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Spectator-to-Spectator Value Co-Destruction in Sport Tourism Events: Avoiding a Less Memorable and Recommended Experience

Dissertação elaborada com vista à obtenção do Grau de Mestre em Gestão do Desporto

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Resumo

Questão de investigação: A cocriação de experiências turísticas no local aumenta a memorabilidade e a intenção dos turistas de revisitarem e recomendarem a experiência/destino a outros. No entanto, a interação entre turistas nem sempre é percebida como positiva, codestraindo o valor da experiência. Este estudo examinou a influência da codestruição do valor da experiência nas intenções comportamentais futuras dos turistas desportivos, considerando o efeito mediador da atenção, envolvimento e memorabilidade.

Métodos de investigação: Os dados foram recolhidos junto de 254 espectadores do evento Tudor Nazaré Tow Surfing Challenge, em Portugal.

Resultados e conclusões: Os resultados mostraram que a codestruição de valor durante uma experiência de turismo desportivo influencia negativamente a atenção e o envolvimento dos espectadores, o qual gera um impacto adicional na sua memorabilidade e intenções comportamentais.

Implicações: Assim, os gestores de eventos desportivos devem minimizar e reverter as interações negativas dos turistas desportivos para melhorar a cocriação. Além disso, o aproveitamento da subcultura desportiva e da liminaridade gerada pelo evento será crucial para envolver os espectadores na cocriação da atmosfera do evento. Esta investigação validou o modelo de cocriação da experiência turística no local para a codestruição e ampliou-o às intenções comportamentais.

Palavras-chave: codestruição de valor, *customer-dominant logic*, experiência de turismo desportivo, intenções comportamentais, memorabilidade.

Abstract

Research question: On-site tourist experience co-creation enhances memorability and the latter precedes tourists' intention to revisit and recommend the experience/destination to others. However, interaction between tourists is not always perceived as positive, co-destroying experience value. This study examined the influence of experience value co-destruction on sport tourists' future behavioural intentions, considering the mediating effect of attention, involvement, and memorability.

Research methods: Data were gathered from 254 spectators at Tudor Nazaré Tow Surfing Challenge event in Portugal.

Results and Findings: The results showed that value co-destruction during a sport tourism experience negatively influences spectators' attention and involvement, which further impacts their memorability and behavioural intentions.

Implications: Thus, sport event managers should minimize and reverse negative sport tourists' interactions to enhance co-creation. Additionally, leveraging sport subculture and event-generated liminality will be crucial for engaging spectators in co-creating the event atmosphere. This research validated the on-site tourist experience co-creation model to co-destruction and extended it to behavioural intentions.

Keywords: behavioural intentions, customer-dominant logic, memorability, sport tourism experience, value co-destruction.

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1. Introduction

The co-creation of positive and memorable tourism experiences enhances tourists' satisfaction, loyalty and recommendation of the experience to others (Carvalho & Alves, 2023; Chen et al., 2024; Hosany et al., 2022). Tourists' active role in the creation of their own experience is associated with the way it is subjectively lived. This involves the occurrence of diverse psychological phenomena during consumption (Campos et al., 2020). Outcomes of the tourist experience are intrinsically linked to learning and new knowledge acquisition about the culture and the environment including activities carried out by tourists during the experience (John & Supramaniam, 2024). From this perspective, for businesses and destinations to enhance experience value for tourists, it is essential to know their desires and preferences, and how they perceive value (John & Supramaniam, 2024; Sthapit et al., 2019).

On-site co-creation of tourism experiences develops through psychological processes and events that arise from carrying out activities and interacting with people in the experience setting (Campos et al., 2016, 2018). Co-creation enhances the memorability of the experience by stimulating higher levels of attention and involvement (Campos et al., 2017), for example, among sport tourists (Mascarenhas et al., 2024). However, interaction processes between participants are not always perceived as positive, co-destroying experience value (Echeverri & Skålén, 2021; Kim et al., 2020). In the tourism context, the topic of value co-destruction has received limited attention in the existing literature (Han et al., 2021), which is not consistent with the recognized significance of addressing the process of experience value formation holistically, taking into account both value co-creation and co-destruction (Echeverri & Skålén, 2021; Freire & Veríssimo, 2021; Sthapit et al., 2023).

Destinations develop, facilitate and promote many events to build loyalty and attract new tourists (Ziakas, 2023). Currently, sport events play an important role in the development of destinations, due to the economic and social benefits generated by hosting them (Bazzanella et al., 2023; Duignan, 2023). Concurrently, to achieve long-term benefits, namely, the promotion of destination image, it is important to satisfy tourists by offering a memorable tourism experience during sport events (Jeong, 2023; Zhou et al., 2023), so that they repeat and recommend the experience and/or destination (Mascarenhas et al., 2023).

In sport events, the tourist experience can take place with the tourist (1) actively participating, i.e. as a competitor, or (2) passively participating, i.e. as a spectator (Gibson, 2017; Melo et al., 2021). Both value co-creation and co-destruction of the sport tourism experience have been addressed in existing research, focusing on: (i) running event participants and the influence of value co-creation on event recommendation (Chen, 2023; Jiang et al., 2021); (ii) cycling events and impact of participants and spectators co-creation on the memorability of the experience (Mascarenhas et al., 2024); and (iii) golf tournament spectators' co-destruction of value and the negative influence on experience recommendation (Kim et al., 2020). Kim et al.'s (2020) study was framed using the Customer-Dominant Logic (CDL) to measure spectator-to-spectator interaction and showed that the dysfunctional behaviour of other spectators reduced the emotional value of the experience, resulting in a lower intention to recommend the event.

Surf tourism contributes to the economic and social development of coastal destinations that promote it due to its ability to attract surf tourists throughout the year, alleviating the harmful effects of seasonality (Mach & Ponting, 2021; Martin, 2022; Román et al., 2022). Azevedo (2023) study on tourism in Nazaré, a coastal village in Portugal famous for its

big waves, reveals the growth of the local economy and of tourist flows as a result of the big wave phenomenon; the author also highlight the expansion of the high tourism season to the winter months, when giant waves appear, and the big wave world championship takes place: Tudor Nazaré Tow Surfing Challenge. Big wave surfing attracts both active and passive sport tourists to the destination, and the latter can be categorized into passive giant-wave chasers or spectators with a risk recreation motivation, i.e. “those who enjoy watching others performing risk recreation activities” (Azevedo, 2023, p. 5). A memorable surf tourism experience triggers strong emotions that deeply impact long-term memory, and consequently instils in surf tourists the desire to revisit and recommend the destination (Jeong, 2023).

Given (i) the limited research on co-destruction in the context of tourism (Freire & Veríssimo, 2021; Sthapit et al., 2023), and on value creation of sport tourism experiences (Campos et al., 2017; Cordina et al., 2019; Mascarenhas et al., 2024) through CDL (Kim et al., 2020; Mohammadi et al., 2021); and (ii) the importance of the potential co-destruction of value in the tourist experience with consequences to behavioural outcomes, such as the intention to revisit and recommend the event and destination (John & Supramaniam, 2024; Sthapit et al., 2019), the aim of this study was to examine the influence of experience value co-destruction on sport event spectators’ future behavioural intentions, considering the mediating effect of attention, involvement and memorability.

2. Literature Review

2.1 Hypothesized model

The concept of co-creation of the tourism experience has aroused growing interest in the academia (Carvalho & Alves, 2023; Mohammadi et al., 2021). Evidence of the relationship between memorable tourism experience, revisit intention and/or

recommendation supports the relevance of understanding the process of creating positive memorable customer experiences and future behavioural intentions (e.g. Lončarić et al., 2019; Sthapit et al., 2019). However, existing studies highlight the need to study the opposite spectrum of the co-creation of value of experience, i.e. co-destruction, which can coexist with co-creation (Echeverri & Skålén, 2021; Sthapit et al., 2023). Thus, knowledge based on a holistic view of the process and results of value formation in the consumption experience empower organizations to design strategies with the dual objective of maximizing co-creation and minimizing co-destruction of the experience (Buhalis et al., 2020; Dolan et al., 2019).

The model proposed by Campos et al. (2017) conceptualized the influence of the co-creation of the on-site tourist experience on memorability, based on the premise that tourists' attention and involvement are the mediators of this relationship. Mascarenhas et al. (2024) tested and validated this model in the context of active and passive cycling event tourists and suggested the integration of the concept of co-destruction for a deeper understanding of value creation in sport tourism event experiences. In view of the above, this study adapted the model by Campos et al. (2017) to study the relationship between the co-destruction of the on-site experience of passive sport tourists, memorability and behavioural intentions (Figure 1).

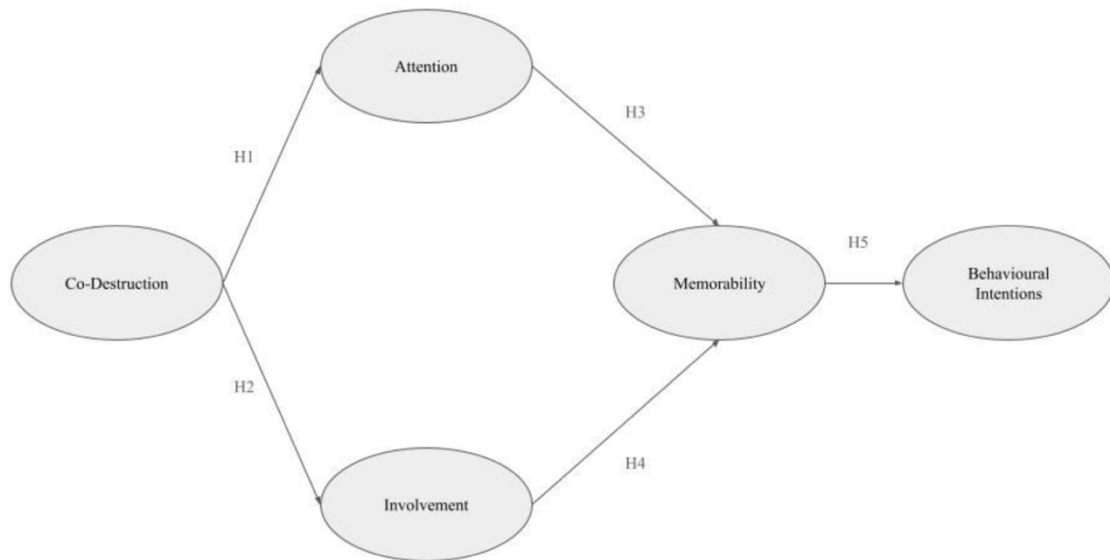


Figure 1. Hypothesized model

2.2 Spectator-to-spectator value co-destruction

According to Service-Dominant Logic (SDL), the value of the experience is co-created when the consumer is integrated into the value creation process in a collaborative environment involving consumers and service providers, in which this value is determined by the consumer (Vargo & Lusch, 2008). However, as co-creation is not a unilateral phenomenon, “the decline, destruction or diminishment of value can be realized by any of the interacting parts” (Echeverri & Skålén, 2021, p. 236), which leads to the co-destruction of value of the experience. In the context of tourism, co-destruction of value can happen due to abuse of resources - own or others - during experience interaction, leading to the reduction or destruction of experience value (Guan et al., 2020). While co-creation is associated with increased memorability, satisfaction and intention to recommend and repeat the experience (Carvalho & Alves, 2023; Jiang et al., 2021; John & Supramaniam, 2024), co-destruction generates the opposite result (Echeverri & Skålén, 2021; Sthapit et al., 2023).

CDL, moving from a provider-dominant logic (Heinonen & Strandvik, 2020), views consumer value co-creation as an interactive process in the consumption centred on the importance of the social context. CDL is best suited to the study of customer-to-customer interactions (Buzova et al., 2023; Kim et al., 2020; Rihova et al., 2018). Adopting a CDL approach, Rihova et al. (2018) consider that tourists' contribution to co-creation/co-destruction occurs through the application of both their operant resources (i.e. skills and knowledge) and operand resources (i.e. challenges underlying the tourist context, including the social challenges of tourist-to-tourist interaction). Tourist-to-tourist interactions are characterized by verbal and non-verbal interactions (Lin et al., 2022). In particular, negative tourist-to-tourist interactions are composed of "physical, non-physical, verbal, or non-verbal encounters between two or more tourists who find themselves in a co-shared space, which is detrimental to, at least, one of the actors" (Adam et al., 2020, p. 287).

