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**Analyzing the strength of Novelty and Meaningfulness in astrotourism
experiences: The mediating role of Hedonic**

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Abstract

Purpose – The present study explores the relationships among novelty, meaningfulness, hedonic, and loyalty in the context of an astrotourism experience.

Design/methodology/approach – Data were collected using a convenience sample in an astrotourism event (Dark Sky party Alqueva). A self-administered questionnaire was designed using established scales. In total, 304 usable responses were collected and analyzed using PLS-SEM.

Findings – The result of the structural model shows that novelty and meaningfulness affect hedonic value which, in turn, influence loyalty. Novelty and meaningfulness contribute in 62.6% to the variability in hedonic value and in 31.3% to the variability in loyalty intentions.

Originality/value – This study deepens the knowledge of the tourist behavior of astrotourists. Destinations and managers that develop astrotourism activities can also benefit from a deeper knowledge about the emotional process of the astrotourism experience and its impact on behavioral loyalty.

Keywords: *Novelty, astrotourism, meaningfulness, hedonism, behavioral loyalty, PLS-SEM*

Paper type *Research paper*

Introduction

Tourists are increasingly savvy and demanding and are looking for a wide range of experiences in nature and rural destinations. They want to broaden their horizons, feel enriched through new and meaningful activities. In order to satisfy this growing need,

nature and rural destinations are betting on specialization according to their endogenous resources and diversifying their offer through niche markets (Weidenfeld, 2018).

Astrotourism is a tourist product of special interest and growing demand and refers to tourist experiences centered on the observation of celestial phenomena in territories with unpolluted skies and adequate atmospheric conditions (Rodrigues, 2020; Soleimani et al, 2019). Astrotourism epitomizes the tendencies toward more meaningful tourism experiences, based on conservation of natural resources (Rodrigues, Rodrigues & Peroff, 2015; Seeler, Schänzel, & Lück, 2021). Also, experiences under a night sky, ranging from more active to observation and contemplation of the celestial phenomena create a sense of experiencing something new and/or something different from usual daily life arousing hedonic emotions, such as amusement and joy (Li, 2021; Rageh, Melewar & Woodside, 2013; Rodrigues, Loureiro & Prayag, 2021). Previous studies relate positive emotions with tourist loyalty (Breiby & Slatten, 2015; Elbaz et al, 2021; Jiang et al, 2018; Li, Liu & Soutar, 2021, Godovykh & Tasci, 2020). Yet, there is a lack of studies that allow us to understand how hedonism is created and how it leads to loyalty in astrotourism. to answer this call, this research aims: (1) to access the effect of novelty and meaningfulness in the hedonic experience, and (2) to access the effect of the hedonic value in tourist loyalty in the context of an astrotourism experience.

The study makes a theoretical contribution to the literature on astrotourism experiences as it provides an improved understanding of novelty, meaningfulness, and hedonic value in this context. The results also gave to destinations and managers insights into how to develop more competitive astrotourism activities.

Literature Review and Hypotheses Development

Novelty is defined in the dictionary as the quality of being new, different and interesting (Oxford dictionary, 2021). Novelty is studied in various fields, in marketing and consumer behavior novelty is a desire for new stimulation and experience and is related to the inclination to buy new products, in behavioral psychology novelty is viewed as a stimulus (Skavronskaya, Moyle, Scott & Kralj, 2020), i.e., an impulse to escape from monotony and boredom and move on to a new form of stimulation (Schweiler, 2006; Skavronskaya, Moyle & Scott, 2020).

In tourism, novelty is described as a concept contrasting with familiarity or boredom caused by repeated stimuli and it consists of thrill, change from daily life, relaxation of boredom, and dimension of surprise (Dimanche & Havitz, 2010; Lee, Chua & Han, 2017; Lee & Crompton, 1992; Compton, 1979). Novelty is a mechanism of enjoyment, resulting in positive emotions in tourism experiences (Cheng & Lu, 2013; Girish & Chen, 2017; Mitas and Bastiaansen, 2018). Therefore, we propose the following hypothesis (see Figure 1):

