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Toward regenerative tourism: The role of regenerative technologies and storytelling in the perception of regenerative value and tourist satisfaction

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Abstract

Purpose - This study examines how technologies and storytelling shape the perception of regenerative value within tourism experiences, and how this perception impacts visitor satisfaction. It is grounded in the growing movement toward regenerative tourism, which emphasizes restoring and enriching destinations rather than merely sustaining them.

Methodology/Design/Approach - A conceptual model was developed to capture both the direct and indirect (mediated) effects of technologies and storytelling on visitor satisfaction. Data collected from 162 respondents were analyzed using Structural Equation Modeling (SEM) and Bootstrapping with 5,000 resamples to test the hypothesized relationships.

Findings - The results reveal that technologies and storytelling significantly influence visitor satisfaction. However, their effects are largely mediated by visitors' perception of contributing positively to the destination. Among the variables, perceived regenerative value emerged as the strongest predictor of overall satisfaction.

Originality/Value - This study extends existing theories of value co-creation, transformational tourism, and experience design. It highlights the strategic role of technology and narrative as key enablers of meaningful, regenerative travel experiences that go beyond traditional notions of sustainability.

Keywords: Regenerative tourism, regenerative technologies, storytelling, Perceived regenerative value, tourist satisfaction.

Introduction

Over the past few decades, the massive development of the tourism industry has led to increasing pressure on ecosystems and local communities. This phenomenon, known as overtourism, refers to the saturation of tourist destinations to the point of degrading their environmental, cultural, and social quality. Iconic cities such as Barcelona, Venice, and Bali have witnessed growing tensions between residents and visitors (Milano et al., 2019). In Venice, for example, locals have voiced concerns over the disappearance of neighborhood shops and skyrocketing rents driven by short-term tourist rentals. These reactions reflect a growing rejection of mass tourism, which is increasingly perceived as exploitative, intrusive, and disconnected from local realities.

In response to these excesses, sustainable tourism, long hailed as the solution, is now showing its limitations. By focusing primarily on minimizing negative impacts — through eco-friendly practices or carbon offsetting — this approach often overlooks the deeper dimensions of social, cultural, and ecological regeneration (Weaver et al., 2021). Reducing plastic use or composting waste is no longer enough. What many

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local communities are now demanding is a tourism that offers meaning, respect, and tangible positive outcomes for their territories.

This is where the notion of regenerative tourism becomes particularly relevant. The aim is no longer merely to "do less harm," but rather to generate a net positive impact on the places visited. Such a transition requires a profound transformation in the way visitors perceive and experience their journeys. At the heart of this shift, two levers appear especially promising: regenerative technologies and storytelling.

While Smart Tourism Technologies (STTs) have traditionally been designed as tools for efficiency or marketing, they are increasingly evolving into more experiential, participatory, and responsible formats (Gretzel et al., 2015; Bellato & Pollock, 2023). Hence, we propose the term regenerative technologies to refer to digital tools — such as mobile applications, augmented reality, and interactive platforms — that go beyond simply providing information, and instead actively engage visitors in a regenerative process: understanding local issues, encouraging responsible behaviors, and promoting involvement in collective projects.

Storytelling, in turn, plays a fundamental role in giving meaning to the tourist experience. By mobilizing local narratives (testimonies, memory, living heritage), storytelling fosters an emotional, ethical, and identity-based connection between the visitor and the host community (Chronis, 2012; Månsson et al., 2020). Together, these two levers — technological and narrative — have the potential to deeply influence how tourists perceive the regenerative value of their journey, that is, their sense of having left a positive footprint on the destination.

In this context, a central question emerges:

To what extent do regenerative technologies and storytelling influence tourists' perception of the regenerative value of their experience, and how does this perception, in turn, affect visitor satisfaction?

This study seeks to answer this question by building and empirically validating a conceptual model that incorporates both direct and indirect effects (mediation). It aims to provide not only theoretical contributions, by deepening the relationship between regenerative value perception and satisfaction, but also practical managerial implications for destinations seeking to transition toward more conscious and contributive forms of tourism.

Literature Review

Regenerative tourism: a maturation of sustainable tourism

Sustainable tourism is defined as being ecologically and economically viable, as well as socially just. It considers current and future impacts on visitors, communities, and the environment (Minestry of Tourism of Quebec (2025). Several approaches fall under the paradigm of sustainable development in the tourism sector, ranging from steady-state tourism to responsible, resilient, and transformational tourism (Ateljevic, 2020; Cheer, 2020). While diverse, these perspectives share a common goal: to foster a harmonious relationship between tourism activities and ecological, social, and economic imperatives. However, numerous researchers (Higgins-Desbiolles et al., 2022; Becken, 2019) argue that the current sustainable development paradigm is ill-equipped to meet the sector's challenges, particularly due to the continued promotion of tourism growth without consideration for ecological or social limits. Becken (2019) identifies several barriers to reducing tourism's environmental impact, including the institutionalization of interests, inadequate policy frameworks, and inefficiencies in the global distribution of tourism flows.