The increase in tourist flows at the destination in a specific period of time promotes the sharing of a crowded experience environment, stimulating frequent interactions between tourists during the consumption of the experience (Han et al., 2021). The attraction of more sports tourists to big wave surfing destinations happens more prominently in periods when there is greater predictability for the formation of giant waves. These contexts generate implications for the creation or destruction of the value of the experience, which need to be investigated (Adam et al., 2020; Adam, 2021; Han et al., 2021).

During on-site consumption of sport events, co-destruction is the result of interactive and collaborative activities of groups of spectators including the expectations of the individual spectator (Kim et al., 2020; Stieler et al., 2014). Thus, the existence of dysfunctional behaviours during spectators' interaction promotes the destruction of the emotional value

of the experience, which is reflected in a decrease in the intention to recommend the sport event (Kim et al., 2020). In addition to the direct tourists' interaction, there is also indirect interaction, meaning that the mere presence of other tourists can affect the perceived value of the experience (Han et al., 2021). Given the potential for indirect interaction to increase or decrease the value of the experience, depending on the perception of value and expectations of each spectator, Stieler et al. (2014) highlight the importance of the event atmosphere co-created by spectators and their interaction.

2.3 Attention

Attention is a key concept to understand the consumption of the tourist experience and the processes that lead to psychological and behavioural outcomes, such as memorability and repetition and/or recommendation of the experience (Bagheri et al., 2023; Campos et al., 2020; Skavronskaya et al., 2017). Attention can be addressed by (Oberauer, 2019): (i) its definition, as a resource of limited capacity, or as a mechanism to select and prioritize information; (ii) its focus, distinguishing between external (perceived outer environment) and internal attention (thought episodes and concepts), and (iii) its source of stimuli that determines the attentional efforts (whether it is top-down directed by goal orientation or bottom-up driven by salient stimuli: Campos et al., 2020). In other words, attention is a cognitive state with a dynamic nature and the ability to influence what will be memorized (Campos et al., 2016; Oberauer, 2019; Ooi, 2022). In a tourism context, Ooi (2022) remarks three aspects that should be considered from the perspective of experiences as attention products: (i) attention is focused on one stimulus at a time and is scarce; (ii) the experience is dependent on the focus of attention, and when the latter is changed, it becomes dependent on the way this change is perceived; and (iii) there are internal and external factors that compete for attention and produce stimuli, which can be positively or negatively perceived.

Several studies (e.g. Campos et al., 2017, Mascarenhas et al., 2024) have shown that the co-creation of tourist experiences is reflected in tourists' greater attention to the stimuli arising from the consumption of the experience. For example, Campos et al. (2020) highlight that the rarity of the tourist experience and the exciting environment in which it unfolds are factors that promote the tourist's attention to the experience. These factors are mediated by internal elements of the individual, such as the interest towards the experience, the expectation of interaction with familiar and unknown stimuli during the experience (i.e. interpersonal interaction), and the motivation towards the task performance and goal achievement. Considering value co-destruction as the process that has an opposite effect to co-creation (Echeverri & Skálén, 2021; Sthapit et al., 2023), the following hypothesis is proposed:

H1: Co-destruction of value during the sport tourism experience negatively influences spectators' attention.

2.4 Involvement

In the consumption of on-site experiences, involvement is understood as “personal, real-time involvement in the consumption of a given experience” (Zatori et al., 2018, p. 112); accordingly, involvement is distinct from other concepts, such as enduring (i.e. self-relevance of the experience) and situational involvement (i.e. temporary and contextual characteristic of involvement in the experience). Involvement is reinforced by tourist interaction in the experience as both mental and physical activation results from it (Campos et al., 2018; Lin et al., 2022).

Tourists' involvement in the co-creation experience can be understood as a prerequisite, as tourists co-create the value of the experience by integrating their personal, temporal and financial resources (Mohammadi et al., 2021; Shoukat & Ramkissoon, 2022). In turn,

the interaction that occurs between the participants and the environment and the customization of experience by focusing on tourist empowerment to make choices, increase involvement during the experience (Zatori et al., 2018) both physically and mentally (Campos et al., 2017). In addition, as the level of tourist involvement grows, both the influence of the tourist co-creation experience on loyalty to the service provider (Mathis et al., 2016) and intention to revisit the destination also increase (Rather et al., 2022).

Consumer involvement is a multidimensional concept, and the examined dimensions in the existing tourism literature include interest/pleasure - i.e. the involvement based on the centrality of the ego importance and the hedonic value - and sign value - i.e. the involvement based on the symbolic value allocated by the tourist to the consumption of the experience (Prebensen et al., 2013). Both dimensions have been related to the perception and creation of value of the experience (Campos et al., 2017). In addition, there is evidence suggesting a relationship between value co-destruction and tourists' involvement. For example, Han et al. (2021) demonstrated that an active involvement of other tourists in the co-creation of an on-site experience can co-destruct the experience when the interaction with other tourists is perceived as competing for the resources allocated to the consumption of the experience, or simply disturbing the experience (e.g. crowding and/or noise pollution).

In a sport events setting, co-creation of an on-site experience influences the active involvement (mental and physical) of sport tourists (Mascarenhas et al., 2024). Active involvement of spectators in the co-creation of an experience, and particularly in the co-creation of the spectator-induced atmosphere strengthens the sense of identification with the sport subculture underlying the experience (Horbel et al., 2016; Jones & Byon, 2020;

Shipway et al., 2016; Woratschek et al., 2020). However, when spectators are not involved in co-creating an event atmosphere, or when interactions between spectators are an impediment to the co-creation of value of an event experience, the perceived value decreases (Stieler et al., 2014). Accordingly, this study proposes:

H2: Co-destruction of value during the sport tourism experience negatively influences spectators' involvement

2.5 Memorability

Memorability of an experience is related to the individual perception of tourist experiences as distinct and unique, as well as the vividness (i.e. visual clarity) and emotional intensity with which they are remembered after they have occurred (Campos et al., 2017; Kim et al., 2022; Sthapit et al., 2019; Wang et al., 2023). In this sense, not all experiences are memorable as tourists selectively construct their experiences (Oberauer, 2019). According to the existing literature, antecedents of the memorable tourist experience include co-creation, involvement (Hosany et al., 2022; John & Supramaniam, 2024; Kim et al., 2022; Rasoolimanesh et al., 2021) and attention during the consumption of the experience (Kuhl & Chun, 2014; Ooi, 2022; Rasoolimanesh et al., 2021; Skavronskaya et al., 2017). For example, the study by Campos et al. (2017) validated the influence of tourists' co-creation, attention and involvement on memorability of the tourist experience. Contrarily, Adam et al.'s (2020) study supported the influence of negative tourist-to-tourist interactions on the lower memorability of the experience.

In the context of sport tourism, research focusing on memorable tourism experiences is limited (Hosany et al., 2022). For example, Mascarenhas et al. (2024) is one of the few studies examining memorability during an on-site co-creation experience in sport tourism

events. This study validated the influence of sport tourists' attention and involvement on the memorability of their experience, resulting from their interest and pleasure in the experience. In view of the above, this study proposes:

H3: Spectators' attention positively influences the memorability of the sport tourism experience

H4: Spectators' involvement positively influences the memorability of the sport tourism experience.

2.6 Behavioural intentions

Repetition and recommendation of a tourist experience and/or a destination where it is consumed are desired behaviours, and, for this reason, sought after by tourism managers. Given that intention is a proxy of behaviour (Ajzen & Madden, 1986), existing studies have examined the antecedents of behaviour (i.e. intentions) to assess the repetition and/or recommendation of the tourist experience and/or of the destination where it occurs (Chen et al., 2024). Carvalho and Alves (2023), Hosany et al. (2022), John and Supramaniam (2024), Shoukat and Ramkissoon (2022) have argued that revisit and recommend intentions are outcomes of the value of co-creating the tourist experience. For example, Cao et al. (2023) propose that satisfaction with the co-creation of an experience generates positive effects on the intention to revisit a destination through the development of place attachment. In parallel, revisit and recommend as behavioural intentions have also been highlighted as outcomes of a memorable tourism experience (Hosany et al., 2022; Melón et al., 2021; Rasoolimanesh et al., 2021). Zhou et al. (2023) highlighted the influence of memorability on intentions to recommend and revisit a destination, taking into account the co-creation of a tourist experience and the positive emotions resulting from its consumption.

In terms of sport tourism experiences, some studies support participants' interest in getting involved in the co-creation of memorable experiences (Erhardt et al., 2019; Kim & Mao, 2021). Additionally, Cordina et al. (2019) support the positive relationship between memorable experiences and intentions to repeat and recommend them. In a surf tourism experience setting, Jeong (2023) verified the positive effect of memorable tourist experiences on greater intention to revisit the destination, either directly or through the positive emotions resulting from the experience. Therefore, this study formulates that:

H5: The memorability of the sport tourism experience positively influences spectators' behavioural intentions

3. Methods

3.1 *Study setting*

The Tudor Nazaré Tow Surfing Challenge event, one of the two stages of the international big wave competition organized by the World Surf League (WSL), takes place in Praia do Norte, Nazaré, Portugal. Due to several criteria imposed for the organization of the event concerning oceanographic and meteorological conditions, the event was held on a single day, i.e. Monday, January 22, 2024. The first edition of the event was held in 2016, which, apart from two seasons (i.e. 2020/2021 and 2022/23), has continued over the years. Nazaré gained attention in 2011 due to the widespread recording of a giant wave surfed by Garrett McNamara, providing international recognition for the destination along with the achievement of several Guinness World Records and WSL awards (Azevedo, 2023). The mystical essence of Nazaré, as a big wave destination, was even publicized in a HBO documentary “100 Foot Wave”, which was awarded an Emmy in two consecutive years (2022 and 2023). To watch the big wave event in Nazaré, spectators must move around

the natural amphitheatre provided by the promontory that flanks Praia do Norte, providing an experience of contact with the surrounding nature and with other spectators.

3.2 Measures

The questionnaire used for data collection in this study is adapted from Campos et al. (2017), subsequently validated for the context of sport tourism events by Mascarenhas et al. (2024). In this study, the construct of co-creation was replaced by co-destruction, which evaluated the spectator-to-spectator interaction in the experience value formation in sport events (Kim et al., 2020). The questionnaire assessed information relating to sport tourism experience, integrating questions concerning the constructs: (a) co-destruction: four items related to the sport spectator-to-spectator interactions; (b) attention: three items assessing the focus on the behavioural and psychological events of the individual; (c) involvement: three items for the dimension of pleasure/interest and two items for the *sign value* dimension; (d) memorability: five items associated with the vividness and durability of memories; and (e) behavioural intentions: three items to measure the intention to repeat the experience and recommend it to others. Questions relating to constructs used a five-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree). In accordance with the procedural controls for common method bias, the methodological and psychological separation was taken care of (Kock et al., 2021), presenting the items randomly, and separating them to disguise the causal relationship between the dependent and independent variables. Finally, sociodemographic data were questioned. The questionnaire was delivered to participants in two versions, English and Portuguese, which were produced with the collaboration of a professional translator, ensuring its quality (Brislin, 1980).

3.3 Sampling

During the entire time the event occurred, 266 questionnaires were applied to spectators over 18 years old, randomly selected from the public. The questionnaire was applied by a team of collaborators, led by researchers, covering all hosting event zone (HEZ) area, in two ways: paper and pen, and a QR code containing a Microsoft form. Following a brief presentation of the investigation to the respondents, the collaborators provided the necessary time and space for respondents to complete the questionnaire. After eliminating outliers, 254 were used for data analysis. The required sample met the criteria type one ($\alpha = .05$) with a desired statistical power level of .80, medium effect size.

The sample is distributed between national (57%) and international (43%) sport tourists, with the latter coming from 24 countries, mainly Brazil (9%), Germany, Spain and UK (4%, each). The sample (Table 1) is mainly made up of young and adults up to 35 years old, with at university level education and employed. The majority (83.1%) of passive sport tourists were at the event for the first time, motivated by two main reasons: to have fun (61.8%) and to live a unique and special experience (61.4%).

