

Awareness Level On Transportation Issues Going To Underground River And Cave Complex In Cavinti, Laguna : Basis For A Proposed Intervention Program

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Abstract

This study investigates the relationship between transportation constraints and tourist visits to the Underground River and Cave Complex in Cavinti, Laguna, a prime tourist destination facing accessibility challenges. The research examines how vehicle limitations, jeepney loading capacities, and route limitations influence tourist experiences, satisfaction, and visitation patterns. Using structured surveys, data were collected from 114 respondents, including tourists, municipal tourism officers, and site workers. The findings reveal that transportation constraints such as vehicle limitation, jeepney loading capacity, route limitation significantly hinder travel demand, increase queuing duration, and compromise tourist safety and satisfaction. These constraints not only deter potential visitors but also limit the site's tourism growth and revenue potential.

The study highlights that addressing these transportation issues is crucial to enhancing the tourist experience. Recommendations include increasing public transport options, considering the introduction of specially-designated tourist shuttles fleets to improve safety and capacity, upgrading road and footpath infrastructure, and implementing sustainable policies to optimize the transportation network. Furthermore, the research emphasizes the necessity of collaboration between local governments, stakeholders, and tourism operators to achieve long-term accessibility solutions. By addressing these barriers, the study underscores the critical role of an efficient transportation system in fostering tourism growth, enriching visitor experiences, and ensuring the sustainable development of Cavinti's natural attractions

Keywords: Transportation; Transportation constraints; Vehicle limitation; Jeepney loading capacity; Vehicle route restriction

1. Introduction

All transport modes are very important for tourism because they facilitate the movement of tourists from the place of departure to the place of destination. It will be too impossible to travel to wherever one wants to go without transportation. Availability of transportation services can increase tourism development and increase tourist visits because access to urban areas becomes smoother and the costs incurred are getting cheaper (Kolupaev et al, 2018). It is a general agreement that tourism expands more with better transportation system.

The Underground River and Cave Complex in Cavinti, Laguna, is a natural treasure and a growing tourist destination. Attracting visitors for its unique stalagmite formations. However, the tourism experience in the area is hindered by transportation constraints. Currently, the Cavinti Tourism Office does not provide public transportation options to access the site. This leaves tourists reliant on private vehicles, which limits accessibility, particularly for individuals or groups without private means of transportation. This is tantamount to the fact that if there is poor transportation, the tourism

sector will be at stake. Poor transportation can have a negative impact on tourism in several ways, like fewer tourists visits. It also poses several challenges that discourage potential visitors who may not own private vehicles or are unwilling to shoulder the additional cost of hiring private transportation.

In general, the Philippines has a number of issues with its transportation system, which includes lack of regulation, outdated equipment, inadequate support, and infrastructures. Metro Manila transportation system is one among the worst in the country (Philstar, 2022). On the other hand, the Province of Laguna is not spare from this transportation issue (ADB, 2024). Certainly, this will affect tourism industry in Laguna.

In particular, this study aimed to explore the transportation constraints affecting tourism in the Underground River and Cave Complex of Cavinti, Laguna and sought to provide valuable insights and recommend strategies to improve transportation services. Foremost, the study determined the level of awareness of the stakeholders, including the municipal tourism officials, tourists, and workers, regarding the vehicle limitation, jeepney loading capacity and vehicle route limitation. Likewise, the effect of these transportation constraints were gauged. Understanding the relationship between transportation and tourist visits would help the tourism office of Cavinti, Laguna to analyze how these constraints are affecting the tourist visits to the Underground River and Cave Complex.

2. Theoretical Background

The theoretical background establishes the foundation for analyzing how transportation influences tourist visits, guided by two primary theories:

Friction of Distance Theory

Ravenstein's (1885) theory emphasizes that distance acts as a deterrent to travel, with transportation limitations amplifying this effect by increasing costs, time, and inconvenience. For instance, a remote historical city may struggle to attract visitors due to limited access despite its appeal. However, modern advancements, such as affordable flights and efficient rail networks, reduce this friction, enabling greater tourist accessibility to distant destinations.

Tourist Destination Life Cycle Model

Butler's (1980) model outlines how destinations evolve through distinct stages, with transportation playing a critical role at each stage. In the exploration phase, limited transportation may attract adventurous tourists seeking unique, off-the-beaten-path experiences. As the destination develops, improved transportation becomes vital to sustain growth and cater to a broader audience, including families and luxury travelers.