Nonetheless, tourism has the potential to contribute meaningfully to sustainable development goals. Pollock (2019) emphasizes that, when designed consciously, tourism can act as a regenerative force, enhancing the well-being of communities and their stakeholders on material, mental, emotional, and even spiritual levels. Regenerative tourism is not about degrowth, but rather a more evolved and nature-inspired approach that seeks to unlock the potential of every living system to become more resilient, adaptable, and thriving.

The Covid-19 crisis reinforced the call to rethink tourism models in favor of more sustainable, inclusive, and environmentally respectful approaches (Cheer, 2020; Dwyer, 2018). Pollock (2019) argues that every stage of human development is necessary, and each new phase integrates and transcends the previous ones. Rather than rejecting the past, regenerative tourism broadens the notion of "more," redefining it as increased well-being, net positive value, and shared benefit for a wider range of people in diverse ways.

Pollock (2012) introduced the concept of "conscious travel," which she articulates through three dimensions: mindset, movement, and business model. This model reflects a shift in thinking toward responsible tourism, a movement of people advocating for sustainable practices, and an economic model that proves the value of this concept by balancing profitability with sustainability while generating a positive impact on both the environment and local communities. It promotes an ethical and inclusive vision of tourism.

In response to these findings, a new approach has emerged: regenerative tourism, which goes beyond sustainability by not only seeking to reduce impacts but actively working to restore and revitalize ecosystems and local communities (Pollock, 2019; Bellato et al., 2023). This perspective, grounded in the principles of natural and social regeneration, encourages tourism stakeholders to create positive and transformative experiences in which visitors become co-creators of destination vitality and resilience (Sheldon, 2020). Regenerative tourism thus represents a proactive and holistic response aligned with the urgent needs of a world in transition.

Adopting a regenerative approach requires a shift in mindset, moving beyond linear thinking to focus on creating value across entire ecosystems and for all stakeholders (Ateljevic & Sheldon, 2022; Boluke & Panse, 2022). Inversini et al. (2024) explored the concept of regenerative hospitality, which they define through two key concepts: place intelligence and people intelligence. Place intelligence involves harmonious integration with nature and the local community, exemplified by hotels designed in collaboration with neighboring villages and in respect of surrounding ecosystems. This approach requires local consultation and a deep understanding of the natural and social landscape.

People intelligence, on the other hand, emphasizes local staff engagement, fostering a sense of belonging and stewardship, and supporting staff retention through career development opportunities. Strong relationships with local suppliers, seasonal menu adaptation, and involving tourists in authentic and transformational experiences further enhance this model. Together, these dynamics create a virtuous cycle benefiting communities, hospitality businesses, the environment, and travelers, thus embodying the principles of truly sustainable and regenerative tourism.

Similarly, Lupton and Samy (2022) confirm that regeneration and transformation in tourism depend on a local and circular approach, in which entrepreneurs prioritize seasonal, organic, and fair-trade products while minimizing waste through innovative practices. Tourists are also involved, with opportunities for seasonal work and environmental education, fostering long-term behavioral change. This dynamic, embedded in an inclusive and resilient economy, values local communities, supports regenerative agriculture, and contributes to solving global environmental challenges.

The mindset shift required for the transition to regenerative tourism depends largely on the ability of destinations to influence how visitors perceive, feel, and behave. In this context, regenerative technologies—by making local issues visible and encouraging participation—and storytelling—by conveying meaningful narratives—emerge as powerful levers for awareness and attitudinal change (Gretzel et al., 2020; Månsson et al., 2021; Reisinger, 2013). Together, they help reframe the tourist as an engaged, responsible, and co-contributing actor in the regeneration of destinations.

The role of regenerative technologies in the perception of regenerative value and tourist satisfaction

Regenerative tourism promotes local collaboration by pooling resources and sharing knowledge and skills. It strengthens the capacities of small communities by facilitating the exchange of local knowledge and experiences, and by creating the critical mass necessary for meaningful development. This approach enables efficient resource management, reduces ecological footprints, and ensures a more equitable distribution of benefits. The involvement of local stakeholders, such as artisans and farmers, encourages cooperative networks aligned with circular and green economies (Duxbury et al., 2020). Smart technologies play a key role in achieving these goals by facilitating the networking of local actors, optimizing resources, and reducing environmental impacts. Digital platforms, for example, allow artisans and farmers to offer their products and experiences directly to visitors, thereby promoting a fairer distribution of economic gains (Gretzel et al., 2020).