H1: Novelty positively affects hedonic experience

A meaningful experience involves both emotion and discovery (Duerden et al (2018). Meaningfulness can be defined as “engagement in personally significant activities” (Chanlandral & Velenzuela, 2015, p. 293). A tourism experience is more than just observing new sights or visiting new places, it is an inner journey of personal growth and self-development (Jonas, Radder, & Eyk, 2020). Many activities, such as closeness to nature, enjoyment of the scenery, spiritual explorations, or travel, contribute to restore equilibrium (Hu, Jing & Nguyen, 2018; Rejikumar et al, 2021). Increased meaningfulness helps to escape from suffering by promoting life satisfaction (Kang et al, 2008) and a

sense of fulfilment (Boeck, Dries & Tierens, 2019; Lee & Lee, 2021). Meaningfulness is associated with positive wellbeing and positive emotions (Schnell, 2009). According to Erickson and Lindström (2006) and Hicks et al (2012) those who view the world as meaningful tend to report a higher quality of life and a positive subjective state of health, being a greater positive affect linked to stronger perceptions of meaning in life. Therefore, we propose the following hypothesis (see Figure 1):

H2: Meaningfulness positively affects hedonic experience

For Oliver (1997, p. 392) loyalty can be defined as “deeply held commitment to re-buy or re-purchase a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand set purchasing, despite situational influences and marketing efforts having the potential to cause switching behavior”. Chenini and Touato (2018) claim that identifying the factors that significantly influence customer loyalty has provoked a heated debate among marketing scholars and practitioners. Customer loyalty is of central importance in developing the tailor-made market action strategies at tourism destinations (Li, Xingyang & Scott, 2021; Ozdemir, Cizel, & Cizel, 2012; Sánchez-Sánchez, De-Pablos-Heredero, & Montes-Botella, 2021; Suhartanto, Clemes & Wibisono, 2018).

Tourists’ loyalty can be categorized into three approaches; i) behavioral loyalty, refers to a customer’s behaviors such as liking a particular product, service or destination and respective repurchase intentions, i.e., focusing in the behavioral outcomes such as revisit (Loureiro, 2014; Prayag, Hosany, & Odeh, 2013; Zeithaml et al, 1996; Zhang et al., 2014); ii) attitudinal loyalty, highlights psychological expression such as recommend to other potential visitors; and, iii) composite loyalty, integration of both attitude and

behavior such as loyalty and positive attitude toward a particular destination). In this research it was opted to analyze behavioral loyalty. Regikumar et al. (2021) confirms that perceived meaningfulness leads to loyalty. Perceived meaningfulness is a positive emotion and previous research allude to the relationship between positive emotions and intention to return (Bloemer & de Ruyter, 1999; Prayag, Hosany, & Odeh, 2013). Therefore, we propose the following hypothesis (see Figure 1):

H3: Hedonic experience positively affects loyalty

Insert Figure 1 about here

Method

Study Context

Dark Sky Alqueva is a territory at Alentejo, Portugal where actions for light pollution mitigation were taken for to be possible the development of astrotourism. Since 2011 is a territory certified with as a Starlight Tourism destination. The certification of a starlight tourist destination aims at fostering, worldwide, the improvement in the quality of tourist experiences and the protection of night-skies in Starlight destinations. The criteria were established in December 2010, at the UNWTO Centre in Madrid, with representatives from UNESCO, UNESCO-Mab and IAC (Starlight Foundation, 2020).

Thus, location is a key factor to observe and absorb the sky, in a clear dark night, free from artificial light (Hölke et al., 2010; Najafabadi, 2012). Pondering that half of the world's population can no longer see the stars due to light pollution (Hamacher et al., 2020; Mizon, 2012), isolated places with their visible emptiness have become major attractions (Ingle, 2010). The vast open spaces around Alqueva, also offer a choice of

activities to supplement the pleasures of stargazing: experiencing a variety of sensations and tastes, such as relaxing at sunset while enjoying a cocktail or taking part in a blind wine-tasting by starlight. Outdoor activities include walking, horseback excursions by moonlight, participating in astrophotography workshops, sunset outdoor yoga among others.

Every year the destination develops an event that presents all the night and astrotourism activities offered in the territory, each year the event moves its location, when the study was undertaken it was developed at Cumeada. Cumeada is a small village where the Official Dark Sky® Observatory and the event is located in an open space near the Alqueva lake.