Table 1

Sociodemographic and sport tourist experience characteristics

<i>Sociodemographic</i>	Total	
	(n)	(%)
Gender		
Male	138	54.3
Female	115	45.3
Other	1	0.4
Age		
18-25	81	31.9
26-35	93	36.6
36-45	36	14.2
46-55	24	9.4
≥ 56	20	7.9
Education Level		
Basic	3	1.2

High school	66	26.0
University	185	72.8
Occupation		
Employed	153	60.2
Student	66	26.0
Retired	17	6.7
Unemployed	15	5.9
Stay-at-home	3	1.2
<i>Sport tourist experience</i>		
Attendance frequency		
First time	211	83.1
Two times	24	9.4
Three or more times	19	7.5
Motive		
To have fun	157	61.8
To live a unique and special experience	156	61.4
To spend time with friends and family	108	42.5
To experience positive emotions	97	38.2
To celebrate a special event	61	24.0
To give a special experience to friends and family	53	20.9
To learn new things	45	17.7
Others	12	4.7

3.4 Data Analysis

Seminr statistical analysis package using R software performed the Partial Least Squares - Structural Equation Modelling (PLS-SEM). This method does not require the assumption of normal distribution, and is “particularly appealing for research in fields that aim to derive recommendations for practice” (Hair et al., 2021, p. 14) due to its causal–predictive orientation. The normality assumption of the data was not met, but the individual variable analysis reported values of skewness lower than 2 and kurtosis lower than 4, indicating non-severe violations of normality. The detection of multivariate outliers was carried out through Mahalanobis distance (Hair et al., 2022), resulting in the elimination of 12 records.

The outer model assessment included (Hair et al., 2021): (i) indicator reliability (acceptable reliability with indicator loadings >0.708); (ii) internal consistency (good internal consistency with reliability coefficient ρ_A values between 0.70 – 0.90); (iii) convergent validity (with average variance extracted $[AVE] \geq 0.5$); and (iv) divergent

validity (heterotrait- monotrait ratio [HTMT] of the correlations ≤ 0.90 [Henseler et al., 2015]).

The inner model assessment comprised (Hair et al., 2021): (i) collinearity (variance inflation factor [VIF] ≤ 5); (ii) hypotheses testing, the significance of the direct, indirect and total effects were assessed using the bootstrap resampling method, with 5% significance level; (iii) explanatory power (moderate explanatory power with R^2 between 0.5 – 0.7); and (iv) predictive power (out-of-sample endogenous indicators: PLS-SEM root-mean-square error [RMSE] < linear regression model [LM] RMSE).

4. Results

The outer model presents a good indicator reliability. Values were higher than 0.708 for all items, except for one item related to attention with an indicator loading between 0.4-0.708. Accordingly, its inclusion in the model is appropriate for the improvement of model validity, both convergent and divergent (Hair et al., 2021). As seen in table 2, the outer model also shows good internal consistency, convergent and divergent validity.

Table 2

Outer model

Constructs	Loadings	rho _A	AVE
<i>Co-destruction (CD)</i>		0.90	0.63
CD1. I didn't like other spectators making too much noise.	0.89		
CD2. My experience was negatively affected by the crowded spectator environment.	0.81		
CD3. While spectating the event, I didn't like other spectators interrupting me.	0.74		
CD4. In this experience I was bothered by the discussion between spectators.	0.73		
<i>Attention (ATT)</i>		0.78	0.61
ATT1. I focused on my own behavior and interactions.	0.54		
ATT2. I've completely noticed my sensations and sensory stimuli.	0.87		
ATT3. I have been conscious of my emotions and thoughts.	0.89		
<i>Involvement (INV)</i>		0.83	0.58
<i>Involvement (pleasure/interest)</i>			

INV1. Gives me pleasure to participate in this experience.	0.78				
INV2. This experience is a pleasure for me.	0.78				
INV3. This experience interests me a lot.	0.79				
<i>Involvement (sign value)</i>					
INV4. This experience tells a lot about the person I am.	0.71				
INV5. This experience says something about me.	0.73				
<i>Memorability (MM)</i>					
MM1. The interaction with nature is something unforgettable.	0.76				
MM2. I have strong images of my behavior and interactions that will last forever.	0.70				
MM3. The landscape and the big waves will remain in my memory.	0.77				
MM4. I can describe in detail my sensations and sensory stimuli.	0.75				
MM5. The experience as a whole will be a lasting memory.	0.75				
<i>Behavioural intentions (BI)</i>					
BI1. I will recommend this event to other people.	0.86				
BI2. I will say positive things about this event to other people.	0.80				
BI3. I will encourage friends and relatives to come to future editions of this event.	0.83				
HTMT					
	CD	ATT	INV	MM	BI
CD	-				
ATT	0.21	-			
INV	0.28	0.69	-		
MM	0.18	0.82	0.87	-	
BI	0.42	0.56	0.87	0.80	-

The inner model meets the assumptions of the absence of collinearity since the VIF values for all items and constructs (VIF = [1.157 – 2.169]) are below 3. The model has a good explanatory capacity, explaining 85% and 65% of the variability of endogenous constructs, i.e. memorability and behavioural intentions ($R^2_{(MM)} = 0.85$ e $R^2_{(BI)} = 0.65$), respectively. All the proposed hypotheses in the study were validated (Figure 2). Co-destruction negatively influences: (i) directly, attention and involvement; and (ii) indirectly, memorability and behavioural intentions of spectators, affecting involvement ($\beta = -0.290$, $p < 0.5$) more than attention ($\beta = -0.199$, $p < 0.5$).

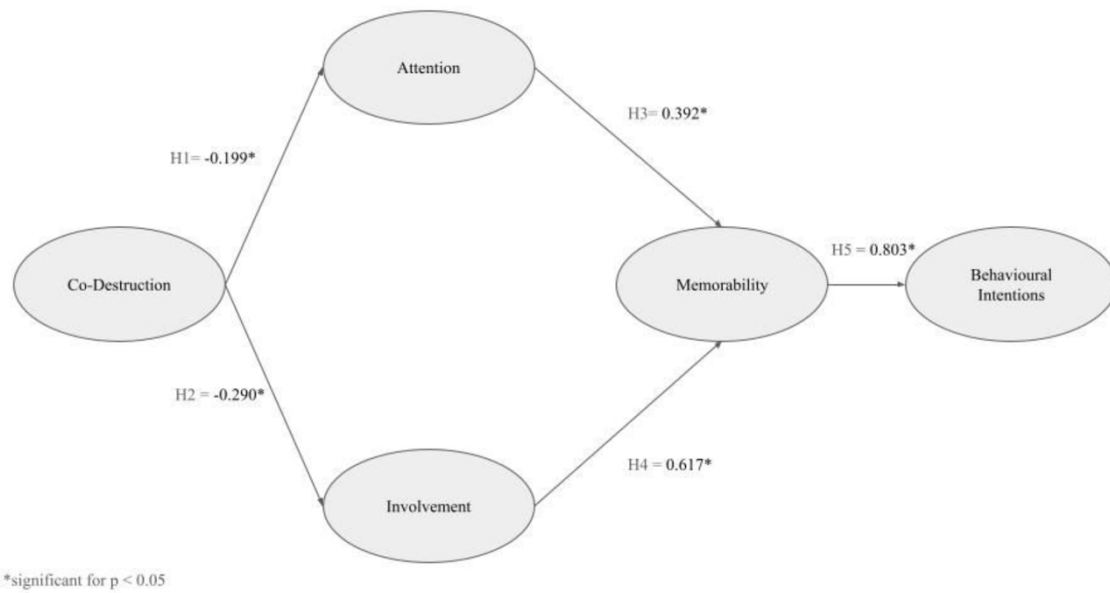


Figure 2. Path coefficients of the hypothesized model

Compared to attention, involvement has a stronger influence on memorability and behavioural intentions (Table 3). It is also important to highlight that the relationship between memorability of the experience and behavioural intentions has a strong coefficient ($\beta = 0.803$, $p < 0.5$).

Table 3

Inner model

Hypotheses	β	Bootstrap		t-value	Confidence Interval		Decision
		Mean	SD		2.5%	97.5%	
H1: Co-destruction ▸ Attention	-0.199	-0.176	0.068	-2.940	-0.306	-0.049	Supported
H2: Co-destruction ▸ Involvement	-0.290	-0.259	0.076	-3.838	-0.390	-0.130	Supported
H3: Attention ▸ Memorability	0.392	0.350	0.061	6.472	0.237	0.469	Supported
H4: Involvement ▸ Memorability	0.617	0.532	0.056	10.985	0.424	0.637	Supported
H5: Memorability ▸ Behavioural intentions	0.803	0.639	0.050	16.024	0.534	0.730	Supported
Total paths							
Co-destruction ▸ Memorability	-0.257	-0.199	0.058	-4.410	-0.305	-0.105	

Co-destruction Behavioural intentions	-0.206	-0.128	0.041	-5.029	-0.206	-0.065	
Attention ▸ Behavioural intentions	0.315	0.223	0.040	7.915	0.151	0.305	
Involvement ▸ Behavioural intentions	0.495	0.341	0.050	9.855	0.243	0.436	

Note. SD - Standard Deviation.

The results point to a low out-of-sample predictive power of the model, since comparing the RMSE values with the linear regression model (LM) benchmark of the eight items of the endogenous response constructs (five memorability items and three items of behavioural intentions), only two items are found with RMSE values lower than LM values (item MM1: $RMSE_{(PLS \text{ out-of sample})} = 0.518 < RMSE_{(LM)} = 0.526$; item MM4: $RMSE_{(PLS \text{ out-of sample})} = 0.751 < RMSE_{(LM)} = 0.767$).

5. Discussion

The results of this study substantiate the importance of examining value co-destruction in the tourist experience value formation process (Echeverri & Skålén, 2021; Freire & Veríssimo, 2021; Guan et al., 2021; Sthapit et al., 2023) due to its influence in consumption behavior, with impacts on consumer's experience memorability and loyalty (Adam, 2021). The adopted model measured the result of negative spectator-to-spectator interaction in psychological (memorability) and behavioural (repeat and recommend intentions) terms, including the psychological processes underlying this result, i.e. the influence of tourists' attention and involvement.

The results confirm the influence of co-destruction on tourists' lower attention and involvement in an on-site sport event experience, validating H1 and H2, which indirectly implies a decrease in memorability and intention to recommend and repeat the experience. The results also validated H3, H4, and H5, which support existing studies indicating a positive relationship between attention, involvement and memorable on-site tourism

experiences (Campos et al., 2017; Mascarenhas et al., 2024), as well as the consequent influence on greater intention to repeat and recommend the experience (Hosany et al., 2022; Melón et al., 2021; Rasoolimanesh et al., 2021). Consequently, this study also substantiates the study of attention and involvement on the topic of co-destruction of the sport tourist experience, deepening the knowledge of memorability antecedents.

CDL was the theoretical framework adopted in the present study to understand customer-to-customer interactions, namely negative spectator-to-spectator interactions. This framework aims to adjust the analytical lens of the experience value formation, realizing that “rather than treating their customers as partial workers or partners in co-creation (a business-to-customer focus in co-creation research), service organizations should strive to find out what customers actually do with the service to accomplish their own goals” (Rihova et al., 2015, p. 358).

As performed by Kim et al. (2020), tourists’ perception of the dysfunctional behaviour of other spectators served, as a global construct, to measure negative spectator-to-spectator interactions. Findings from Adam et al.’s (2020) study, whose model did not incorporate the constructs of attention and involvement, attested to four sub-dimensions of negative tourist-to-tourist interactions, namely interpersonal directed and non-directed, site-directed interactions, and intrapersonal interactions. In this study, however, only items referring to two of these sub-dimensions were integrated, specifically, one item for interpersonal directed interaction (i.e. “While spectating the event, I didn't like other spectators interrupting me”), and the remaining ones for interpersonal non-directed interaction (e.g. “I didn't like other spectators making too much noise”). The site-directed interaction sub-dimension (which addresses acts of littering and vandalism by other spectators) was not covered by the current study. However, it is acknowledged that in the

context of nature-based sport events, such as surfing events, this sub-dimension holds special significance, as this sport subculture is known for being guided by a high respect for nature (Borne, 2018; Wheaton, 2020).

Conceptually, the sub-dimension of co-destruction concerning intrapersonal interaction (Adam et al., 2020), as “hinged on psychological noises that are initiated and contained within oneself but has the tendency to disrupt attention and ultimately result in negative experiences for oneself” (p. 298), is closely related to the attention construct used in this study. Consequently, analysis of intrapersonal interaction included in the construct of co-destruction reinforces the understanding of the relationship between co-destruction and attention, further supporting its inclusion in future applications of the model adopted in this research.

Given the importance of studying the involvement of tourists in the sport tourism experience, considering both the pleasure/interest and the symbolic value allocated to the experience (Mascarenhas et al., 2024), this study validated the significance of both sub-dimensions in the study of the experience value formation. In particular, the co-destruction of the experience value was associated with a lower involvement of sport tourists, both in terms of interest/pleasure and the symbolic value of the experience. Consequently, the specificity of the sport event context is here seen in the association of the hedonic dimension (e.g. Hallmann et al., 2021; Jones & Byon, 2020) and the identification with the sport subculture (Erhardt et al., 2019; Kim & Mao, 2021) to the sport tourism experience. This relationship can be further explored through the concept of liminality (Duignan et al., 2020), which applies to extreme nature-based sport events, as in the case of big wave events. From this perspective, the liminality generated by the event involves its participants (active and passive, i.e. competitors and spectators,

respectively) in a celebratory atmosphere and rituals of exceedance, strengthening a sense of *communitas*, sometimes temporary, in a distinct environment of everyday life (Duignan et al., 2020; Han et al., 2021; Rihova et al., 2015, 2018).