Smart technologies are radically transforming the tourism sector, offering unprecedented opportunities to create personalized and sustainable experiences while also optimizing internal operations. Artificial Intelligence (AI), for instance, enables the analysis of vast datasets to anticipate traveler preferences, streamline booking management, and improve customer service through 24/7 chatbots (Basheer et al., 2024). In addition to optimizing customer experience and operational efficiency, AI also plays a crucial role in environmental monitoring and conservation efforts within sustainable tourism destinations. AI-driven solutions enable real-time monitoring of environmental parameters such as air and water quality, biodiversity indicators, and climate conditions. By collecting and analyzing this data in real time, stakeholders can detect and respond quickly to environmental threats, thereby mitigating negative impacts on ecosystems and local communities (Rahman et al., 2024).

Han et al. (2014) also noted that AI-based technologies such as Augmented Reality (AR), which can recreate historical or natural elements through mobile applications or wearable devices, offer memorable immersive and interactive experiences. This makes it possible to limit physical access to vulnerable areas while still allowing visitors to explore and learn about heritage and the environment without causing direct damage. Lee et al. (2020) found that tourists who use AI to incorporate eco-friendly practices into their travels experience a sense of achievement and contribution to environmental protection, which increases their overall satisfaction. Similarly, Hussain and Arsalan (2024) argue that AI plays a key role in environmental preservation by facilitating ecosystem monitoring and management.

Through remote sensing and image analysis algorithms, it is possible to monitor biodiversity and habitat conditions in real time. This approach enables the rapid identification of environmental threats, such as deforestation or pollution, and allows for proactive interventions to protect natural resources. For example, in marine biodiversity conservation, recent studies have shown that the use of GPS and other mapping technologies helps monitor compliance with whale-watching regulations, such as controlling boat speed, interaction duration, and distance from shore (Suárez-Rojas et al., 2023). Furthermore, an application developed by Nunes et al. (2020) enables the detection of cetaceans through a sound-based system, optimizing the tourist experience while minimizing disturbances to marine life.

Chuang et al. (2020) note that technological innovation contributes to scientific research and the management of sustainable and regenerative tourism. Innovations such as more efficient boat engines represent a key technological advancement toward a regenerative model. These engines reduce fuel consumption by more than 60%, resulting in lower pollutant emissions and improved economic profitability. At the same time, they enhance the tourist experience by improving comfort on excursion boats and increasing the competitiveness of the offer.

A particularly illustrative example of regenerative tourism is that of the Soneva hotel chain, primarily located in Thailand and the Maldives. Soneva is deeply committed to sustainable innovation, aiming to reduce its ecological footprint while offering guests a luxurious yet responsible experience. These initiatives are part of their broader strategy to achieve carbon neutrality and integrate regenerative technologies to maximize energy efficiency. The chain uses advanced technologies to monitor its water and energy consumption, as well as CO_2 emissions, in real time. Thanks to IoT sensors, accurate data is collected to optimize resource management and reduce environmental impacts.

Soneva is increasingly committed to regenerative tourism through the development of the "Slow Life" concept in 2023 (Sustainable-Local-Organic-Wellness-Learning-Inspiring-Fun-Experiences), combining luxury, unique experiences, environmental respect, and local community engagement. This includes providing access to clean water, implementing programs to help communities develop their own businesses and become local partners. The hotel chain also collaborates with small producers, strengthens their capacities, and invests in the local economy. It finances reforestation foundations in Thailand and supports marine conservation research through the Blue Marine Foundation. In a report published in 2021, Soneva highlighted its regenerative efforts through technology. For example, Soneva Fushi, the Soneva Foundation, Coralive, and Ark2030 partnered to create one of the world's largest coral nurseries using mineral accretion technology (MAT), which involves electrified reef structures. This technology accelerates coral growth by 300%, with the goal of propagating 50,000 coral fragments annually.

Suárez-Rojas et al. (2023) point out that the contribution of green technologies remains an underexplored area, and that it is essential to assess how sustainable innovations influence consumer preferences for high-quality experiences grounded in regenerative technologies. Such an approach would not only enhance the perceived value of tourism experiences but also strengthen the industry's commitment to social responsibility. Indeed, according to Sánchez-Fernández (2007), perceived value is considered one of the best predictors of behavioral intentions and satisfaction. Therefore, studying the impact of regenerative technologies on the perception of a trip's regenerative value is crucial, as these technologies may enable travelers to experience their journey as more meaningful, enriching, and ethical, thereby enhancing overall satisfaction. Thus, the integration of technology in a regenerative logic goes beyond functional improvements to the experience and contributes significantly to the subjective construction of its value.