Measures

The research survey consisted of two parts. The first part assessed tourists' hedonic experience, novelty, meaningfulness and destination loyalty, and the second part covered sociodemographic variables, including gender, age, and level of education. All the scales were sourced from the existing literature and have been validated in prior research. This research used a closed-ended structured questionnaire to collect data. The items measuring the following constructs novelty, meaningfulness, hedonic experience and loyalty were formulated using a 7-point Likert scale. Previous studies (Joshi et al, 2015; Wakamita et al, 2012) have examined the advantages of using either a 5-point or 7-point scale concluding that a 7-point scale achieves the best fit. Novelty (four items), meaningfulness (four items) and hedonism (three items) were adapted from the MTE scale developed by Kim, Ritchie and McCormick (2012). Loyalty has four items adapted from previous studies (Chi and Qu, 2008; Su, Cheng & Huang, 2011).

Sampling procedure and data collection

Data was gathered during an astrotourism event called Dark Sky Party, which took place in 2019 during the 28th and 29th of July. The main motivation of the participants is centered on experiencing astrotourism activities, such as day and night sky observations, astrophotography, night kayaking, dark wine tasting, yoga practice at sunrise and sunset, night walks. The event had only one entrance for participants to enter the event area, they would have to travel on the bus provided by the event organization. In this way, it was possible to count the entry of 1852 people. Participants were interviewed after they had enjoyed at least one nocturnal observation of celestial phenomena in the sky.

The questionnaire was administered by 5 field researchers first the field researchers outlined the research purpose and invited them to participate in the survey. Following their consent, a self-administered questionnaire was provided to those who preferred to complete it themselves, or the field researchers helped them complete the questionnaire. Of the 620 questionnaires distributed, by the five field researchers only ~~304~~296 questionnaires were completely filled out and used in this study giving a response rate of 65%.

The sample is composed by 53.9% of female and 43.6% of male; 46.8% were between the ages of 15 and 35; the majority of the respondents went to the event with friends 4.3% and in couple 24.7% and had a full-time job 70.3% or were students 19.3%.

Results

Measurement model

The partial least squares (PLS) approach was employed to test the hypotheses, using the software SmartPLS 3.0. PLS makes lower demands on sample size, residual distributions, measurement scales, avoids inadmissible solutions and factor indeterminacy, and

minimizes the variance of the dependent variables (Chin, 1998; Fornell & Bookstein, 1982).

In using PLS, the adequacy of the measures is analyzed first. Thus, the reliability of the individual measures (see table 1) are all above 0.7 and all Cronbach's alpha and composite reliability values are equal or above 0.7 and so the constructs are reliable. The values of AVE above 0.5 reveal convergence validity (Wetzels, Odekerken-Schröder, & van Oppen, 2009) (see table 1).

Insert table 1 about here

Concerning discriminant validity, two criteria were used: Fornell-Larcker and Heterotrait-Monotrait Ratio (HTMT). For the first the square root of AVE of construct is greater than the correlation between that construct and other constructs in the model (see table 2). The second demonstrated that the HTMT value is below 0.90, discriminant validity has been established between two constructs (see table 3).

Insert table 2 about here

Insert table 3 about here

Hypotheses were analyzed using a non-parametric approach, known as Bootstrap (500 re-sampling). All path coefficients are significant at the 0.001. (see table 4).

Insert table 4 about here

We also analyze the predictive validity (such as R^2 and Q^2). The values of Q^2 (chi-squared of the Stone–Geisser criterion) are positive indicating that the relations in the model have predictive relevance (Fornell & Cha, 1994). The model has also a good level of predictive power (R^2) because the modelled constructs explained 62.8% of the variance in hedonic and 31.3% of the variance in loyalty. The value of SRMR is below 0.067, revealing a good fit (Hair et al., 2017).

Regarding the potential mediation effect of hedonic experience, the results reveal that hedonic total mediates the relationship between novelty and loyalty and partially mediates the relationship between meaningfulness and loyalty. When analyzing the mediating effects, we find (Hair et al. (2017), as shown in Table 4. The VAF (Variance account for) also points out for a full mediation of hedonic in the relationship between novelty and loyalty.

Discussion and implications

Theoretical implications

This study analyzed the effect of novelty and meaningfulness in the hedonic experience, and to assess the effect of the hedonic value in tourist loyalty in the context of an astrotourism experience. The results of the structural model show that novelty and meaningfulness affect hedonic value which in turn influence loyalty. Novelty and meaningfulness contribute in 62.6% to the variability in hedonic value and in 31.3% to the variability in loyalty intentions. These results confirm past studies who reported that emotional stimuli trigger emotional responses (Brosch, Pourtois & Sander, 2010; Mitas & Bastiaansen, 2018), influencing the willingness to recommend the experience (loyalty) (Skavronskaya, Moyle, Scott, & Kralj, 2020; Ma, Scott, Gao & Ding, 2017).