This theoretical foundation provides a robust framework to examine how transportation accessibility and infrastructure influence tourist behavior and destination evolution over time.

3. Research Problem

It specifically tackled respondents' level of awareness regarding the following transportation constraints in Cavinti, Laguna in terms of: Vehicle limitation, Jeepney loading capacity, and Vehicle route restriction. In addition, it analyzed the extent of these constraints affecting tourist visits to the Underground River and Cave Complex at Cavinti Laguna: a) Tourist arrival, b) Travel demand, c) Seating availability, d) Queuing duration, e) Walking distances covered, f) Condition of foot pathway, g) Tourist safety.

4. Data and Methods

This quantitative research utilized structured surveys to gather data from 114 respondents, including tourists, municipal tourism officers, and site staff. Respondents were selected using Slovin's formula to ensure a representative sample. The survey instrument measured two key aspects: respondents' awareness of transportation constraints (e.g., vehicle limitations, jeepney capacities, and route conditions) and the perceived effects of these constraints on tourist visits (e.g., arrival rates, travel demand, queuing times, and accessibility). Descriptive statistics and Pearson-Moment Correlation were employed to analyze relationships between variables, providing insights into the impact of transportation issues on tourism outcomes.

5. Tables

Table 1. Summary of the Mean level of Awareness regarding Transportation Constraint

	Mean	Std. Dev.	Descriptive Interpretation
Vehicle Limitation	4.11	0.86	Aware
Jeepney Loading Capacity	4.27	0.85	Fully Aware
Route Limitation	4.16	0.86	Aware
Overall	4.18	0.86	Aware

Table 1 presents the awareness across various transportation constraints, jeepney loading capacity received the highest awareness rating with a mean of 4.27, classified as "Fully Aware." This suggests that issues related to the capacity of jeepneys are seen as the most significant transportation constraint. On the other hand, vehicle limitations received the lowest mean of 4.11, indicating that while respondents are still "Aware," they perceive these constraints as slightly less severe than those related to jeepney loading capacity. The high level of awareness of tourists regarding transportation constraints have a big impact on the increase or decrease of a certain destination. It was mentioned in the study of Nasrulkhakim M, et al. (2021), That tourists' awareness of vehicle limitations can vary depending on the context and the level of information they receive. In the case of the Underground River and Cave Complex in Cavinti, Laguna, since most of the traveler was fully aware there's a big chance that the tourist visit may decrease.

Table 2. Summary of the Mean level Regarding the Effect of Transportation Vehicle Limitation

	Mean	Std. Dev.	Descriptive Interpretation
Tourists Arrival	4.27	0.77	Strongly Agree
Travel Demand	4.39	0.71	Strongly Agree
Overall	4.33	0.74	Strongly Agree

The table 2 shows that the respondents on Travel Demand "Strongly Agree" that transportation vehicle limitations have a notable effect on Tourist Arrival, with an overall mean of 4.33. Travel Demand received the highest mean score of 4.39, indicating that respondents believe route-related constraints have a particularly strong impact on tourism. Vehicle limitations received the lowest mean of 4.27, which still reflects strong agreement but indicates a slightly lower perceived impact compared to route limitations. Overall the effect of vehicle limitation is a threat to the growth of tourist arrival. As mentioned by Ravinder Jangra, et al. (2023), there will be a great impact on tourist visits because transportation has contributed a lot to the economic growth of tourist destinations, and when the increase of tourists in an area continues, there will be a great possibility to have more businesses in a tourist destination and many job opportunities for the residents living there.

Table 3. Summary of the Mean level of the Effect of Jeepney Loading Capacity

	Mean	Std. Dev.	Descriptive Interpretation
Seating Capacity	4.27	0.74	Strongly Agree
Queuing	4.19	0.68	Agree
Overall	4.23	0.71	Strongly Agree

Table 3 represents that the respondents "Strongly Agree" that jeepney loading capacity affects tourism, with an overall mean of 4.23. The highest mean of 4.27 is for seating availability, showing that this is viewed as the most significant aspect of jeepney loading constraints. Queuing duration received the lowest mean of 4.19, indicating that while it is still considered an important factor, it is perceived as slightly less impactful compared to seating availability. The overall effect of Jeepney Loading Capacity in terms of seating availability and queuing duration has an important role in the decision of the tourist in terms of the convenience and how these constraints will affect their experience in the Underground River and Cave Complex in the Cavinti, Laguna. not only the tourist but also the local stakeholders in the said area as stated by Ardvin Kester S. Ong, et al. (2023), Tourist satisfaction is influenced by various factors, including cleanliness, comfort, and ambiance. Every tourist also includes the capacity of the jeepney in their experience as a tourist.