The role of storytelling in the perception of regenerative value and tourist satisfaction

Korez-Vide (2017) highlights the role of marketing in promoting regenerative tourism. She emphasizes that this type of tourism enables visitors and locals to co-create experiences by exchanging knowledge and skills, thereby strengthening cultural identity and enhancing destination appeal. She adds that tourism organizations should work closely with media and advertising agencies to showcase natural and cultural heritage and encourage more sustainable practices. Goodwin (2016) argues that communication is essential for educating consumers about the long-term benefits of regenerative tourism, emphasizing tangible elements such as biodiversity preservation, the strengthening of local cultures, and visitor participation in ecological restoration projects.

For example, the island nation of Palau in Oceania has implemented a communication strategy that encourages tourists to participate in community-led regenerative tourism projects, consume local sustainable products, and help protect coral reefs. Using the Ol'au Palau app, tourists can earn points by performing regenerative actions and gain exclusive access to pristine sites, secret caves, remote hiking trails, and lunches with village elders and the local community. Moscardo (2017) confirms that a compelling narrative approach, supported by data and testimonials, can influence perception and motivate more responsible behavior. According to him, stories shape how we view the world and directly impact behavior.

Becken and Carmignani (2016) argue that tourism, historically rooted in idealized visions of faraway paradises, must evolve toward new imaginaries that highlight local experiences, connection to place, and ecosystem regeneration. Grimwood et al. (2015) stress that participatory and inclusive narratives allow for the integration of local perspectives and promote forms of tourism that are more respectful of cultures and natural environments. For instance, hotels can tell the stories of local artisans by displaying their work in guest rooms or showcasing initiatives that prioritize local and sustainable sourcing from small producers. These stories create emotional connections with potential clients by appealing to their desire for more responsible travel and positive impact.

Along the same lines, Bhatt and Dani (2024) emphasize the importance of strategic digital storytelling, inclusive communication strategies, and participatory approaches that highlight local voices and co-creation processes. Davies et al. (2024) also confirm the effectiveness of storytelling in their study, which explored story mapping during an art festival in Bridgend County Borough, Wales. This method involved the community in shaping its territorial identity to support a transition toward regenerative tourism. Using a map as a visual tool, locals shared their stories and highlighted specific regional features.

Choi (2016) adds that storytelling in tourism is a powerful tool that enhances the visitor experience by stimulating multiple senses (sight, sound, smell) and fostering interaction with the destination's history. It goes beyond tour guides' speech or cultural descriptions and creates shared value between tourists and locals through discovery, experimentation, and sharing. According to Denning (2005), the word "tell" in storytelling doesn't just mean to speak, it includes sensory elements like touch and smell, while "ing" refers to interaction and the act of sharing an ongoing experience.

Similarly, Choi and Lim (2008) suggest that storytelling in tourism goes beyond verbal tales or traditional folklore and includes non-verbal media such as films and series, which play a key role in promoting destinations. This approach creates a system of meaning in which the destination, tourists, and locals interact

through the experience and sharing of local stories. Research on this topic shows that storytelling enhances a destination's value by stimulating tourism activity and generating individualized and immersive experiences. By shaping new perceptions and strengthening visitors' emotional attachment, it contributes to the creation and diffusion of a unique tourism identity (Choi, 2016).

Korez-Vide (2017) stresses the importance of storytelling in generating interest and developing innovative concepts like regenerative tourism, while also highlighting a destination's core values and the authentic and specific experiences it can offer. According to Marelune, founder of the agency "Nouvelle Lune," the goal of storytelling is to tell a story that reveals the brand and tourism offer, enabling emotional connection. She adds that new narratives should focus on experiences that highlight the intimate relationship between humans and nature.

Bansal (2025) states, "The path to regenerative tourism begins with a single story, a story that inspires travelers to tread lightly, engage fully, and leave places better than they found them." According to this regenerative tourism professional, storytelling is a powerful tool for tourism regeneration, capable of transforming how destinations are perceived and experienced. It helps reclaim narratives, amplify local voices, and build a tourism model that celebrates a destination's heritage while protecting its future. Storytelling is thus an essential tool for promoting more responsible travel practices and constructing new imaginaries, showing that tourists can find joy and fulfillment beyond traditional consumerist frameworks.

Research Hypotheses

Main Hypotheses (Direct Effects)

H1: The use of regenerative technologies has a significant and positive direct effect on tourist satisfaction.

H2: The use of storytelling has a significant and positive direct effect on tourist satisfaction.

H3: The perceived regenerative value of the tourism experience has a significant and positive direct effect on tourist satisfaction.

Intermediate Hypotheses (Effects on the Mediating Variable)

H4: The use of regenerative technologies has a significant positive effect on the perceived regenerative value of the trip.

H5: Storytelling has a significant positive effect on the perceived regenerative value of the tourism experience.

Mediation Hypotheses (Indirect Effects)

H6: The perceived regenerative value significantly mediates the relationship between regenerative technologies and tourist satisfaction.

