Predicting Tourism Preferences: A Triple-Framework Combining Consumer Surveys, Neurophysiological Data and Multimodal LLMs

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Abstract

This study introduces a triple framework combining consumer surveys, neurophysiological data, and multimodal Large Language Models (LLMs) to analyze tourism preferences. Building on Consumption Value and Dual Process Theory, we examine how different data methods explain image-based tourist preferences individually and complementarily, addressing the complexity of cognitive-affective analysis. 96 participants in two countries were shown ten images representing different types of tourism while collecting self-reported data and neurophysiological measurements, and additionally, using LLM-based image assessment of visual stimuli. Results reveal distinct patterns in data variation and significant correlations between measurement methods and stated preferences. The integrated approach improves the predictive power of tourism type preferences compared to single-method measurements. Our findings contribute to the understanding of AI and neuroscience in tourism preference assessment.

Keywords: *Destination Management Organizations, Dual Process Theory, Consumption Value Theory, Neurophysiological measurements, Large Language Models*

Track: Tourism Marketing