Overall, our findings extend current literature on novelty, meaningfulness and hedonic experience and demonstrate that together hold a considerable explanatory power in predicting tourists' loyalty.

Managerial implications

The study provides important implications for DMOs and astrotourism destination managers on how best activate behavioral loyalty through marketing communications and product development. Novelty and meaningfulness play a relevant role in the intention to recommend the experience (loyalty) at astrotourism destinations, being important psychological factors that influence tourists. In this way astrotourism destination managers and marketers should design and provide novel and meaningful experiences that can stimulate their positive emotions such as fun and joy, helping to enhance the core competitiveness and sustainable growth of astrotourism destinations.

If astrotourism destinations desire to improve WOM and repeat visitations must continually adjust for to offer and for to create new opportunities for new experiences. In this way, astrotourism destination managers and marketers should regularly create new experiences and define clearly the offerings in terms of the degree of novelty provided and develop messages that communicate the novel at the level of astrotourism experiences. The sky is different every day of the year (Caraveo, 2021), there are different equipment's and possibilities to develop sky observations. An astrotourism destination has also several activities developed during the day that could be developed at night and that could complement stargazing with and without equipment, such as local cuisine, picnics, nature observation, night walks, sports activities. Two important elements in designing meaningful experiences are interactivity and triggers (Tussyadiah, 2014). When tourists desire novel and meaningful experiences to manage their interactions with

the different elements of the destinations, can be a powerful tool to provide tourists experiences with these two elements.

Limitations and directions for future research

The study is subject to several limitations that need to be further explored. Although this study has extended our understanding on the astrotourism experience, generalizing the findings of this study must be done with caution due to different night experiences and cultural background of tourists. The model analyzed in this study should be tested in different destinations and extended to a sample of tourists from different nationalities and to differentiate from first and repeat visitors. There are many factors impacting an astrotourism experience that are not included in this study, such as prior experience, demographic factors, benefit of visiting and motivation. These factors should be examined in order to make the understanding of astrotourism behavior more comprehensive.

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Figure 1. Proposed model

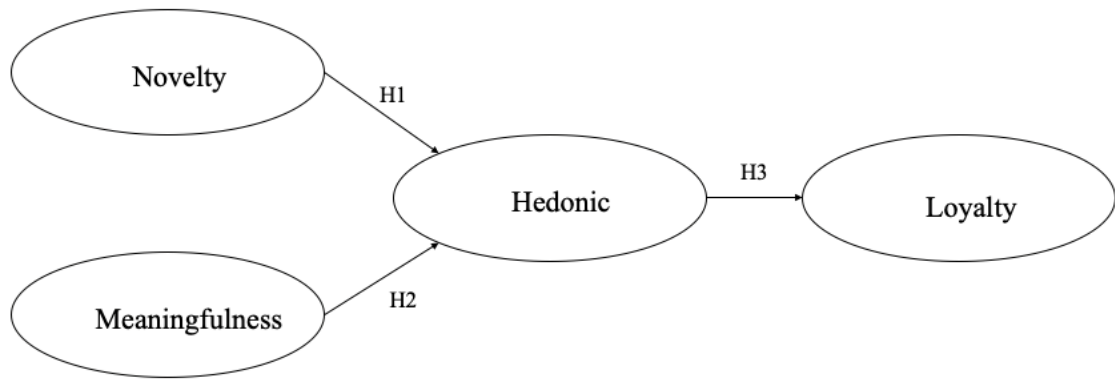


Table 1. Measurement model

Constructs	Constructs	Mean	SD	Factor loading	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Novelty	Novelty				0.844	0.864	0.896	0.686
P1.5	Once-in-a-lifetime experience	5.3	1.636	0.893				
P1.6	Unique	5.8	1.312	0.899				
P1.7	Different from previous experiences	5.6	1.449	0.775				
P1.8	Experienced something new	4.4	1.898	0.732				
Meaningfulness	Meaningfulness				0.783	0.786	0.874	0.697
P1.16	I did something meaningful	5.2	1.656	0.849				
P1.17	I did something important	6.1	1.128	0.838				
P1.18	Learned about myself	5.8	1.452	0.817				
Hedonic	Hedonic				0.822	0.847	0.881	0.652
P1.1	Thrilled about having a new experience	6.0	1.121	0.789				
P1.2	Indulged in the activities	4.9	1.781	0.720				
P1.3	Really enjoyed this tourism experience	5.4	1.467	0.865				
P1.4	Exciting	5.8	1.164	0.852				