H7: The perceived regenerative value significantly mediates the relationship between storytelling and tourist satisfaction.

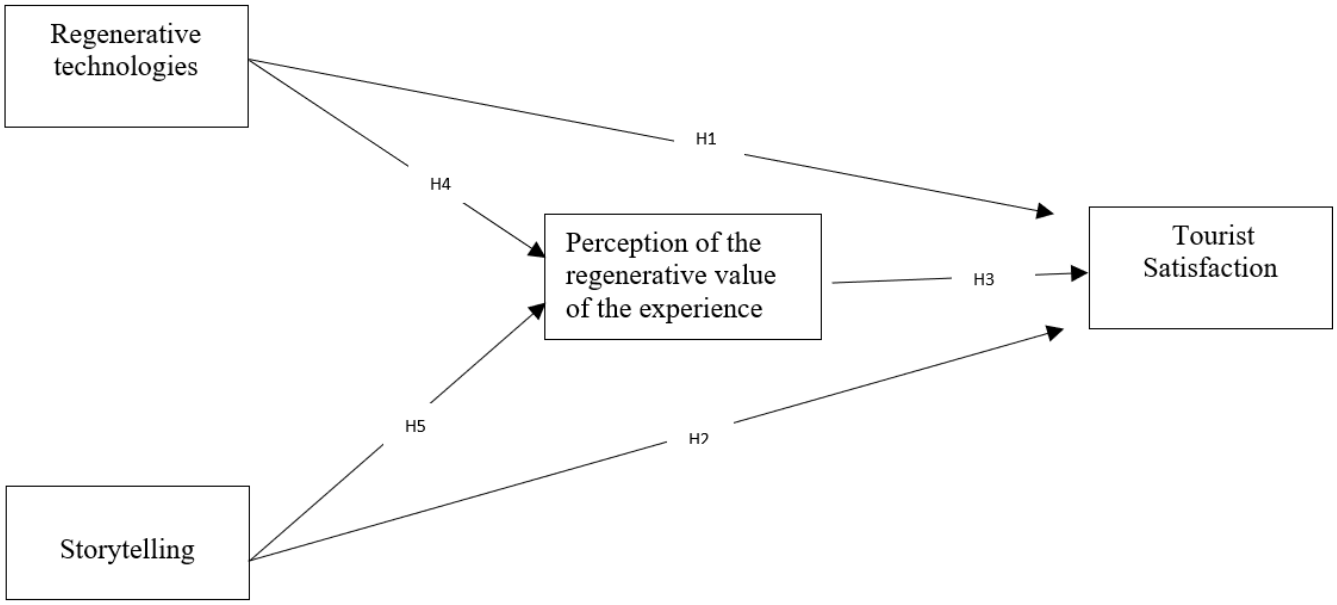
Conceptual Model

The conceptual model proposed in this research is based on the assumption that tourist satisfaction**,** as the dependent variable, is influenced both directly and indirectly by two key experiential levers: regenerative tourism technologies and storytelling. These two independent variables are assumed to play a structuring role in shaping the perception of the regenerative value of the experience, which is considered here as a mediating variable.

Research methodology

Research Objective

The objective of this study is to examine how regenerative technologies and storytelling, as a communication tool, can influence the perception of the regenerative value of a tourism experience and, consequently, enhance tourist satisfaction. More specifically, this research analyzes the impact of regenerative technologies (such as augmented reality, interactive platforms, or educational applications) on tourists' perception of the regenerative dimension of their experience. It also evaluates the role of storytelling in raising awareness and engaging visitors in more regenerative tourism practices.



H6: RT→PRV→SAT
H7: ST →PRV→SAT

Figure 1. Conceptual model of research. Source: Author field work, 2025

By integrating the perceived regenerative value as a mediating variable, this study aims to better understand the mechanisms through which these tools influence tourist satisfaction. The goal is to demonstrate that the combination of regenerative technologies and storytelling can enrich the tourism experience and strengthen commitment to sustainable and regenerative practices.

Measurement Scales

Table 1 presents the measurement scales for all research variables. These variables were measured using 7-point Likert scales, ranging from strongly disagree to strongly agree.

Sample

The questionnaire was created online using Google Forms. The survey was conducted over a two-month period, from January 12 to March 15, 2025. The sample consists of tourists who have previously participated in a regenerative travel experience, defined as a stay perceived as having a positive impact on the environment, the local community, or the cultural heritage of the destination. Participants were recruited using a convenience sampling method, by distributing the survey link on Facebook pages dedicated to regenerative tourism, including: *Regenerative Tourism*, *Regenerative Travel*, *Regenerative Tourism BEYOND Sustainability*, and *Ecotourism, Sustainable Tourism, and Responsible Tourism*. This recruitment strategy enabled the targeting of individuals who are already sensitized to sustainability issues and who have been exposed to innovative tools such as regenerative technologies or storytelling. The final sample includes 162 respondents (74 women and 88 men), all of whom confirmed having taken part in a regenerative travel experience.

