

Article

Interlinkage of Perceived Ecotourism Design Affordance, Perceived Value of Destination Experiences, Destination Reputation, and Loyalty

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Abstract: The aim of this study is to analyse the relationships between the perceived ecotourism design affordances (PEDA), perceived value of destination experience (PERVAL), destination reputation, and destination loyalty among the tourists visiting Langkawi Island, Malaysia. It extends the affordance theory through the lens of Gestalt theory and ecological dynamics in understanding the interactions between tourists and products derived from their ecotourism environment. A quantitative approach was utilised, in which a structured questionnaire was used to collect 280 tourist responses through purposive sampling. Utilising partial least square-structural equation modelling (PLS-SEM) to test the research hypotheses, it is reported that PEDA significantly impacts PERVAL, where the latter subsequently impacts both destination reputation and loyalty. This illustrates the mediating impacts of PERVAL on the relationship between PEDA and destination reputation and destination loyalty. Another result revealed that destination reputation has a significant effect on destination loyalty. The findings address the gap in the tourism literature centered on the dynamics of product design and its subsequent value in shaping positive ecotourism destination reputation and loyalty. Such insights also emphasise the necessity for tourism stakeholders to generate values from coherent ecotourism product design through the affordance perspective.

Keywords: ecotourism; perceived ecotourism design affordance; perceived value of destination experience; destination reputation; destination loyalty



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1. Introduction

Tourism is frequently recognised in the economic context where uncertainty emerges regarding its rapid development, which can be destructive to nature. Tourism development significantly adds to resource exhaustion and global change, as the sector has the potential to give rise to colossal environmental disruption, from the manufacturing phase to its everyday operations [1]. These unsustainable impacts have motivated a change in tourism operations toward a focus on sustainability through better control and management of the natural resources and landscapes on which the sector is heavily reliant [2]. Hence, it is crucial for tourism managers to take the approach of sustainable tourism, since it aims to improve past tourism development models by attaining sustainable ecology, feasible economy, and cultural and ethical sensibility [3,4]. This approach is crucial for tourism managers, as it is universally acknowledged as an aspiration for all forms of tourism to be sustainable for the foreseeable future [5].

On this basis, ecotourism is one of the tourism models that is in line with sustainable tourism, since it involves conserving the destination's environment while allowing tourists to appreciate the natural surroundings, obtain knowledge about wildlife, and relish native cultures in original settings [6]. Deemed the descriptor of a panacea that is capable of balancing economic development, environmental conservation, and community well-being,

ecotourism is considered the most unifying alternative strategy [3]. This can be viewed in how ecotourism is defined as a responsible visit to natural sites that safeguard the ecosystem, encourage the locals' welfare, and includes understanding and learning [7]. In line with this conception, ecotourism is appraised as one of the formulae for nature conservation, economic progress, and societal livelihood development [8–10]. This paradigm has motivated us to analyse the importance of operating ecotourism destinations on the basis of fulfilling long-term needs and creating high value-added economic returns within the parameter of environmental friendliness and sustainability.

Ecotourism is important, as increased tourist activity with nature necessitates synergistic functionality of protection and visitation to manage the potential destination's ecological integrity for present and future generations [11,12]. Therefore, understanding tourist behaviour that is beneficial to environmental and destination performance is considered crucial for the sustainable and successful management of ecotourism destinations (see [13,14]). Since ecotourism's benefits depend on human activity, it is asserted that the investigation of factors that focus exclusively on explanations of human behaviour through personality psychology is limited [15]. This limitation is attributed to the absence of an environmental role guiding certain behaviours of individual traits [16].

For this reason, the affordances theory is considered a dynamic, modern, and practical insight into understanding the tourist's psychological behaviour [11,17]. The idea of affordances was initially obtained from ecological psychology to explain how the characteristics of an environment or object can be utilised to aid the actions of individuals [18]. It captures the interaction based on the dynamic tourist environment as the unit of investigation [15,16]. When operationalising the theory in the context of ecotourism through the perspectives of ecological dynamics (ED) and Gestalt theory, it is postulated that what the natural environment of the destination can offer in the shape of products and services should guide or govern the actions of tourists [13,16]. Therefore, tourists' perception is crucial since the affordances perceived by a person influence how they communicate with their surroundings to achieve their purpose [19]. In other words, affordances can be considered a necessary prerequisite for a tourist behaviour. This dynamic explains the need for tourism providers to design ecotourism products and services that offer possibilities for tourists to behave to the benefit of the providers [16,20].