Compared to attention, this study found that tourist involvement has a greater impact on experience memorability, corroborating the findings from Mascarenhas et al. (2024), which were also verified in the context of sport tourism events, and thus also in behavioural intentions. This result corroborates prior evidence attesting to the significance of involvement of tourists in nature-based experiences (including hedonism), performing as the dimension with the most potential to distinguish a memorable experience from a mere ordinary experience (Bigne et al., 2020).

The expansion of the model proposed by Campos et al. (2017) to the dimension of behavioural intention provided an instrumental view of the co-destruction of the experience, reflecting the implications for spectator loyalty. In regular sport events (as in this study), it is not enough to attract new spectators (the majority of the sample in this study), but it is essential to promote the repetition of the experience. Other studies (e.g. Rather et al., 2022) have revealed that tourists who repeat the experience are those who: (i) most invest in co-creation and most intend to revisit the destination; (ii) exhibit greater sensitivity to negative interactions between tourists, evaluating the quality of the experience more negatively; and (iii) better evaluate the experience if they perceive positive tourist-to-tourist interactions (Luo et al., 2019).

5.1 Theoretical implications

This study further sustains the application of the on-site tourist experience co-creation model (Campos et al., 2017) to the study of value co-destruction, validating the direct influence of co-destruction on attention and involvement and, indirectly, on memorability

and behavioural intentions. Results highlight the adaptability of the model to both the study of co-creation and co-destruction. Consequently, this study confirms the model as an important instrument for investigating co-creation and co-destruction simultaneously, allowing the understanding of the dynamics generated between them (Echeverri & Skålén, 2021; Lumivalo et al., 2024).

This study expanded the proposed model from Campos et al. (2017), and later validated by Mascarenhas et al. (2024) for the sport event context, encompassing the intention to repeat and recommend an experience as behavioural outcomes of an on-site tourist experience value formation. Given the explanatory quality of the model, it is possible to infer that the respective theoretical conceptualization is valid for studying the entire process that is generated from the value formation to behavioural intentions. Following this reasoning, the application of the extended version of the model should be strengthened, replicating it in other contexts of sport tourism events, and measuring the co-destruction and co-creation, simultaneously.

5.2 Managerial implications

To enhance the memorability of the experience and the intention to repeat/recommend it managers of sport tourism events must prepare “the stage for the experience, and facilitate the experience, rather than control the experience” (Erhardt et al. 2019, p.4206), which is in line with CDL assumptions (Heinonen & Strandvik, 2020; Rihova et al., 2018). Facilitating the co-creation of the sport tourism experience implies minimizing negative spectator-to-spectator interactions, prioritizing greater involvement of spectators with the experience and with the spectator induced atmosphere, in congruence with the symbolism of the sport subculture, spirit of celebration and the rituals of nature-based sports. For example, given the knowledge about the influence of co-destruction arising from negative

interactions between spectators (Adam, 2021), to avoid less memorable and recommended sport touristic experiences, sport event managers should invest in promoting a spectator code of conduct through educational campaigns that disseminate good practices for interactions between spectators (Guan et al., 2021).

5.3 Limitations and future research

All proposed hypotheses were validated, and the adopted model allows the phenomenon under study to be explained very satisfactorily (Hair et al., 2021), in particular concerning experience memorability (85%) and behavioural intentions (65%). However, its low predictive power suggests fine-tuning the items used to measure the constructs. This result converges with the need to attend to the specificity of the context underlying the experience value formation, as indicated by other authors (Adam et al., 2020; Horbel et al., 2016), in this case, nature-based sport tourism event experience. To this end, in future research, the measurement of co-destruction must integrate the sub-dimensions argued by Adam et al. (2020), i.e. interpersonal directed and non-directed, site-directed and intrapersonal interactions, as well as ensuring the measurement of the influence of verbal and non-verbal interactions (Lin et al., 2022) appropriate to the specific context of the sport event. In particular, in the specific context of nature-based events, the integration of the site-directed negative interactions sub-dimension could also add knowledge to the scarce existing literature on environmental themes from the perspective of spectators (Martins et al., 2021; Mascarenhas et al., 2021).

This research was limited to the study of co-destruction of the experience of sport tourism events from the perspective of spectators. Future studies should examine both co-creation and co-destruction to gain a holistic understanding of the phenomenon, as argued by Echeverri and Skålén (2021) and Sthapit et al. (2023).

6. Conclusion

This study highlights the importance of co-destruction in on-site tourism experience value formation, and more specifically, spectators' sport tourism event experience. The little research dedicated to the formation of the value of the experience consumed on-site, and especially in conjunction with co-destruction, highlights the importance of the contribution of this study to the deepening of scientific knowledge on this topic. This contribution is even greater due to the instrumental value of this study's results for the management of sport tourism in destinations, examining the antecedents of spectators' intentions to recommend and repeat the experience of sport tourism events.

Framed by CDL and the conceptualization of the co-creation of on-site experiences, this study supports the effect of negative interactions between spectators on their lower attention and involvement, as well as their lower memorability and behavioural intentions. Therefore, it is crucial to minimize negative interactions, and ideally, reverse them in order to facilitate the co-creation of the experience.

The greater influence of spectator involvement on the memorability of the experience, compared to attention, suggests the prioritization of interest/pleasure and symbolic value allocated by the tourist in the design of strategies to maximize co-creation and minimize co-destruction. Furthermore, the sport subculture and the liminality generated by the event must be leveraged in the involvement of tourists in creating the event's atmosphere.

In summary, this study is a pioneer in the application of the on-site tourist experience co-creation model to the study of co-destruction and its extension to behavioural intentions. Additionally, this study provides further insights into the phenomenon of value formation in the tourist experience, noting the need for more research into the issues underlying the relationship between co-destruction and co-creation.

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Appendix

Portuguese questionnaire



O CinTurs - Universidade do Algarve (UALg) e a FMH - Universidade de Lisboa (ULisboa) estão a realizar o estudo "Cocriação da experiência em eventos de turismo desportivo".

O objetivo desta investigação é compreender os seus comportamentos, atenção e envolvimento na experiência de assistir ao evento e aspetos relacionados com as memórias proporcionadas pela experiência. **Não existem respostas certas ou erradas, devendo responder às perguntas da forma mais honesta possível.**

Os questionários são anónimos e toda a informação é confidencial. A participação neste estudo é voluntária. Todos os dados são recolhidos apenas para efeitos de registo e gestão do questionário estando garantida a confidencialidade do seu tratamento e a exclusiva utilização pela UALg/ULisboa, sendo o seu tratamento realizado nos termos e condições da Política de Proteção de Dados que se encontra acessível em www.ualg.pt. Se necessitar de algum esclarecimento adicional é favor contactar pelo email rimartins@ualg.pt.

Informação sobre a experiência de assistir à etapa do campeonato mundial de surf de ondas grandes na Nazaré

1. Quantas vezes já assistiu à etapa do campeonato mundial de surf de ondas grandes na Nazaré?

Primeira vez	Duas vezes	Três vezes ou mais
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2. Porque escolheu participar nesta experiência em particular? (Pode assinalar várias opções)

Para me divertir	<input type="checkbox"/>
Para aprender coisas novas	<input type="checkbox"/>
Para passar o tempo com amigos e familiares	<input type="checkbox"/>
Para viver uma experiência única e especial	<input type="checkbox"/>
Para celebrar um evento especial	<input type="checkbox"/>
Para viver emoções positivas	<input type="checkbox"/>
Para proporcionar uma experiência única a familiares ou amigos	<input type="checkbox"/>
Outra:	<input type="checkbox"/>

3. Em que medida concorda com as seguintes afirmações em relação aos seguintes aspetos da sua experiência? Assinale a sua resposta em cada uma das afirmações (1=discordo totalmente, 2=discordo, 3=nem concordo nem discordo, 4=concordo, 5=concordo totalmente)

No seu todo, a experiência será uma memória duradoura	1	2	3	4	5
Esta experiência dá uma ideia do tipo de pessoa que sou	1	2	3	4	5
Concentrei-me nos meus próprios comportamentos e interações	1	2	3	4	5
Dá-me prazer participar nesta experiência	1	2	3	4	5

Assinale a sua resposta em cada uma das afirmações (1=discordo totalmente, 2=discordo, 3=nem concordo nem discordo, 4=concordo, 5=concordo totalmente)

Esta experiência diz alguma coisa sobre mim	1	2	3	4	5
A interação com a natureza é inesquecível	1	2	3	4	5
Tenho imagens fortes dos meus comportamentos e interações que ficarão para sempre	1	2	3	4	5

A minha experiência foi afetada negativamente pelo ambiente sobrelotado de espectadores	1	2	3	4	5
Não gostei que outros espectadores fizessem muito barulho	1	2	3	4	5
Recomendarei este evento a outras pessoas	1	2	3	4	5
As paisagens e as ondas gigantes permanecerão na minha memória	1	2	3	4	5

Posso descrever com detalhe as minhas sensações e os estímulos sensoriais	1	2	3	4	5
Esta experiência tem muito interesse para mim	1	2	3	4	5
Falarei coisas positivas sobre este evento a outras pessoas	1	2	3	4	5
Nesta experiência fui incomodado(a) pela discussão entre espectadores	1	2	3	4	5

Estive consciente das minhas emoções e pensamentos	1	2	3	4	5
Apercebi-me completamente das minhas sensações e estímulos sensoriais	1	2	3	4	5
Enquanto assisti ao evento, não gostei que outros espectadores me interrompessem	1	2	3	4	5
Esta experiência é um prazer para mim	1	2	3	4	5
Encorajarei os meus amigos e familiares a virem a este evento nas próximas edições	1	2	3	4	5

Informação sociodemográfica

1. Género

Feminino		Masculino		Outro	
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2. Idade _____ anos

3. Ocupação

Empregado(a)		Doméstico(a)		Estudante	
Reformado(a)		Desempregado(a)		Outro	Qual? _____

4. Escolaridade

Ensino básico		Ensino secundário		Ensino superior	
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5. País onde reside

Alemanha		Brasil		Portugal		Concelho: _____
Espanha		USA				
França		Outro		Qual? _____		
Reino Unido						

Obrigada pela sua colaboração!

English questionnaire



The CinTurs – University of Algarve (UAlg) and the FMH – University of Lisbon (ULisboa) are carrying out the study “Co-creation of experience in sport tourism events”.

The objective of this investigation is to understand your behaviours, attention, and involvement in the experience of spectating the event and aspects related to the memories provided by the experience. There are no right or wrong answers, and you must answer the questions as honestly as possible.

The questionnaires are anonymous, and all information is confidential. Participation in this study is voluntary. All data is collected only for the purposes of recording and managing the questionnaire, ensuring the confidentiality of its processing and exclusive use by UAlg/ULisboa, which is carried out under the terms and conditions of the Data Protection Policy which is accessible at www.ualg.pt. If you require any additional clarification, please contact us by email at rimartins@ualg.pt.

