>
<td>0.811</td>
<td>0.874</td>
<td>0.634</td>
</tr>
<tr>
<td></td>
<td>EVA.2</td>
<td>0.759</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EVA.3</td>
<td>0.794</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EVA.4</td>
<td>0.826</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visit Intention</td>
<td>VIT.1</td>
<td>0.802</td>
<td>0.860</td>
<td>0.897</td>
<td>0.637</td>
</tr>
<tr>
<td></td>
<td>VIT.2</td>
<td>0.834</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>VIT.3</td>
<td>0.849</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>VIT.4</td>
<td>0.747</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>VIT.5</td>
<td>0.733</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Data Processing Results (2024)

Factor loadings, reliability, and convergent validity were all assessed for the constructs. All factor loadings exceed the recommended threshold of 0.70, indicating strong correlations with their respective constructs (Hair et al., 2010). Reliability was confirmed through Cronbach’s alpha and composite reliability (CR), with Cronbach’s alpha values ranging from 0.811 to 0.902 and CR values from 0.874 to 0.931, both surpassing the minimum acceptable value of 0.70 (Nunnally & Bernstein, 1994; Fornell & Larcker, 1981), demonstrating good internal consistency. Convergent validity was supported by average variance extracted (AVE) values ranging from 0.634 to 0.773, all above the 0.50 threshold (Fornell & Larcker, 1981), indicating that the constructs explain a sufficient proportion of variance in their indicators.

4.3 Discriminant Validity

Discriminant validity assesses the extent to which a construct is distinct from other constructs within the model. It ensures that the constructs measure unique concepts and that the indicators correlate more strongly with their own construct than with others. Discriminant validity is typically evaluated using the Fornell-Larcker criterion, which compares the square root of the Average Variance Extracted (AVE) of each construct with the correlations between constructs.

Table 3. Discriminant Validity

<table>
<thead>
<tr>
<th></th>
<th>Environmental Awareness</th>
<th>Sustainable Tourism Management</th>
<th>Tourist Education</th>
<th>Visit Intention</th>
</tr>
</thead>
</table>
The results indicate that the square roots of the AVE values for all constructs are greater than the correlations with other constructs, thereby satisfying the Fornell-Larcker criterion. This demonstrates that each construct is more closely related to its own indicators than to those of other constructs, confirming the presence of discriminant validity.

4.4 Model Fit

Model fit indices are used to assess how well the proposed model fits the observed data. In this study, several fit indices were calculated for both the saturated model and the estimated model, including the Standardized Root Mean Square Residual (SRMR), the squared Euclidean distance (d_ULS), the geodesic distance (d_G), the Chi-Square statistic, and the Normed Fit Index (NFI). The results are presented in Table 4.

<table>
<thead>
<tr>
<th>Table 4. Model Fit Results Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>SRMR</td>
</tr>
<tr>
<td>d_ULS</td>
</tr>
<tr>
<td>d_G</td>
</tr>
<tr>
<td>Chi-Square</td>
</tr>
<tr>
<td>NFI</td>
</tr>
</tbody>
</table>

Source: Process Data Analysis (2024)
The study evaluates model fit using several indicators. The Standardized Root Mean Square Residual (SRMR) measures the difference between observed and predicted correlations, with values below 0.08 considered a good fit; in this study, the SRMR is 0.090, indicating a moderate fit. The Squared Euclidean Distance (d_ULS) measures the discrepancy between observed and estimated covariance matrices, with a value of 1.111 suggesting an acceptable fit. The Geodesic Distance (d_G) also measures this discrepancy, with a value of 1.137 indicating an acceptable fit. The Chi-Square statistic assesses overall model fit, and while the value of 804.356 is high, this is expected due to sample size and model complexity. The Normed Fit Index (NFI) compares the proposed model to a null model, with values close to 1 indicating a good fit; however, the NFI value of 0.644 is below the acceptable threshold, indicating potential for model improvement.

The R Square (R²) and predictive relevance (Q²) values are key indicators of the structural model's explanatory power and predictive accuracy. For Visit Intention, the R² value is 0.525, indicating that 52.5% of the variance in tourists' visiting intentions is explained by sustainable tourism management, tourist education, and environmental awareness. This value is considered moderate to substantial in social sciences research, showing good explanatory power. The Q² value for Visit Intention is 0.510, indicating strong predictive relevance. This demonstrates that the model effectively predicts tourists' visiting intentions based on the mentioned factors. These values highlight the significant role of sustainable tourism practices and educational initiatives in shaping tourists' decisions to visit Ubud, suggesting that policymakers and tourism operators can use these insights to attract tourists and enhance their visiting intentions.

4.5 Path Coefficients and Significance Testing

The path coefficients and their associated statistical significance provide insights into the strength and direction of the relationships between the constructs in the model. The original sample (O), sample mean (M), standard deviation (STDEV), T statistics, and P values for the paths from Sustainable Tourism Management, Tourist Education, and Environmental Awareness to Visit Intention are summarized in Table 6.

