

Decoding the Emotional Impact of Nature: a Neurophysiological Study of Tourists' Behavioral Intentions

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Extended abstract

The evolving tourists' preferences toward more significant and immersive experiences and the rising competition among tourism destinations make the understanding of the affective drivers of consumers' tourism behavior key for marketers and destination managers. Among the leading sectors in the tourism market, nature-based tourism offers physical and psychological benefits to visitors, promoting emotional engagement with the natural environment (Ballantyne & Packer, 2011). Yet, research is still limited on how emotional experiences transform into behavioral outcomes for destination managers, such as engagement, willingness to revisit the destination, or positive word-of-mouth. This study aims, through the lenses of the Stimulus-Response-Model (SOR) (Mehrabian & Russell, 1974), to analyze how tourist experiences in natural destinations (stimulus) induce emotional responses in consumers (organism), in their turn translating into behavioral outcomes (response). By applying the SOR model to the study of nature-based tourism, we aim to depict the emotional

mechanisms through which tourism experiences translate into consumer decision-making about a destination. From a managerial perspective, the study contributes to the design of emotionally significant experiences that create consumer engagement and loyalty with a destination.

A field experiment in a naturalistic tourism environment has been conducted at Fondo Toce Natural Reserve, situated in proximity of Lake Maggiore, in northern Italy. Participants had the possibility of experiencing the reserve by living two separate moments: (i) walking through the signaled path and (ii) observing the view of the lake from the arrival area. Each participant was equipped with the following instrumentation for physiological data collection before exposure to the experimental condition: (i) Electroencephalogram System (EEG) represented by the Galileo BE Plus LTM (EB Neuro, Italy), with a prewired headset placed on the head of the individual (ii) Multi-channel Polygraph (Procomp Infiniti - Thought Technology Ltd) which enabled the acquisition of three core physiological data: electrocardiographic signal (ECG), collected through three disposable electrode pads applied to the chest of the participant; respiratory activity, monitored thanks to an elastic chest strap; and electrodermal activity (EDA), acquired via two electrodes applied on the phalanges of the index and middle fingers of the subject's nondominant hand. An additional tool, the E4 wristband, was able to monitor the physiological data of the subject when in motion. This is a wearable device applied to the wrist of the subject's non-dominant arm and equipped with four sensors: (i) photoplethysmography sensor (PPG), (ii) electrodermal activity sensor (EDA), (iii) 3-axis accelerometer and (iv) optical thermometer.

The experimental flow was as following: once arrived, participants received information on the natural place and the experimental session. Next, they completed a pre-experience questionnaire. Following, the E4 wristband was applied. To guarantee an insightful collection of physiological data, a first baseline was assessed. Following the walk through the signalled path of the reserve started. At the arrival area, the biometric sensors were applied to the participant's body, and two sequential baselines were administered. Once completed, the participant was asked to observe the lake panorama for a total duration of 300 seconds. A last baseline was administered at the end of the experience.

The emotions elicited through the experience were assessed through pre-validated scales, namely, Single emotions (Chirico et al., 2017), the PANAS Short Form (Terracciano et al., 2003) and the Amusement Aesthetic Emotion Subscale (Schindler et al., 2017). For behavioral outcomes, we employ the Engagement with the tourist place scale (Kumar & Pansari, 2016; Loureiro & Sarmento, 2019; Orús et al., 2021) to measure four constructs: Knowledge, assessing the intention to provide suggestions improving the visiting experience; Purchases-Visits, measuring the satisfaction deriving from the visit; Referrals, measuring the intention to recommend the visit; and Influence, assessing the

intention to generate word-of-mouth. Furthermore, we measured the Intention to recommend the tourist place (Maghrifani, 2022), Willingness to travel (Maghrifani, 2022; Tigre et al., 2015) and Pro-Environmental Intention through an ad-hoc question. Additionally, socio-demographic questions were collected, along with prior visitation of the tourist place.

A total of 29 responses were collected. The sample is balanced in gender and aged between 18 and 34 years old. From EEG signal, Alpha Power and Beta Power (Coelli et al., 2015; Lagopoulos et al., 2009) showed a significant difference between the exposure to the natural stimuli and the three resting phases, signaling that the exposure to a naturalistic environment induces a sense of relaxation and is characterized by a higher engagement level. Self-reported data have been analyzed through a series of One-Way ANOVA - Fisher's followed by Post-HocTukey Tests to assess the impact of emotions on intentions and behavioral outcomes. Preliminary results indicate that the exposure to a natural environment induces high affective responses in participants, in their turn positively affecting behavioral intentions to engage with the destination. In line with the SOR model, the emotional reactions (the organism) act as a mediator between the natural settings (the stimulus) and the behavioral intentions (the response). Hence, we confirm the central role of emotions in shaping consumer decision-making in tourism contexts. From a managerial side, findings indicate that designing tourism experiences that intentionally leverage emotional activation is instrumental in obtaining positive consumer feedback and spurring value co-creation. In conclusion, the study not only reinforces the robustness of the S-O-R model in depicting consumer responses to immersive tourism experiences but also highlights how emotions act as a key lever for competitive differentiation and value creation.

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