Information about the experience of spectating the big wave challenge in Nazaré

1. How many times have you spectated the big wave surfing world championship in Nazaré?

First time	<input type="checkbox"/>	Two times	<input type="checkbox"/>	Three or more times	<input type="checkbox"/>
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2. Why did you choose to participate in this particular experience? (You can select several options)

To have fun	<input type="checkbox"/>
To learn new things	<input type="checkbox"/>
To spend time with friends and family	<input type="checkbox"/>
To live a unique and special experience	<input type="checkbox"/>
To celebrate a special event	<input type="checkbox"/>
To experience positive emotions	<input type="checkbox"/>
To give a special experience to friends and family	<input type="checkbox"/>
Other:	<input type="checkbox"/>

3. To what extent do you agree with the following statements regarding the listed aspects of your experience? Please answer in every line (1=totally disagree, 2= disagree, 3= don't disagree nor agree, 4= agree, 5= totally agree)

+					
The experience as a whole will be a lasting memory	1	2	3	4	5
This experience tells a lot about the person I am	1	2	3	4	5
I focused on my own behaviour and interactions	1	2	3	4	5
Gives me pleasure to participate in this experience	1	2	3	4	5
□					

Please answer in every line (1=totally disagree, 2= disagree, 3= don't disagree nor agree, 4= agree, 5= totally agree)

This experience says something about me	1	2	3	4	5
The interaction with nature is something unforgettable	1	2	3	4	5
I have strong images of my behaviour and interactions that will last forever	1	2	3	4	5

My experience was negatively affected by the crowded spectator environment	1	2	3	4	5
I didn't like other spectators making too much noise	1	2	3	4	5
I will recommend this event to other people	1	2	3	4	5
The landscape and the big waves will remain in my memory	1	2	3	4	5

I can describe in detail my sensations and sensory stimuli	1	2	3	4	5
This experience interests me a lot	1	2	3	4	5
I will say positive things about this event to other people	1	2	3	4	5
In this experience I was bothered by the discussion between spectators	1	2	3	4	5

I have been conscious of my emotions and thoughts	1	2	3	4	5
I've completely noticed my sensations and sensory stimuli	1	2	3	4	5
While spectating the event, I didn't like other spectators interrupting me	1	2	3	4	5
This experience is a pleasure for me	1	2	3	4	5
I will encourage friends and relatives to come to future editions of this event	1	2	3	4	5

Socio-demographic information

1. Gender

Female	<input type="checkbox"/>	Male	<input type="checkbox"/>	Other	<input type="checkbox"/>
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2. Age _____ years old

3. Occupation

Employed	<input type="checkbox"/>	Stay-at-home	<input type="checkbox"/>	Student	<input type="checkbox"/>
Retired	<input type="checkbox"/>	Unemployed	<input type="checkbox"/>	Other	<input type="checkbox"/>

Which? _____

4. Level of Education

Basic	<input type="checkbox"/>	High School	<input type="checkbox"/>	Graduated	<input type="checkbox"/>
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5. Country where you live

Germany	<input type="checkbox"/>	Brazil	<input type="checkbox"/>	Portugal	<input type="checkbox"/>	Council: _____
Spain	<input type="checkbox"/>	USA	<input type="checkbox"/>			
France	<input type="checkbox"/>	Other	<input type="checkbox"/>	Which?		_____
United Kingdom	<input type="checkbox"/>					

Thank you for your collaboration!

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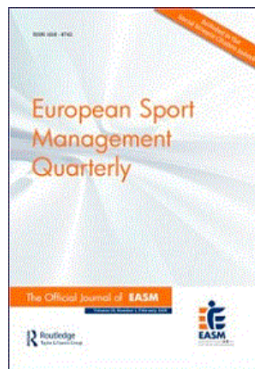
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STATUS	ID	TITLE	CREATED	SUBMITTED
Contact Journal	RESM-2024-0186	Spectator-To-Spectator Value Co-Destruction in Sport Tourism Events: Avoiding A Less Memorable And Recommended Experience	28-May-2024	05-Jun-2024
Submitted		Submitting Author: Martins, Rute		
		View Submission		
		Cover Letter		

Article draft proof

European Sport Management Quarterly



Spectator-To-Spectator Value Co-Destruction in Sport Tourism Events: Avoiding A Less Memorable And Recommended Experience

Journal:	European Sport Management Quarterly
Manuscript ID	Draft
Manuscript Type:	Research Paper
Keywords:	behavioural intentions, customer-dominant logic, memorability, sport tourism experience, value co-destruction

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Spectator-To-Spectator Value Co-Destruction in Sport Tourism Events: Avoiding A Less Memorable And Recommended Experience

Abstract

Research question: On-site tourist experience co-creation enhances memorability and the latter precedes tourists' intention to revisit and recommend the experience/destination to others. However, interaction between tourists is not always perceived as positive, co-destroying experience value. This study examined the influence of experience value co-destruction on sport tourists' future behavioural intentions, considering the mediating effect of attention, involvement, and memorability.

Research methods: Data were gathered from 254 spectators at Tudor Nazaré Tow Surfing Challenge event in Portugal.

Results and Findings: The results showed that value co-destruction during a sport tourism experience negatively influences spectators' attention and involvement, which further impacts their memorability and behavioural intentions.

Implications: Thus, sport event managers should minimize and reverse negative sport tourists' interactions to enhance co-creation. Additionally, leveraging sport subculture and event-generated liminality will be crucial for engaging spectators in co-creating the event atmosphere. This research validated the on-site tourist experience co-creation model to co-destruction and extended it to behavioural intentions.

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3 **Keywords:** behavioural intentions, customer-dominant logic, memorability, sport tourism
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5 experience, value co-destruction.
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8 **Introduction**

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12 The co-creation of positive and memorable tourism experiences enhances tourists'
13 satisfaction, loyalty and recommendation of the experience to others (Carvalho & Alves, 2023;
14 Chen et al., 2024; Hosany et al., 2022). Tourists' active role in the creation of their own
15 experience is associated with the way it is subjectively lived. This involves the occurrence of
16 diverse psychological phenomena during consumption (Campos et al., 2020). Outcomes of the
17 tourist experience are intrinsically linked to learning and new knowledge acquisition about the
18 culture and the environment including activities carried out by tourists during the experience
19 (John & Supramaniam, 2024). From this perspective, for businesses and destinations to
20 enhance experience value for tourists, it is essential to know their desires and preferences, and
21 how they perceive value (John & Supramaniam, 2024; Sthapit et al., 2019).
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36 On-site co-creation of tourism experiences develops through psychological processes
37 and events that arise from carrying out activities and interacting with people in the experience
38 setting (Campos et al., 2016, 2018). Co-creation enhances the memorability of the experience
39 by stimulating higher levels of attention and involvement (Campos et al., 2017), for example,
40 among sport tourists (Mascarenhas et al., 2024). However, interaction processes between
41 participants are not always perceived as positive, co-destroying experience value (Echeverri &
42 Skålén, 2021; Kim et al., 2020). In the tourism context, the topic of value co-destruction has
43 received limited attention in the existing literature (Han et al., 2021), which is not consistent
44 with the recognized significance of addressing the process of experience value formation
45 holistically, taking into account both value co-creation and co-destruction (Echeverri & Skålén,
46 2021; Freire & Veríssimo, 2021; Sthapit et al., 2023).
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4 Destinations develop, facilitate and promote many events to build loyalty and attract
5 new tourists (Ziakas, 2023). Currently, sport events play an important role in the development
6 of destinations, due to the economic and social benefits generated by hosting them (Bazzanella
7 et al., 2023; Duignan, 2023). Concurrently, to achieve long-term benefits, namely, the
8 promotion of destination image, it is important to satisfy tourists by offering a memorable
9 tourism experience during sport events (Jeong, 2023; Zhou et al., 2023), so that they repeat and
10 recommend the experience and/or destination (Mascarenhas et al., 2023).
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21 In sport events, the tourist experience can take place with the tourist (1) actively
22 participating, i.e. as a competitor, or (2) passively participating, i.e. as a spectator (Gibson,
23 2017; Melo et al., 2021). Both value co-creation and co-destruction of the sport tourism
24 experience have been addressed in existing research, focusing on: (i) running event participants
25 and the influence of value co-creation on event recommendation (Chen, 2023; Jiang et al.,
26 2021); (ii) cycling events and impact of participants and spectators co-creation on the
27 memorability of the experience (Mascarenhas et al., 2024); and (iii) golf tournament spectators'
28 co-destruction of value and the negative influence on experience recommendation (Kim et al.,
29 2020). Kim et al.'s (2020) study was framed using the Customer-Dominant Logic (CDL) to
30 measure spectator-to-spectator interaction and showed that the dysfunctional behaviour of
31 other spectators reduced the emotional value of the experience, resulting in a lower intention
32 to recommend the event.
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50 Surf tourism contributes to the economic and social development of coastal destinations
51 that promote it due to its ability to attract surf tourists throughout the year, alleviating the
52 harmful effects of seasonality (Mach & Ponting, 2021; Martin, 2022; Román et al., 2022).
53 Azevedo et al.'s (2023) study on tourism in Nazaré, a coastal village in Portugal famous for its
54 big waves, reveals the growth of the local economy and of tourist flows as a result of the big
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3 wave phenomenon; the authors also highlight the expansion of the high tourism season to the
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5 winter months, when giant waves appear, and the big wave world championship takes place:
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7 Tudor Nazaré Tow Surfing Challenge. Big wave surfing attracts both active and passive sport
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9 tourists to the destination, and the latter can be categorized into passive giant-wave chasers or
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11 spectators with a risk recreation motivation, i.e. “those who enjoy watching others performing
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13 risk recreation activities” (Azevedo, 2023, p. 5). A memorable surf tourism experience triggers
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15 strong emotions that deeply impact long-term memory, and consequently instils in surf tourists
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17 the desire to revisit and recommend the destination (Jeong, 2023).
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23 Given (i) the limited research on co-destruction in the context of tourism (Freire &
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25 Veríssimo, 2021; Sthapit et al., 2023), and on value creation of sport tourism experiences
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27 (Campos et al., 2017; Cordina et al., 2019; Mascarenhas et al., 2024) through CDL (Kim et al.,
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29 2020; Mohammadi et al., 2021); and (ii) the importance of the potential co-destruction of value
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31 in the tourist experience with consequences to behavioural outcomes, such as the intention to
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33 revisit and recommend the event and destination (John & Supramaniam, 2024; Sthapit et al.,
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35 2019), the aim of this study was to examine the influence of experience value co-destruction
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37 on sport event spectators’ future behavioural intentions, considering the mediating effect of
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39 attention, involvement and memorability.
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45 Literature review

46 *Hypothesized model*

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49 The concept of co-creation of the tourism experience has aroused growing interest in
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51 the academia (Carvalho & Alves, 2023; Mohammadi et al., 2021). Evidence of the relationship
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53 between memorable tourism experience, revisit intention and/or recommendation supports the
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55 relevance of understanding the process of creating positive memorable customer experiences
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57 and future behavioural intentions (e.g. Lončarić et al., 2019; Sthapit et al., 2019). However,
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4 existing studies highlight the need to study the opposite spectrum of the co-creation of value
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6 of experience, i.e. co-destruction, which can coexist with co-creation (Echeverri & Skálén,
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8 2021; Sthapit et al., 2023). Thus, knowledge based on a holistic view of the process and results
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10 of value formation in the consumption experience empower organizations to design strategies
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12 with the dual objective of maximizing co-creation and minimizing co-destruction of the
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14 experience (Buhalis et al., 2020; Dolan et al., 2019).
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18 The model proposed by Campos et al. (2017) conceptualized the influence of the co-
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20 creation of the on-site tourist experience on memorability, based on the premise that tourists'
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22 attention and involvement are the mediators of this relationship. Mascarenhas et al. (2024)
23
24 tested and validated this model in the context of active and passive cycling event tourists and
25
26 suggested the integration of the concept of co-destruction for a deeper understanding of value
27
28 creation in sport tourism event experiences. In view of the above, this study adapted the model
29
30 by Campos et al. (2017) to study the relationship between the co-destruction of the on-site
31
32 experience of passive sport tourists, memorability and behavioural intentions (Figure 1).
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38 (Please insert Figure 1 about here)
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40 41 ***Spectator-to-spectator value co-destruction*** 42

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45 According to Service-Dominant Logic (SDL), the value of the experience is co-created
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47 when the consumer is integrated into the value creation process in a collaborative environment
48
49 involving consumers and service providers, in which this value is determined by the consumer
50
51 (Vargo & Lusch, 2008). However, as co-creation is not a unilateral phenomenon, “the decline,
52
53 destruction or diminishment of value can be realized by any of the interacting parts” (Echeverri
54
55 & Skálén, 2021, p. 236), which leads to the co-destruction of value of the experience. In the
56
57 context of tourism, co-destruction of value can happen due to abuse of resources - own or others
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3 - during experience interaction, leading to the reduction or destruction of experience value
4
5 (Guan et al., 2020). While co-creation is associated with increased memorability, satisfaction,
6
7 and intention to recommend and repeat the experience (Carvalho & Alves, 2023; Jiang et al.,
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9 2021; John & Supramaniam, 2024), co-destruction generates the opposite result (Echeverri &
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11 Skálén, 2021; Sthapit et al., 2023).
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16 CDL, moving from a provider-dominant logic (Heinonen et al., 2020), views consumer
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18 value co-creation as an interactive process in the consumption experience centred on the
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20 importance of the social context. CDL is best suited to the study of customer-to-customer
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22 interactions (Buzova et al., 2023, Kim et al., 2020, Rihova et al., 2018). Adopting a CDL
23
24 approach, Rihova et al. (2018) consider that tourists' contribution to co-creation/co-destruction
25
26 occurs through the application of both their operant resources (i.e. skills and knowledge) and
27
28 operand resources (i.e. challenges underlying the tourist context, including the social
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30 challenges of tourist-to-tourist interaction). Tourist-to-tourist interactions are characterized by
31
32 verbal and non-verbal interactions (Lin et al., 2022). In particular, negative tourist-to-tourist
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34 interactions are composed of "physical, non-physical, verbal, or non-verbal encounters
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36 between two or more tourists who find themselves in a co-shared space, which is detrimental
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38 to, at least, one of the actors" (Adam et al., 2020, p. 287).
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46 The increase in tourist flows at the destination in a specific period of time promotes the
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48 sharing of a crowded experience environment, stimulating frequent interactions between
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50 tourists during the consumption of the experience (Han et al., 2021). The attraction of more
51
52 sport tourists to big wave surfing destinations happens more prominently in periods when there
53
54 is greater predictability for the formation of giant waves. These contexts generate implications
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56 for the creation or destruction of the value of the experience, which need to be investigated
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58 (Adam et al., 2020; Adam, 2021; Han et al., 2021).
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During on-site consumption of sport events, co-destruction is the result of interactive and collaborative activities of groups of spectators including the expectations of the individual spectator (Kim et al., 2020; Stieler et al., 2014). Thus, the existence of dysfunctional behaviours during spectators' interaction promotes the destruction of the emotional value of the experience, which is reflected in a decrease in the intention to recommend the sport event (Kim et al., 2020). In addition to the direct tourists' interaction, there is also indirect interaction, meaning that the mere presence of other tourists can affect the perceived value of the experience (Han et al., 2021). Given the potential for indirect interaction to increase or decrease the value of the experience, depending on the perception of value and expectations of each spectator, Stieler et al. (2014) highlight the importance of the event atmosphere co-created by spectators and their interaction.