Factor Analysis of the Measurement Scales

A factor analysis was conducted using SPSS 29.0 on the four measurement scales to assess the reliability and validity of the constructs. A Varimax rotation was applied to the four scales, which were all found to be unidimensional. Factor loadings were all above 0.7. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy exceeded the 0.5 threshold for all variables, and Bartlett's test of sphericity was significant, indicating the model's suitability for factor analysis. High communalities were observed for all four variables, showing that the extracted factors accurately represented the constructs. Furthermore, Cronbach's alpha

coefficients for all four factors were above 0.8, indicating a high level of internal consistency. Table 2 presents the results of the factor analysis.

Table 1. Measurement scale

Variables	Measurement scale	Authors
Regenerative technologies	• Interactive technologies (augmented reality, mobile applications) enhance my tourism experience. • The use of digital platforms helps me better understand the impact of my stay on the environment and the local community. • Technological innovations allow me to adopt more respectful and regenerative behavior while traveling. • Digital tools provide relevant recommendations to minimize my ecological footprint. • I appreciate immersive experiences based on technologies to learn about conservation practices.	Gretzel et al. (2015)
Storytelling	• Storytelling enhances my emotional engagement with the place I visited. • The stories shared about the tourist site increase my appreciation of its unique and authentic character. • A well-constructed narrative influences my perception of the destination's sustainability. • These stories sparked my curiosity and interest. • Storytelling made me feel closer to the local community. • The narrative helped me understand the challenges faced by the destination.	Chronis, A. (2012) Månsson et al.,2020
perception of the regenerative value of the experience	• I believe my visit had a positive effect on the local community. • I felt that I contributed to the preservation of the place. • This experience was beneficial for the environment or local heritage. • My trip had a net positive impact (social, cultural, or ecological). • I felt useful during this experience. • I had the opportunity to take part in activities that benefited the environment and the local population.	Prayag et al. (2013), Zaman et al. (2023)
Tourist satsfaction	• I am generally satisfied with this tourism experience. • This visit met my expectations. • I would recommend this experience to others. • I would like to live a similar experience again. • I felt welcomed and respected during this stay.	Zeithaml et al. (1996), Prayag et al. (2013)

Source: Author field work, 2025

Results and Discussion

Structural Model

The model estimation was carried out using Amos 26 software. This structural equation modeling software provides goodness-of-fit indicators used to assess the quality of the model. This method offers an advantage over other analysis techniques such as simple or multiple regressions, as it allows for error estimation**,** simultaneous processing of linear equations, and evaluation of model fit quality in both cross-sectional and longitudinal analyses (Hulland, 1999; Roussel et al., 2002). The fit indices are summarized in Table 3.

Results

To address the main objective of this research, which was to assess the influence of regenerative technologies and storytelling on tourist satisfaction, an analysis of direct effects was conducted using a structural equation model (SEM) with AMOS 26. This step aimed to test hypotheses H1 through H3, which posit that the two independent variables (regenerative technologies and storytelling) would have a direct effect on satisfaction, and that the perception of the regenerative value of the journey would also act as a direct predictor of satisfaction.

The purpose of hypotheses H4 and H5 is to determine whether regenerative technologies and storytelling directly influence how visitors perceive the regenerative dimension of their tourism experience. Specifically, these hypotheses assess whether:

- Regenerative technologies (H4), by informing, guiding, raising awareness, or personalizing the experience, promote awareness of the tourist's positive role in the visited destination;
- Storytelling (H5), by activating emotional, identity-based, or ethical narratives, contributes to shaping a sense of value, impact, or beneficial contribution.

Table 2. Results of the Factor Analysis for the Constructs of the Study

Variables	**Items**	**Loadings**	**α de Cronbach**
Technologies régénératives	Reg1	0,784	0,890
Total variance explained :70,756	Reg2	0,734	
KMO=0,753	Reg3	0,798	
	Reg4	0,809	
	Reg5	0,813	
Sorytelling	Story1	0,766	0,813
Total variance explained: 76,674	Story2	0,687	
KMO=0,697	Story3	0,854	
	Story4	0,796	
	Story5	0,887	
	Story6	0,655	
perception of the regenerative value of the experience	Percep1	0,658	0,864
	Percep2	0,877	
Total variance explained: 76,541	Percep3	0,749	
KMO=0,692	Percep4	0,766	
	Percep5	0,823	
	Percep6	0,818	
Tourist Satisfaction	Satisfa1	0,733	0,829
Total variance explained: 74,486	Satifa2	0,814	
KMO=0,791	Satisfa3	0,769	
	Satisfa4	0,788	
	Satisfa5	0,832	

Source: Author field work, 2025

Table 4 presents the standardized regression coefficients, significance levels (p-values), and 95% confidence intervals calculated using bootstrapping (5,000 resamples), to verify the statistical robustness of these relationships. The use of bootstrapping on direct effects enhances the reliability of results, especially when the sample size is moderate (n = 162), as recommended by Hayes (2018).