Table 4. Summary of the Mean level of the Effect of Route Limitations

	Mean	Std. Dev.	Descriptive Interpretation
Walking Distances Covered	4.16	0.88	Agree
Condition of Foot Pathway	4.29	0.63	Strongly Agree
Tourist Safety	4.28	0.64	Strongly Agree
Overall	4.24	0.72	Strongly Agree

The table 4 represents that the respondents "Strongly Agree" that route limitations impact tourism, with an overall mean of 4.24. The highest mean of 4.29 was for foot pathways, indicating that respondents view the condition of these paths as a major factor in tourist accessibility and safety. The lowest mean of 4.16 was for walking distances covered, which shows that while it is an important factor, respondents find it slightly less significant compared to foot pathways and overall tourist safety. The Route limitation has a big impact on choosing a destination for every traveler. The Walking distances covered, Foot pathway, and Tourist safety are the major factors of every tourist they considered in their planning before visiting a certain destination. The tourist decision may be affected but due to the vehicle route limitation of the tourist destination these has a high risk of possibility tourist choose not to visit the place because tourist satisfaction is influenced by various factors, including route efficiency as stated by (Ardvin Kester S. Ong, et al. 2023)

Table 5. Correlation between the Awareness and Effects of Transportation Constraints

	Awareness	Effect
Awareness	.	
Effect	0.6475**	.

Note. N=114; **Correlation is significant at the .01 level (2 tailed)

Table 5 represents the correlation between awareness and the effects of transportation constraints is 0.6475, which suggests a moderate to strong positive relationship. This means that as awareness of transportation constraints increases, respondents also perceive stronger effects of these constraints on tourism. This significant correlation indicates that raising awareness may have a meaningful impact on how these transportation issues are understood and addressed.

The study revealed that respondents were generally "Fully Aware" of jeepney loading capacity issues, which received the highest awareness rating (mean = 4.27). Awareness of vehicle and route limitations was slightly lower, with means of 4.11 and 4.16, respectively. The findings highlighted that transportation constraints significantly affect tourist visits. Vehicle limitations were strongly linked to reduced tourist arrivals and travel demand (mean = 4.33). Overcrowding and limited seating in jeepneys negatively influenced tourist satisfaction, as did extended queuing times (mean = 4.23). Additionally, route limitations, including long walking distances and poorly maintained footpaths, were cited as major deterrents for visitors (mean = 4.16).

6. Discussion

Transportation constraints significantly hinder tourist visits to the Underground River and Cave Complex in Cavinti, Laguna. Vehicle limitations reduce the number of tourists during peak seasons, while jeepney overcrowding and inadequate infrastructure diminish overall satisfaction. These findings underscore the importance of addressing transportation issues to promote tourism growth and improve visitor experiences. Policymakers should consider modernizing jeepneys, enhancing road and footpath infrastructure, and optimizing vehicle routes to ensure accessibility and convenience. Moreover, strategic investments in public transport and sustainable solutions could attract more tourists and boost the local economy. While the study provides valuable insights, its scope is limited to Cavinti, which may affect the generalizability of its findings to other destinations. Future research should explore similar transportation challenges in other regions to develop a broader understanding of their impact on tourism.

References

Kolupaev, A. A., Redkin, A. G., Voinova, N. E., Karabasheva, M. R., Rzaev, A. Y. O., & Makhanova, T. A. (2018). Main attributes of tourism transportation infrastructure formation. *International Journal of Mechanical Engineering and Technology*
https://www.researchgate.net/publication/330193866_Main_attributes_of_tourism_transportation_infrastructure_formation

Nasrullahakim M, et al. (2021) tourists' awareness of vehicle limitations

Ravinder Jangra, et al. (2023), Impact of transportation constraints
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10014399/>

Ardivin kester S. Ong, et al. (2023) Tourist satisfaction is influenced by various factors <https://www.mdpi.com/2071-1050/15/2/1223> (2)