Attention

Attention is a key concept to understand the consumption of the tourist experience and the processes that lead to psychological and behavioural outcomes, such as memorability and repetition and/or recommendation of the experience (Bagheri et al., 2023; Campos et al., 2020; Skavronskaya et al., 2017). Attention can be addressed by (Oberauer, 2019): (i) its definition, as a resource of limited capacity, or as a mechanism to select and prioritize information; (ii) its focus, distinguishing between external (perceived outer environment) and internal attention (thought episodes and concepts), and (iii) its source of stimuli that determines the attentional efforts (whether it is top-down directed by goal orientation or bottom-up driven by salient stimuli: Campos et al., 2020). In other words, attention is a cognitive state with a dynamic nature and the ability to influence what will be memorized (Campos et al., 2016; Oberauer, 2019; Ooi, 2022). In a tourism context, Ooi (2022) remarks three aspects that should be considered from the perspective of experiences as attention products: (i) attention is focused

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3 on one stimulus at a time and is scarce; (ii) the experience is dependent on the focus of attention,
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5 and when the latter is changed, it becomes dependent on the way this change is perceived; and
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8 (iii) there are internal and external factors that compete for attention and produce stimuli, which
9
10 can be positively or negatively perceived.
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13 Several studies (e.g. Campos et al., 2017, Mascarenhas et al., 2024) have shown that
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15 the co-creation of tourist experiences is reflected in tourists' greater attention to the stimuli
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17 arising from the consumption of the experience. For example, Campos et al. (2020) highlight
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19 that the rarity of the tourist experience and the exciting environment in which it unfolds are
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21 factors that promote the tourist's attention to the experience. These factors are mediated by
22
23 internal elements of the individual, such as the interest towards the experience, the expectation
24
25 of interaction with familiar and unknown stimuli during the experience (i.e. interpersonal
26
27 interaction), and the motivation towards the task performance and goal achievement.
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29 Considering value co-destruction as the process that has an opposite effect to co-creation
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31 (Echeverri & Skålén, 2021; Sthapit et al., 2023), the following hypothesis is proposed:
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37 H1: Co-destruction of value during the sport tourism experience negatively influences
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39 spectators' attention.
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41 42 43 ***Involvement*** 44

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46 In the consumption of on-site experiences, involvement is understood as "personal,
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48 real-time involvement in the consumption of a given experience" (Zatori et al., 2018, p. 112);
49
50 accordingly, involvement is distinct from other concepts, such as enduring (i.e. self-relevance
51
52 of the experience) and situational involvement (i.e. temporary and contextual characteristic of
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54 involvement in the experience). Involvement is reinforced by tourist interaction in the
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3 experience as both mental and physical activation results from it (Campos et al., 2018; Lin et
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5 al., 2022).
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9 Tourists' involvement in the co-creation experience can be understood as a prerequisite,
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11 as tourists co-create the value of the experience by integrating their personal, temporal and
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13 financial resources (Mohammadi et al., 2021; Shoukat & Ramkissoon, 2022). In turn, the
14
15 interaction that occurs between the participants and the environment and the customization of
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17 experience by focusing on tourist empowerment to make choices, increase involvement during
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19 the experience (Zatori et al., 2018) both physically and mentally (Campos et al., 2017). In
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21 addition, as the level of tourist involvement grows, both the influence of the tourist co-creation
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23 experience on loyalty to the service provider (Mathis et al., 2016) and intention to revisit the
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25 destination also increase (Rather et al., 2022).
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30 Consumer involvement is a multidimensional concept, and the examined dimensions in
31
32 the existing tourism literature include interest/pleasure - i.e. the involvement based on the
33
34 centrality of the ego importance and the hedonic value - and sign value - i.e. the involvement
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36 based on the symbolic value allocated by the tourist to the consumption of the experience
37
38 (Prebensen et al., 2013). Both dimensions have been related to the perception and creation of
39
40 value of the experience (Campos et al., 2017). In addition, there is evidence suggesting a
41
42 relationship between value co-destruction and tourists' involvement. For example, Han et al.
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44 (2021) demonstrated that an active involvement of other tourists in the co-creation of an on-
45
46 site experience can co-destruct the experience when the interaction with other tourists is
47
48 perceived as competing for the resources allocated to the consumption of the experience, or
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50 simply disturbing the experience (e.g. crowding and/or noise pollution).
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55 In a sport events setting, co-creation of an on-site experience influences the active
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57 involvement (mental and physical) of sport tourists (Mascarenhas et al., 2024). Active
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59 involvement of spectators in the co-creation of an experience, and particularly in the co-
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4 creation of the spectator-induced atmosphere strengthens the sense of identification with the
5
6 sport subculture underlying the experience (Horbel et al., 2016; Jones & Byon, 2020; Shipway
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8 et al., 2016; Woratschek et al., 2020). However, when spectators are not involved in co-creating
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10 an event atmosphere, or when interactions between spectators are an impediment to the co-
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12 creation of value of an event experience, the perceived value decreases (Stieler et al., 2014).
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14 Accordingly, this study proposes:

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18 H2: Co-destruction of value during the sport tourism experience negatively influences
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20 spectators' involvement.
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23 **Memorability**

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25 Memorability of an experience is related to the individual perception of tourist
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27 experiences as distinct and unique, as well as the vividness (i.e. visual clarity) and emotional
28
29 intensity with which they are remembered after they have occurred (Campos et al., 2017; Kim
30
31 et al., 2022; Sthapit et al., 2019; Wang et al., 2023). In this sense, not all experiences are
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33 memorable as tourists selectively construct their experiences (Oberauer, 2019). According to
34
35 the existing literature, antecedents of the memorable tourist experience include co-creation,
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37 involvement (Hosany et al., 2022; John & Supramaniam, 2024; Kim et al., 2022;
38
39 Rasoolimanesh et al., 2021) and attention during the consumption of the experience (Kuhl &
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41 Chun, 2014; Ooi, 2022; Rasoolimanesh et al., 2021; Skavronskaya et al., 2017). For example,
42
43 the study by Campos et al. (2017) validated the influence of tourists' co-creation, attention and
44
45 involvement on memorability of the tourist experience. Contrarily, Adam et al.'s (2020) study
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47 supported the influence of negative tourist-to-tourist interactions on the lower memorability of
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49 the experience.
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4 In the context of sport tourism, research focusing on memorable tourism experiences is
5 limited (Hosany et al., 2022). For example, Mascarenhas et al. (2024) is one of the few studies
6 examining memorability during an on-site co-creation experience in sport tourism events. This
7 study validated the influence of sport tourists' attention and involvement on the memorability
8 of their experience, resulting from their interest and pleasure in the experience. In view of the
9 above, this study proposes:

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18 H3: Spectators' attention positively influences the memorability of the sport tourism
19 experience.

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23 H4: Spectators' involvement positively influences the memorability of the sport tourism
24 experience.

25 26 27 28 29 ***Behavioural intentions***

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33 Repetition and recommendation of a tourist experience and/or a destination where it is
34 consumed are desired behaviours, and, for this reason, sought after by tourism managers. Given
35 that intention is a proxy of behaviour (Ajzen & Madden, 1986), existing studies have examined
36 the antecedents of behaviour (i.e. intentions) to assess the repetition and/or recommendation of
37 the tourist experience and/or of the destination where it occurs (Chen et al., 2024). Carvalho
38 and Alves (2023), Hosany et al. (2022), John and Supramaniam (2024), Shoukat and
39 Ramkissoon (2022) have argued that revisit and recommend intentions are outcomes of the
40 value of co-creating the tourist experience. For example, Cao et al. (2023) propose that
41 satisfaction with the co-creation of an experience generates positive effects on the intention to
42 revisit a destination through the development of place attachment. In parallel, revisit and
43 recommend as behavioural intentions have also been highlighted as outcomes of a memorable
44 tourism experience (Hosany et al., 2022; Melón et al., 2021; Rasoolimanesh et al., 2021). Zhou
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3 et al. (2023) highlighted the influence of memorability on intentions to recommend and revisit
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5 a destination, taking into account the co-creation of a tourist experience and the positive
6
7 emotions resulting from its consumption.
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11 In terms of sport tourism experiences, some studies support participants' interest in
12
13 getting involved in the co-creation of memorable experiences (Erhardt et al., 2019; Kim &
14
15 Mao, 2021). Additionally, Cordina et al. (2019) support the positive relationship between
16
17 memorable experiences and intentions to repeat and recommend them. In a surf tourism
18
19 experience setting, Jeong (2023) verified the positive effect of memorable tourist experiences
20
21 on greater intention to revisit the destination, either directly or through the positive emotions
22
23 resulting from the experience. Therefore, this study formulates that:
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28 H5: The memorability of the sport tourism experience positively influences spectators'
29
30 behavioural intentions.
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33 34 **Methods**

35 36 *Study setting*

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38 The Tudor Nazaré Tow Surfing Challenge event, one of the two stages of the
39
40 international big wave competition organized by the World Surf League (WSL), takes place in
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42 Praia do Norte, Nazaré, Portugal. Due to several criteria imposed for the organization of the
43
44 event concerning oceanographic and meteorological conditions, the event was held on a single
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46 day, i.e. Monday, January 22, 2024. The first edition of the event was held in 2016, which,
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48 apart from two seasons (i.e. 2020/21 and 2022/23), has continued over the years. Nazaré gained
49
50 media attention in 2011 due to the widespread recording of a giant wave surfed by Garrett
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52 McNamara, providing international recognition for the destination along with the achievement
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54 of several Guinness World Records and WSL awards (Azevedo, 2023). The mystical essence
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3 of Nazaré, as a big wave destination, was even publicized in a HBO documentary “100 Foot
4 Wave”, which was awarded an Emmy in two consecutive years (2022 and 2023). To watch the
5
6 big wave event in Nazaré, spectators must move around the natural amphitheatre provided by
7
8 the promontory that flanks Praia do Norte, providing an experience of contact with the
9
10 surrounding nature and with other spectators.
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14 15 16 *Measures*

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18 The questionnaire used for data collection in this study is adapted from Campos et al.
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20 (2017), subsequently validated for the context of sport tourism events by Mascarenhas et al.
21
22 (2024). In this study, the construct of co-creation was replaced by co-destruction, which
23
24 evaluated the spectator-to-spectator interaction in the experience value formation in sport
25
26 events (Kim et al., 2020). The questionnaire assessed information relating to sport tourism
27
28 experience, integrating questions concerning the constructs: (a) co-destruction: four items
29
30 related to the sport spectator-to-spectator interactions; (b) attention: three items assessing the
31
32 focus on the behavioural and psychological events of the individual; (c) involvement: three
33
34 items for the dimension of pleasure/interest and two items for the *sign value* dimension; (d)
35
36 memorability: five items associated with the vividness and durability of memories; and (e)
37
38 behavioural intentions: three items to measure the intention to repeat the experience and
39
40 recommend it to others. Questions relating to constructs used a five-point Likert-type scale,
41
42 ranging from 1 (strongly disagree) to 5 (strongly agree). In accordance with the procedural
43
44 controls for common method bias, the methodological and psychological separation was taken
45
46 care of (Kock et al., 2021), presenting the items randomly, and separating them to disguise the
47
48 causal relationship between the dependent and independent variables. Finally,
49
50 sociodemographic data were questioned. The questionnaire was delivered to participants in two
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52 versions, English and Portuguese, which were produced with the collaboration of a professional
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54 translator, ensuring its quality (Brislin, 1980).
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Sampling

During the entire time the event occurred, 266 questionnaires were applied to spectators over 18 years old, randomly selected from the public. The questionnaire was applied by a team of collaborators, led by researchers, covering all hosting event zone (HEZ) area, in two ways: paper and pen, and a QR code containing a Microsoft form. Following a brief presentation of the investigation to the respondents, the collaborators provided the necessary time and space for respondents to complete the questionnaire. After eliminating outliers, 254 were used for data analysis. The required sample met the criteria type one ($\alpha = .05$) with a desired statistical power level of .80, medium effect size.