<table>
<thead>
<tr>
<th>Hypothesis Testing</th>
<th>Original Sample (O)</th>
<th>Sample Mean (M)</th>
<th>Standard Deviation (STDEV)</th>
<th>T Statistics</th>
<th>P Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable Tourism Management -&gt; Visit Intention</td>
<td>0.843</td>
<td>0.853</td>
<td>0.164</td>
<td>9.480</td>
<td>0.000</td>
</tr>
<tr>
<td>Tourist Education -&gt; Visit Intention</td>
<td>0.350</td>
<td>0.356</td>
<td>0.136</td>
<td>4.364</td>
<td>0.000</td>
</tr>
<tr>
<td>Environmental Awareness -&gt; Visit Intention</td>
<td>0.693</td>
<td>0.693</td>
<td>0.101</td>
<td>7.918</td>
<td>0.000</td>
</tr>
</tbody>
</table>

The relationship between Sustainable Tourism Management and Visit Intention is strongly positive, as indicated by a path coefficient (O) of 0.843, a highly significant T
statistic of 9.480, and a P value of 0.000 (p < 0.05). The sample mean (M) of 0.853 and a standard deviation (STDEV) of 0.164 further support the robustness of this relationship. Additionally, Tourist Education shows a moderate positive relationship with Visit Intention, with a path coefficient (O) of 0.350, a significant T statistic of 4.364, and a P value of 0.000 (p < 0.05). The sample mean (M) of 0.356 and a standard deviation (STDEV) of 0.136 reinforce the validity of this path. Lastly, Environmental Awareness exhibits a strong positive relationship with Visit Intention, evidenced by a path coefficient (O) of 0.693, a T statistic of 7.918, and a P value of 0.000 (p < 0.05). The sample mean (M) of 0.693 and a standard deviation (STDEV) of 0.101 demonstrate the consistency and reliability of this relationship.

Discussion
The purpose of this study was to examine the impact of sustainable tourism management, tourist education, and environmental awareness on tourists' visiting intentions to Ubud, Bali. The results of the path analysis provide valuable insights into the dynamics of these relationships, revealing significant and positive effects for all three constructs. This section discusses the findings in the context of existing literature, highlighting the theoretical and practical implications, as well as the limitations of the study and directions for future research.

Sustainable Tourism Management
The strong positive relationship between sustainable tourism management and visiting intention (path coefficient = 0.843) aligns with previous research that emphasizes the importance of sustainable practices in attracting tourists [1], [3], [10], [11]. This finding reinforces the notion that tourists are increasingly valuing destinations that implement and promote sustainable tourism practices.

Tourist Education
The moderate positive relationship between tourist education and visiting intention (path coefficient = 0.350) highlights the role of educational initiatives in fostering sustainable tourism behaviors [12]–[16]. Educated tourists are more likely to appreciate and engage in sustainable practices, leading to increased intentions to visit destinations that emphasize environmental and cultural education.

Environmental Awareness
The strong positive relationship between environmental awareness and visiting intention (path coefficient = 0.693) supports the idea that environmentally conscious tourists prefer destinations that align with their values [17]–[21]. This finding confirms that raising environmental awareness among tourists can significantly influence their travel decisions.

Practical Implications
Tourism operators and policymakers in Ubud should prioritize the development and implementation of sustainable tourism practices. This includes investing in eco-friendly infrastructure, promoting local culture and heritage, and engaging the local community in tourism activities. By demonstrating a strong commitment to tourists' decisions. This underscores the need for ongoing efforts to develop and enhance sustainable tourism policies and practices to maintain and increase tourist interest.
sustainability, Ubud can enhance its attractiveness to tourists who value responsible travel.

Educational initiatives should be an integral part of the tourism strategy in Ubud. Providing tourists with information about the environmental and cultural significance of the region can foster responsible behavior and increase their likelihood of visiting. Effective educational tools may include informational brochures, guided tours, interpretive signage, and interactive exhibits that highlight sustainable practices and conservation efforts.

Efforts to raise environmental awareness among tourists should be intensified. This can be achieved through various channels, such as social media campaigns, partnerships with environmental organizations, and on-site educational programs. By highlighting the importance of environmental conservation and sustainable practices, Ubud can attract tourists who are keen to support and engage in responsible tourism.

**Limitations and Future Research**

While this study provides valuable insights, it is subject to certain limitations. The use of a purposive sampling technique may limit the generalizability of the findings to the broader population of tourists. Future research could employ random sampling methods to enhance the representativeness of the sample. Additionally, the cross-sectional design of the study captures perceptions at a single point in time, which may not fully reflect changes in attitudes and behaviors over time. Longitudinal studies could provide a deeper understanding of how tourists' perceptions and behaviors evolve.

Future research could also explore the impact of other factors, such as cultural values, social influence, and technological advancements, on sustainable tourism. Examining these additional factors could provide a more comprehensive understanding of the dynamics of sustainable tourism and offer more targeted recommendations for tourism operators and policymakers.

**5. CONCLUSION**

The study provides robust evidence on the significant influence of sustainable tourism management, tourist education, and environmental awareness on tourists’ visiting intentions to Ubud, Bali. The findings reveal that sustainable tourism management practices are a critical factor in attracting tourists, as they directly enhance the destination’s appeal to environmentally conscious travelers. Tourist education also plays a vital role in shaping visiting intentions by increasing tourists’ knowledge and appreciation of sustainable practices. Furthermore, environmental awareness significantly influences tourists’ decisions, indicating that tourists are more likely to visit destinations that align with their environmental values. These results highlight the need for tourism operators and policymakers in Ubud to implement comprehensive sustainable tourism strategies. Such strategies should include effective management practices that prioritize environmental and cultural preservation, as well as robust educational initiatives that inform and engage tourists. By promoting environmental awareness and responsible tourism behaviors, Ubud can attract a growing segment of environmentally conscious tourists, ensuring the long-term sustainability and success of its tourism industry.

Despite the valuable insights provided by this study, certain limitations should be acknowledged. The use of a purposive sampling technique may limit the generalizability of the findings. Future research should consider employing random sampling methods and longitudinal designs to capture changes in tourists’ perceptions and behaviors over time. Additionally, exploring the impact of other factors, such as cultural values, social influences, and technological advancements, could provide a more comprehensive understanding of sustainable tourism dynamics.
REFERENCES