In a second step, the analysis focused on the indirect effects of regenerative technologies and storytelling on tourist satisfaction, mediated by the perceived regenerative value, which is considered here as a mediating variable. This analysis tests hypotheses H6 and H7, which posit that the perception of having a positive impact on the visited place serves as a key explanatory mechanism linking technological and narrative tools to final visitor satisfaction. The results presented in Table 5 allow for verification of whether the observed effects are

significantly transmitted through the mediating variable, thereby confirming or rejecting the existence of partial or full mediation.

The 95% confidence intervals (CIs) obtained through bootstrapping confirm the significance of both direct and indirect effects, as none of the intervals include zero. This strengthens the robustness of the observed relationships. The approach proposed by Hayes (2018) allows for mediation testing without assuming the normality of the distribution of indirect effects.

Table 3. Indicators of overall model fit

Indexes	**Recommended tresholds**	**Results**
Chi^2/df	< 3	2,1
GFI (Goodness of Fit Index)	> 0,9	0,92
AGFI (Adjusted GFI)	> 0,9	0,91
CFI (Comparative Fit Index	>0,95	0,96
RMSEA (Root Mean Square Error of Approximation	<0,08	0,05
SRMR (Standardized Root Mean Square Residual)	<0,08	0,04

Source: Author field work, 2025

Table 4. Direct effects (standardized estimates)

Hypothesized Relationship	**Coefficient β**	**p-value**	**IC95 bootstrap**	**Hypothesis Confirmation**
H1 : RT →SAT	0,21	0,041	[0.01;0.38]	Confirmed
H2 : ST→SAT	0,25	0,018	[0.07;0.42]	Confirmed
H3 : PRV→SAT	0,48	<0,001	[0.33;0.61]	Confirmed
H4 : RT→PRV	0,54	<0,001	[0.40;0.66]	Confirmed
H5 : ST→ PRV	0,47	<0,001	[0.3;0.60]	Confirmed

*Regenerative technologies (RT), Storytelling (ST), perception of the regenerative value of the experience (PRV), Satisfaction (SAT).
Source: Author field work, 2025

Discussion

The results for hypotheses H1 to H3 confirm that regenerative technologies and storytelling have a significant effect on tourist satisfaction (β = 0.21 for RT and β = 0.25 for ST), although to a lesser extent than the perception of the regenerative value of the trip (β = 0.48 for PRV). These direct effects suggest that visitors value not only technological features (such as information delivery, personalization, or guidance) and engaging narratives, but more importantly, the meaning and perceived value of their contribution to the visited destination.

Table 5. Indirect Effects via Mediation (PRV)

Mediated Relationships	**Coefficient β**	**p-value**	**IC95 bootstrap**	**Type of Mediation**	**Hypothesis Confirmation**
H6 : RT→PRV→SAT	0,54x0,48=0,26	0,003	[0.13 ; 0.42]	Partial mediation	Confirmed
H7 :ST →PRV→SAT	0,47x0,48=0,23	0,005	[0.10 ; 0.37]	Partial mediation	Confirmed

Source: Author field work, 2025

These findings align with Prayag et al. (2013), who showed that perceived value, especially social or environmental value, strongly influences tourist satisfaction in sustainable or transformational tourism contexts. Gretzel et al. (2015) also support the idea that technologies enhance satisfaction by deepening interaction with the local environment. They add that technologies play a key role in shifting tourist behavior by making environmental and social issues more visible. These tools help contextualize information (via QR

codes, augmented reality, or awareness apps) and allow for experience personalization based on the visitor's ethical preferences.

Regarding storytelling, our findings are consistent with Chronis (2012) and Månsson et al. (2020), who emphasize the ability of narrative to transform a destination into a living, relational, and meaningful entity. Storytelling emerges as a tool for cultural mediation, reinforcing perceived authenticity and encouraging tourist reflexivity.

For H4 and H5, the results indicate that both regenerative technologies and storytelling significantly contribute to shaping the perception of having a positive impact on the visited place ($\beta = 0.54$ for RT and 0.47 for ST). This implies that these mechanisms are not neutral: they actively influence how visitors interpret their own role in the tourism experience. Gretzel et al. (2020) noted that well-integrated technologies promote pro-environmental behaviors and reflection on the impact of travel. Similarly, Månsson et al. (2020) demonstrate that contextualized storytelling—through local, historical, or emotional narratives—enhances tourists' ethical and environmental awareness. These results confirm that the perception of regeneration does not arise from mere observation but from a constructed and mediated process.