The sample is distributed between national (57%) and international (43%) sport tourists, with the latter coming from 24 countries, mainly Brazil (9%), Germany, Spain and UK (4%, each). The sample (Table 1) is mainly made up of young and adults up to 35 years old, with at university level education and employed. The majority (83.1%) of passive sport tourists were at the event for the first time, motivated by two main reasons: to have fun (61.8%) and to live a unique and special experience (61.4%).

(Please insert Table 1 about here)

Data analysis

Seminr statistical analysis package using R software performed the Partial Least Squares - Structural Equation Modelling (PLS-SEM). This method does not require the assumption of normal distribution, and is “particularly appealing for research in fields that aim to derive recommendations for practice” (Hair et al., 2021, p. 14) due to its causal–predictive orientation. The normality assumption of the data was not met, but the individual variable analysis reported values of skewness lower than 2 and kurtosis lower than 4, indicating non-

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4 severe violations of normality. The detection of multivariate outliers was carried out through
5 Mahalanobis distance (Hair et al., 2022), resulting in the elimination of 12 records.
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9 The outer model assessment included (Hair et al., 2021): (i) indicator reliability
10 (acceptable reliability with indicator loadings >0.708); (ii) internal consistency (good internal
11 consistency with reliability coefficient ρ_A values between 0.70 – 0.90); (iii) convergent
12 validity (with average variance extracted [AVE] ≥ 0.5); and (iv) divergent validity (heterotrait-
13 monotrait ratio [HTMT] of the correlations ≤ 0.90 [Henseler et al., 2015]).
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20 The inner model assessment comprised (Hair et al., 2021): (i) collinearity (variance
21 inflation factor [VIF] ≤ 5); (ii) hypotheses testing, the significance of the direct, indirect and
22 total effects were assessed using the bootstrap resampling method, with 5% significance level;
23
24 (iii) explanatory power (moderate explanatory power with R^2 between 0.5 – 0.7); and (iv)
25 predictive power (out-of-sample endogenous indicators: PLS-SEM root-mean-square error
26 [RMSE] $<$ linear regression model [LM] RMSE).
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35 Results

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37 The outer model presents a good indicator reliability. Values were higher than 0.708 for
38 all items, except for one item related to attention with an indicator loading between 0.4-0.708.
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40 Accordingly, its inclusion in the model is appropriate for the improvement of model validity,
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42 both convergent and divergent (Hair et al., 2021). As seen in table 2, the outer model also
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44 shows good internal consistency, convergent and divergent validity.
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4 The inner model meets the assumptions of the absence of collinearity since the VIF
5 values for all items and constructs ($VIF = [1.157 - 2.169]$) are below 3. The model has a good
6
7 explanatory capacity, explaining 85% and 65% of the variability of endogenous constructs, i.e.
8
9 memorability and behavioural intentions ($R^2_{(MM)} = 0.85$ e $R^2_{(BI)} = 0.65$), respectively. All the
10
11 proposed hypotheses in the study were validated (Figure 2). Co-destruction negatively
12
13 influences: (i) directly, attention and involvement; and (ii) indirectly, memorability and
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15 behavioural intentions of spectators, affecting involvement ($\beta = -0.290$, $p < 0.5$) more than
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17 attention ($\beta = -0.199$, $p < 0.5$).
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24 (Please insert Figure 2 about here)
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29 Compared to attention, involvement has a stronger influence on memorability and
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31 behavioural intentions (Table 3). It is also important to highlight that the relationship between
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33 memorability of the experience and behavioural intentions has a strong coefficient ($\beta = 0.803$,
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35 $p < 0.5$).
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40 (Please insert Table 3 about here)
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46 The results point to a low out-of-sample predictive power of the model, since comparing
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48 the RMSE values with the linear regression model (LM) benchmark of the eight items of the
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50 endogenous response constructs (five memorability items and three items of behavioural
51
52 intentions), only two items are found with RMSE values lower than the LM values (item MM1:
53
54 $RMSE_{(PLS \text{ out-of sample})} = 0.518 < RMSE_{(LM)} = 0.526$; item MM4: $RMSE_{(PLS \text{ out-of sample})} = 0.751 <$
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56 $RMSE_{(LM)} = 0.767$).
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Discussion

The results of this study substantiate the importance of examining value co-destruction in the tourist experience value formation process (Echeverri & Skålén, 2021; Freire & Veríssimo, 2021; Guan et al., 2021; Sthapit et al., 2023) due to its influence in consumption behavior, with impacts on consumer's experience memorability and loyalty (Adam, 2021). The adopted model measured the result of negative spectator-to-spectator interaction in psychological (memorability) and behavioural (repeat and recommend intentions) terms, including the psychological processes underlying this result, i.e. the influence of tourists' attention and involvement.

The results confirm the influence of co-destruction on tourists' lower attention and involvement in an on-site sport event experience, validating H1 and H2, which indirectly implies a decrease in memorability and intention to recommend and repeat the experience. The results also validated H3, H4, and H5, which support existing studies indicating a positive relationship between attention, involvement and memorable on-site tourism experiences (Campos et al., 2017; Mascarenhas et al., 2024), as well as the consequent influence on greater intention to repeat and recommend the experience (Hosany et al., 2022; Melón et al., 2021; Rasoolimanesh et al., 2021). Consequently, this study also substantiates the study of attention and involvement on the topic of co-destruction of the sport tourist experience, deepening the knowledge of memorability antecedents.

CDL was the theoretical framework adopted in the present study to understand customer-to-customer interactions, namely negative spectator-to-spectator interactions. This framework aims to adjust the analytical lens of the experience value formation, realizing that "rather than treating their customers as partial workers or partners in co-creation (a business-to-customer focus in co-creation research), service organizations should strive to find out what customers actually do with the service to accomplish their own goals" (Rihova, 2015, p. 358).

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As performed by Kim et al. (2020), tourists' perception of the dysfunctional behaviour of other spectators served, as a global construct, to measure negative spectator-to-spectator interactions. Findings from Adam et al.'s (2020) study, whose model did not incorporate the constructs of attention and involvement, attested to four sub-dimensions of negative tourist-to-tourist interactions, namely interpersonal directed and non-directed, site-directed interactions, and intrapersonal interactions. In this study, however, only items referring to two of these sub-dimensions were integrated, specifically, one item for interpersonal directed interaction (i.e. "While spectating the event, I didn't like other spectators interrupting me"), and the remaining ones for interpersonal non-directed interaction (e.g. "I didn't like other spectators making too much noise"). The site-directed interaction sub-dimension (which addresses acts of littering and vandalism by other spectators) was not covered by the current study. However, it is acknowledged that in the context of nature-based sport events, such as surfing events, this sub-dimension holds special significance, as this sport subculture is known for being guided by a high respect for nature (Borne, 2018; Wheaton, 2020).

Conceptually, the sub-dimension of co-destruction concerning intrapersonal interaction (Adam et al., 2020), as "hinged on psychological noises that are initiated and contained within oneself but has the tendency to disrupt attention and ultimately result in negative experiences for oneself" (p. 298), is closely related to the attention construct used in this study. Consequently, analysis of intrapersonal interaction included in the construct of co-destruction reinforces the understanding of the relationship between co-destruction and attention, further supporting its inclusion in future applications of the model adopted in this research.

Given the importance of studying the involvement of tourists in the sport tourism experience, considering both the pleasure/interest and the symbolic value allocated to the experience (Mascarenhas et al., 2024), this study validated the significance of both sub-dimensions in the study of the experience value formation. In particular, the co-destruction of

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3 the experience value was associated with a lower involvement of sport tourists, both in terms
4 of interest/pleasure and the symbolic value of the experience. Consequently, the specificity of
5 the sport event context is here seen in the association of the hedonic dimension (e.g. (Hallmann
6 et al., 2021; Jones & Byon, 2020) and the identification with the sport subculture (Erhardt et
7 al., 2019; Kim & Mao, 2021) to the sport tourism experience. This relationship can be further
8 explored through the concept of liminality (Duignan et al., 2020), which applies to extreme
9 nature-based sport events, as in the case of big wave events. From this perspective, the
10 liminality generated by the event involves its participants (active and passive, i.e. competitors
11 and spectators, respectively) in a celebratory atmosphere and rituals of exceedance,
12 strengthening a sense of *communitas*, sometimes temporary, in a distinct environment of
13 everyday life (Duignan et al., 2020; Han et al., 2021; Rihova et al., 2015, 2018).

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Compared to attention, this study found that tourist involvement has a greater impact on experience memorability, corroborating the findings from Mascarenhas et al. (2024), which were also verified in the context of sport tourism events, and thus also in behavioural intentions. This result corroborates prior evidence attesting to the significance of involvement of tourists in nature-based experiences (including hedonism), performing as the dimension with the most potential to distinguish a memorable experience from a mere ordinary experience (Bigne et al., 2020).

The expansion of the model proposed by Campos et al. (2017) to the dimension of behavioural intention provided an instrumental view of the co-destruction of the experience, reflecting the implications for spectator loyalty. In regular sport events (as in this study), it is not enough to attract new spectators (the majority of the sample in this study), but it is essential to promote the repetition of the experience. Other studies (e.g. Rather et al., 2022) have revealed that tourists who repeat the experience are those who: (i) most invest in co-creation and most intend to revisit the destination; (ii) exhibit greater sensitivity to negative interactions

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3 between tourists, evaluating the quality of the experience more negatively; and (iii) better
4 evaluate the experience if they perceive positive tourist-to-tourist interactions (Luo et al.,
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10 ***Theoretical implications***

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12 This study further sustains the application of the on-site tourist experience co-creation
13 model (Campos et al., 2017) to the study of value co-destruction, validating the direct influence
14 of co-destruction on attention and involvement and, indirectly, on memorability and
15 behavioural intentions. Results highlight the adaptability of the model to both the study of co-
16 creation and co-destruction. Consequently, this study confirms the model as an important
17 instrument for investigating co-creation and co-destruction simultaneously, allowing the
18 understanding of the dynamics generated between them (Echeverri & Skålén, 2021; Lumivalo
19 et al., 2024).
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31 This study expanded the proposed model from Campos et al. (2017), and later validated
32 by Mascarenhas et al. (2024) for the sport event context, encompassing the intention to repeat
33 and recommend an experience as behavioural outcomes of an on-site tourist experience value
34 formation. Given the explanatory quality of the model, it is possible to infer that the respective
35 theoretical conceptualization is valid for studying the entire process that is generated from the
36 value formation to behavioural intentions. Following this reasoning, the application of the
37 extended version of the model should be strengthened, replicating it in other contexts of sport
38 tourism events, and measuring the co-destruction and co-creation, simultaneously.
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50 ***Managerial implications***

51 To enhance the memorability of the experience and the intention to repeat/recommend
52 it, managers of sport tourism events must prepare “the stage for the experience, and facilitate
53 the experience, rather than control the experience” (Erhardt et al., 2019, p. 4206), which is in
54 line with CDL assumptions (Heinonen & Strandvik, 2020; Rihova et al., 2018). Facilitating the
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3 co-creation of the sport tourism experience implies minimizing negative spectator-to-spectator
4 interactions, prioritizing greater involvement of spectators with the experience and with the
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co-creation of the sport tourism experience implies minimizing negative spectator-to-spectator interactions, prioritizing greater involvement of spectators with the experience and with the spectator induced atmosphere, in congruence with the symbolism of the sport subculture, spirit of celebration and the rituals of nature-based sports. For example, given the knowledge about the influence of co-destruction arising from negative interactions between spectators (Adam, 2021), to avoid less memorable and recommended sport touristic experiences, sport event managers should invest in promoting a spectator code of conduct through educational campaigns that disseminate good practices for interactions between spectators (Guan et al., 2021).