Loyalty	Loyalty				0.893	0.906	0.928	0.764
P7.6	I will return whenever possible	6.1	1.268	0.936				
P7.7	I will repeat this experience whenever possible	6.1	1.260	0.937				
P7.8	I will return next year	5.8	1.488	0.892				
P7.9	If I could, I would like to live here for a short period of time	5.2	1.895	0.713				

Table 2. Discriminant validity- Fornell-Larcker Criterion

	Hedonic	Loyalty	Meaningfulness	Novelty
Hedonic	0.809			
Loyalty	0.559	0.874		
Meaningfulness	0.717	0.515	0.835	
Novelty	0.768	0.473	0.771	0.828

Table 3. Discriminant validity-Heterotrait-Monotrait Ratio (HTMT)

	Hedonic	Loyalty	Meaningfulness	Novelty
Hedonic				
Loyalty	0.645			
Meaningfulness	0.886	0.616		
Novelty	0.812	0.540	0.845	

Table 4. Structural results

Path	Beta	T Statistics (O/STDEV)	P Values	Bias Corrected Confidence Interval		f ²	Hypothesis
				2.5%	97.5%		
Novelty → Hedonic	0.529***	8.186	0.000	0.403	0.655	0.305	H1: supported
Meaningfulness → Hedonic	0.310***	4.672	0.000	0.166	0.436	0.105	H2: supported
Hedonic → Loyalty	0.559***	12.177	0.000	0.458	0.634	0.455	H3: supported
Model fit							
SRMR	0.067	Chi-Square	488.984	R ² _{Hedonic} =0.628	Q ² _{Hedonic} =0.404		
d_ULS	0.541	NFI	0.841	R ² _{Loyalty} =0.313	Q ² _{Loyalty} =0.236		
d_G	0.274	rms Theta	0.205				
Mediation							
Direct effect	Beta	T Statistics (O/STDEV)	P Values	Bias Corrected Confidence			
				2.5%	97.5%		
Novelty → Loyalty	-0.025 ns	0.285	0.776	-0.203	0.139		
Meaningfulness → Loyalty	0.248*	2.533	0.012	0.048	0.445		
Specific indirect effect							
Novelty → Hedonic → Loyalty	0.213***	3.857	0.000	0.118	0.330	VAF	92.2%

Meaningfulness → Hedonic → Loyalty	0.124***	3.338	0.001	0.063	0.212	VAF	Total mediation 41.1% Partial mediation
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Note: VAF: Variance account for

Appendix A.

Item	Mean	Median	Min	Max	Standard Deviation	Excess Kurtosis	Skewness
Indulged in the activities enjoyed this tourism experience	6.034	6.000	1.000	7.000	1.121	0.776	-1.023
Really enjoyed this tourism experience	4.902	5.000	1.000	7.000	1.781	-0.455	-0.639
Exciting	5.365	5.000	1.000	7.000	1.467	0.040	-0.708
Once-in-a-lifetime experience	5.834	6.000	3.000	7.000	1.164	-0.563	-0.656
Unique	5.297	6.000	1.000	7.000	1.636	-0.316	-0.737
Different from previous experiences	5.797	6.000	1.000	7.000	1.312	0.566	-1.027
Experienced something new	5.645	6.000	1.000	7.000	1.449	0.387	-0.997
I did something meaningful	4.368	4.000	1.000	7.000	1.898	-1.027	-0.214
I did something important	5.240	6.000	1.000	9.000	1.656	-0.114	-0.669
Learned about myself	6.074	6.000	2.000	9.000	1.128	0.942	-0.985
I will return whenever possible	5.757	6.000	1.000	9.000	1.452	1.177	-1.199
I will repeat this experience whenever possible	6.098	7.000	1.000	7.000	1.268	2.933	-1.713
I will return next year	6.064	7.000	1.000	7.000	1.260	1.985	-1.517
If I could, I would like to live here for a short period of time	5.764	6.000	1.000	7.000	1.488	1.106	-1.289
	5.199	6.000	1.000	7.000	1.895	-0.494	-0.813