Finally, regarding H6 and H7, the results show that regenerative technologies and storytelling significantly affect satisfaction, not only directly, but more importantly through their ability to generate a perception of usefulness, contribution, and meaning. The mediation is partial, which means that part of the effect is direct, but a significant portion is transmitted via the cognitive and affective variable: the perception of regenerative value. This mediation dynamic is consistent with perceived value theory (Zeithaml, 1988) and transformational tourism models (Reisinger, 2013), where the symbolic and ethical value of the experience plays a crucial role in satisfaction. Zaman et al. (2023) also found that the perception of positive contribution is a key determinant of satisfaction in experiential and regenerative tourism contexts.

Conclusion

This study was conducted in the context of the transition toward regenerative tourism, an emerging paradigm that goes beyond the logic of harm reduction typical of sustainable tourism to aim for net positive impacts on the destinations visited (Bellato and Pollock, 2023; Weaver et al., 2021). In contrast to sustainable tourism, which often focuses too narrowly on minimizing damage, regenerative tourism entails a profound transformation in the practices, perceptions, and interactions between visitors, local communities, natural and cultural environments. In this transition, two key levers stand out: regenerative technologies and storytelling. These are not merely tools for information or marketing; they actively contribute to constructing meaning within the experience (Gretzel et al., 2015; Chronis, 2012). Technologies help contextualize and personalize the experience and guide behavior in a responsible manner. Storytelling, for its part, engages visitors emotionally through identity-based, heritage-oriented, or ethical narratives, thereby fostering a deeper connection with the places visited (Månsson et al., 2020).

The main objective of this study was to analyze how regenerative technologies and storytelling influence the perception of the regenerative value of the tourism experience, and how this perception, in turn, affects visitor satisfaction. The empirical analysis, based on a structural equation model (SEM), confirmed the existence of significant direct effects of regenerative technologies (H1) and storytelling (H2) on satisfaction, as well as a stronger effect of perceived regenerative value on tourist satisfaction (H3). In addition, both regenerative technologies (H4) and storytelling (H5) directly influence this perception, playing a central role in constructing the impression of having made a positive contribution to the destination. Finally, the analyses revealed significant indirect effects of both variables via perceived regenerative value (H6, H7), thus confirming the presence of partial mediation.

From a theoretical standpoint, this research contributes to enriching the understanding of regenerative tourism by proposing an integrated model linking technological tools, narrative elements, ethical perception, and tourist satisfaction. It builds on prior work on co-creation of value (Prahalad and Ramaswamy, 2004), perceived value (Zeithaml, 1988), and transformational tourism (Reisinger, 2013; Prayag et al., 2013). It shows that perceived value is not limited to hedonic or functional benefits, but also encompasses the sense of contributing to regeneration.

From a managerial perspective, the findings offer several key insights. Tourism destination managers are encouraged to integrate technology not as a tech-centered solution but within a narrative, pedagogical, and experiential logic. Storytelling, in turn, should be authentic, place-based, and co-created with local communities to enhance the symbolic and emotional value of the experience. The objective is to foster a form of tourism that is more conscious, connected, and engaging, in which visitors become active participants in the regenerative process.

However, this study has certain limitations. The use of convenience sampling, focused on individuals already familiar with sustainable tourism, may introduce bias. The study relies on self-reported data and does not take into account cultural differences in the reception of regenerative technologies or narratives. Finally, the analysis is cross-sectional, and thus does not allow for observation of long-term effects.

Future research directions should be considered. These include exploring the differential impact of specific types of technologies (e.g., augmented reality vs. participatory platforms), analyzing the reception of storytelling based on cultural or socio-demographic profiles, and integrating the perception of local communities toward visitors engaged in regenerative practices. Longitudinal studies could also measure the post-experience impact on sustainable travel behaviors and intentions to revisit or engage as responsible citizens.

In conclusion, this study highlights that technology and narrative are not neutral tools: they are structuring elements in how visitors perceive, experience, and evaluate their journey. By shaping the perception of positive impact, they become strategic levers to position tourism as a vector for regeneration, not merely for consumption.

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Declaration

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Not applicable.

Consent for publication
Not applicable.

Availability of data and materials
The data supporting the findings of this study are available upon request.

Competing interests
The authors declare that there is no conflict of interest regarding this work.

Declaration of generative AI and AI-assisted technologies
During the preparation of this work the author used Grammarly in order to correct spelling mistakes and help me make better sentences. After using this tool/service, the author reviewed and edited the content as needed and takes full responsibility for the content of the published article.

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