Limitations and future research

All proposed hypotheses were validated, and the adopted model allows the phenomenon under study to be explained very satisfactorily (Hair et al., 2021), in particular concerning experience memorability (85%) and behavioural intentions (65%). However, its low predictive power suggests fine-tuning the items used to measure the constructs. This result converges with the need to attend to the specificity of the context underlying the experience value formation, as indicated by other authors (Adam et al., 2020; Horbel et al., 2016), in this case, nature-based sport tourism event experience. To this end, in future research, the measurement of co-destruction must integrate the sub-dimensions argued by Adam et al. (2020), i.e. interpersonal directed and non-directed, site-directed and intrapersonal interactions, as well as ensuring the measurement of the influence of verbal and non-verbal interactions (Lin et al., 2022) appropriate to the specific context of the sport event. In particular, in the specific context of nature-based events, the integration of the site-directed negative interactions sub-dimension could also add knowledge to the scarce existing literature on environmental themes from the perspective of spectators (Martins et al., 2021; Mascarenhas et al., 2021).

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This research was limited to the study of co-destruction of the experience of sport tourism events from the perspective of spectators. Future studies should examine both co-creation and co-destruction to gain a holistic understanding of the phenomenon, as argued by Echeverri and Skálén (2021) and Sthapit et al. (2023).

Conclusion

This study highlights the importance of co-destruction in on-site tourism experience value formation, and more specifically, spectators' sport tourism event experience. The little research dedicated to the formation of the value of the experience consumed on-site, and especially in conjunction with co-destruction, highlights the importance of the contribution of this study to the deepening of scientific knowledge on this topic. This contribution is even greater due to the instrumental value of this study's results for the management of sport tourism in destinations, examining the antecedents of spectators' intentions to recommend and repeat the experience of sport tourism events.

Framed by CDL and the conceptualization of the co-creation of on-site experiences, this study supports the effect of negative interactions between spectators on their lower attention and involvement, as well as their lower memorability and behavioural intentions. Therefore, it is crucial to minimize negative interactions, and ideally, reverse them in order to facilitate the co-creation of the experience.

The greater influence of spectator involvement on the memorability of the experience, compared to attention, suggests the prioritization of interest/pleasure and symbolic value allocated by the tourist in the design of strategies to maximize co-creation and minimize co-destruction. Furthermore, the sport subculture and the liminality generated by the event must be leveraged in the involvement of tourists in creating the event's atmosphere.

In summary, this study is a pioneer in the application of the on-site tourist experience co-creation model to the study of co-destruction and its extension to behavioural intentions.

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3 Additionally, this study provides further insights into the phenomenon of value formation in
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5 the tourist experience, noting the need for more research into the issues underlying the
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7 relationship between co-destruction and co-creation.
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For Peer Review Only

Table 1*Sociodemographic and sport tourist experience characteristics*

<i>Sociodemographic</i>	Total	
	(n)	(%)
Gender		
Male	138	54.3
Female	115	45.3
Other	1	0.4
Age		
18-25	81	31.9
26-35	93	36.6
36-45	36	14.2
46-55	24	9.4
>=56	20	7.9
Education Level		
Basic	3	1.2
High school	66	26.0
University	185	72.8
Occupation		
Employed	153	60.2
Student	66	26.0
Retired	17	6.7
Unemployed	15	5.9
Stay-at-home	3	1.2
<i>Sport tourist experience</i>		
Attendance frequency		
First time	211	83.1
Two times	24	9.4
Three or more times	19	7.5
Motive		
To have fun	157	61.8
To live a unique and special experience	156	61.4
To spend time with friends and family	108	42.5
To experience positive emotions	97	38.2
To celebrate a special event	61	24.0
To give a special experience to friends and family	53	20.9
To learn new things	45	17.7
Others	12	4.7

Table 2*Outer model*

Constructs	Loadings	rho_A	AVE		
Co-destruction (CD)		0.90	0.63		
CD1. I didn't like other spectators making too much noise.	0.89				
CD2. My experience was negatively affected by the crowded spectator environment.	0.81				
CD3. While spectating the event, I didn't like other spectators interrupting me.	0.74				
CD4. In this experience I was bothered by the discussion between spectators.	0.73				
Attention (ATT)		0.78	0.61		
ATT1. I focused on my own behavior and interactions.	0.54				
ATT2. I've completely noticed my sensations and sensory stimuli.	0.87				
ATT3. I have been conscious of my emotions and thoughts.	0.89				
Involvement (INV)		0.83	0.58		
Involvement (pleasure/interest)					
INV1. Gives me pleasure to participate in this experience.	0.78				
INV2. This experience is a pleasure for me.	0.78				
INV3. This experience interests me a lot.	0.79				
Involvement (sign value)					
INV4. This experience tells a lot about the person I am.	0.71				
INV5. This experience says something about me.	0.73				
Memorability (MM)		0.80	0.56		
MM1. The interaction with nature is something unforgettable.	0.76				
MM2. I have strong images of my behavior and interactions that will last forever.	0.70				
MM3. The landscape and the big waves will remain in my memory.	0.77				
MM4. I can describe in detail my sensations and sensory stimuli.	0.75				
MM5. The experience as a whole will be a lasting memory.	0.75				
Behavioral intentions (BI)		0.77	0.69		
BI1. I will recommend this event to other people.	0.86				
BI2. I will say positive things about this event to other people.	0.80				
BI3. I will encourage friends and relatives to come to future editions of this event.	0.83				
HTMT					
	CD	ATT	INV	MM	BI
CD	-				
ATT	0.21	-			
INV	0.28	0.69	-		
MM	0.18	0.82	0.87	-	
BI	0.42	0.56	0.87	0.80	-

Table 3*Inner model*

Hypotheses	β	Bootstrap		t-value	Confidence Interval		Decision
		Mean	SD		2.5%	97.5%	
H1: Co-destruction Attention	-0.199	-0.176	0.068	-2.940	-0.306	-0.049	Supported
H2: Co-destruction Involvement	-0.290	-0.259	0.076	-3.838	-0.390	-0.130	Supported
H3: Attention Memorability	0.392	0.350	0.061	6.472	0.237	0.469	Supported
H4: Involvement Memorability	0.617	0.532	0.056	10.985	0.424	0.637	Supported
H5: Memorability Behavioral intentions	0.803	0.639	0.050	16.024	0.534	0.730	Supported
Total paths							
Co-destruction Memorability	-0.257	-0.199	0.058	-4.410	-0.305	-0.105	
Co-destruction Behavioral intentions	-0.206	-0.128	0.041	-5.029	-0.206	-0.065	
Attention Behavioral intentions	0.315	0.223	0.040	7.915	0.151	0.305	
Involvement Behavioral intentions	0.495	0.341	0.050	9.855	0.243	0.436	

Note. SD – Standard Deviation.

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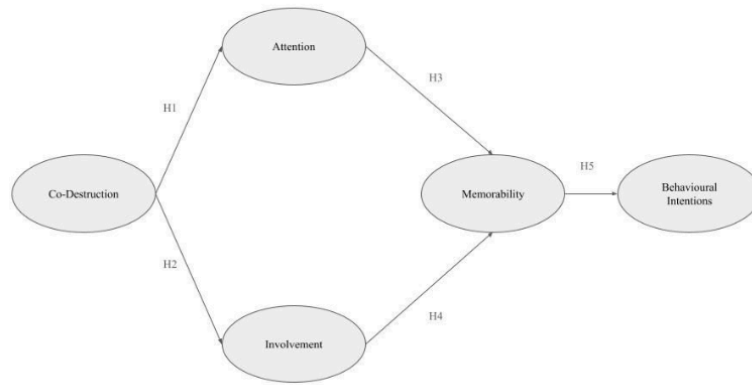


Figure 1. Hypothesized model

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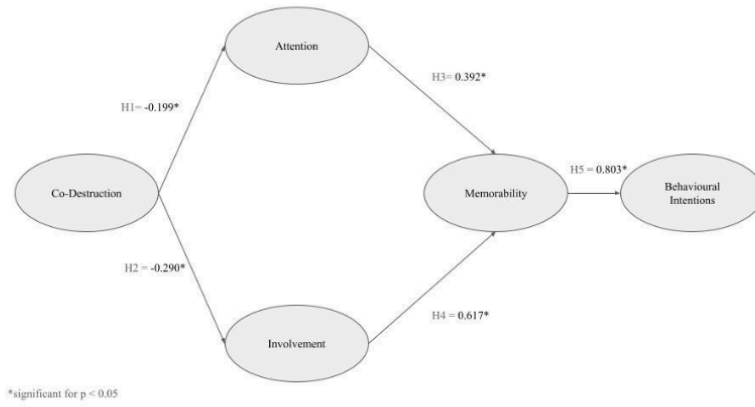


Figure 2. Path coefficients of the hypothesized model.

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The CinTurs – University of Algarve (UAAlg) and the FMH – University of Lisbon (ULisboa) are carrying out the study “Co-creation of experience in sport tourism events”.

The objective of this investigation is to understand your behaviours, attention, and involvement in the experience of spectating the event and aspects related to the memories provided by the experience. There are no right or wrong answers, and you must answer the questions as honestly as possible.

The questionnaires are anonymous, and all information is confidential. Participation in this study is voluntary. All data is collected only for the purposes of recording and managing the questionnaire, ensuring the confidentiality of its processing and exclusive use by UAAlg/ULisboa, which is carried out under the terms and conditions of the Data Protection Policy which is accessible at www.ualg.pt. If you require any additional clarification, please contact us by email at rimartins@ualg.pt.

Information about the experience of spectating the big wave challenge in Nazaré

1. How many times have you spectated the big wave surfing world championship in Nazaré?

First time	<input type="checkbox"/>	Two times	<input type="checkbox"/>	Three or more times	<input type="checkbox"/>
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2. Why did you choose to participate in this particular experience? (You can select several options)

To have fun	<input type="checkbox"/>
To learn new things	<input type="checkbox"/>
To spend time with friends and family	<input type="checkbox"/>
To live a unique and special experience	<input type="checkbox"/>
To celebrate a special event	<input type="checkbox"/>
To experience positive emotions	<input type="checkbox"/>
To give a special experience to friends and family	<input type="checkbox"/>
Other:	<input type="checkbox"/>

3. To what extent do you agree with the following statements regarding the listed aspects of your experience? Please answer in every line (1=totally disagree, 2= disagree, 3= don't disagree nor agree, 4= agree, 5= totally agree)

The experience as a whole will be a lasting memory	1	2	3	4	5
This experience tells a lot about the person I am	1	2	3	4	5
I focused on my own behaviour and interactions	1	2	3	4	5
Gives me pleasure to participate in this experience	1	2	3	4	5

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Please answer in every line (1=totally disagree, 2= disagree, 3= don't disagree nor agree, 4= agree, 5= totally agree)

This experience says something about me	1	2	3	4	5
The interaction with nature is something unforgettable	1	2	3	4	5
I have strong images of my behaviour and interactions that will last forever	1	2	3	4	5

My experience was negatively affected by the crowded spectator environment	1	2	3	4	5
I didn't like other spectators making too much noise	1	2	3	4	5
I will recommend this event to other people	1	2	3	4	5
The landscape and the big waves will remain in my memory	1	2	3	4	5

I can describe in detail my sensations and sensory stimuli	1	2	3	4	5
This experience interests me a lot	1	2	3	4	5
I will say positive things about this event to other people	1	2	3	4	5
In this experience I was bothered by the discussion between spectators	1	2	3	4	5

I have been conscious of my emotions and thoughts	1	2	3	4	5
I've completely noticed my sensations and sensory stimuli	1	2	3	4	5
While spectating the event, I didn't like other spectators interrupting me	1	2	3	4	5
This experience is a pleasure for me	1	2	3	4	5
I will encourage friends and relatives to come to future editions of this event	1	2	3	4	5

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Socio-demographic information

1. Gender

Female		Male		Other	
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2. Age _____ years old

3. Occupation

Employed		Stay-at-home		Student	
Retired		Unemployed		Other	Which? _____

4. Level of Education

Basic		High School		Graduated	
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5. Country where you live

Germany		Brazil		Portugal	Council: _____
Spain		USA		Other	Which? _____
France					
United Kingdom					

Thank you for your collaboration!