From the perspective of the tourists, their interactions with those products and services will shape their ecotourism experiences and evaluations [21]. This process depends on how valuable the ecotourism products and services are perceived as being (see [22]). Hence, holistic evaluation of the product or service received from their surrounding is based on perceptions of what is gained and given regarding the perceived value of the ecotourism destination [23]. Subsequently, such perception is formed based on the overall satisfaction and quality, which serves to shape destination loyalty and reputation in the minds of the tourists and other respondents in various contexts of general and business management sectors (see [24–27]). In tourism, reputation is commonly operationalised as destination reputation and can be defined as tourists' mutual perception based on the evaluation of the social, financial, and environmental payoffs assigned to the destinations over time [28,29].

A favourable reputation is one of a destination's most substantial impalpable strengths, helping to guarantee its sustainable progress and supplementing its capacities to captivate inward investment [30]. This demonstrates that destination reputation directly influences tourist confidence in a destination and consequentially, their loyalty [31,32]. As tourists are guided by the perceived affordances developed by the disparate arrangement and display of their surrounding products and services, it is posited that this will lead to their positive reputation and loyalty to the ecotourism destination (see [13,29,33,34]). The framing of these interrelationships reflects the aim of this study, which is to analyse the role of perceived value of destination experiences (PERVAL) as a crucial mediator in explaining the influence of perceived ecotourism design affordances (PEDA) on the destination reputation and loyalty among the tourists of Langkawi Island, Malaysia. Notably, the theories of affordances, ecological dynamics, (ED) and Gestalt framed the unified interrelationships

between perceived ecotourism design affordances (PEDA), perceived value of destination experience (PERVAL), destination reputation, and loyalty.

To the best of our knowledge, there is yet to be any study that explores the theoretical and conceptual frameworks encapsulating the theories in evaluating the interrelationship between the concerned variables in the context of the ecotourism realm. In fact, a review of the body of knowledge revealed that a research call has been made for more studies on affordances, given its significance and practicality in tourism analysis [17]. Recent literature also indicates that there is not yet sufficient knowledge on affordance in ecotourism to be synthesised by industry practitioners, policymakers, and researchers (see [13]). In fact, the larger part of affordance studies in tourism are mostly conducted in the realm of technology and social media [35,36]. Furthermore, the inclusion of PERVAL and destination reputation adds novelty to the current study, as tourism studies have primarily focused on tourism image, rather than on the rarely researched latter construct [29].

Based on this premise, the current study filled the knowledge gap by extending the theory of affordances through the lenses of ED and Gestalt theory to describe the interrelationships of the discussed variables. Specifically, the study suggested and investigated an integrated conceptual model that identifies the mediating influences of PERVAL on the relationship between PEDA, destination reputation, and destination loyalty among tourists of Langkawi Island, Malaysia. Langkawi Island is selected as the research setting, considering its reputation as a UNESCO Geopark, consisting of 99 islands of the archipelago, with three chosen geoforest parks, and a recently chosen bio-geotrail [37]. The essence of Langkawi Island necessitates a the use of time, capital, and management in the sustainable progress of the location. Therefore, the findings obtained from the analysis of the interconnection among all constructs in the current research would assist in forming the ecotourism directions and strategies for Langkawi Island.

In terms of the paper's structure, the next section includes the literature review, followed by an explanation on the formulation of the theoretical and conceptual frameworks and methods. Partial least square structural equation modelling (PLS-SEM) is employed in this study to test the research hypotheses and confirm the interrelationships between the research constructs. Finally, the results and a discussion are elucidated, and the paper concludes with a section regarding the theoretical and managerial implications of the research.

2. Theoretical Background, Research Hypotheses, and Model

This research extends the theory of affordances through the ED and Gestalt viewpoints to underpin the interconnections between PEDA, PERVAL, destination reputation, and destination loyalty. The affordances theory depicts the idea of "opportunities for action" as understood by a subject in its environment. Affordances occur when the characteristics of ecotourism products connect with a tourist's capacity (see [16,35]). Regarding ED, it is a theoretical framework that aims to comprehend tourist behaviour, such as learning and performance at the individual-environmental level of inquiry, as they communicate to shape the individual-environmental structure [38]. From an ED approach, tourists are considered as tangled flexible structures, pursuing possibilities for action (affordances) from the ecotourism products [39]. In this study, ED is considered suitable for expanding the affordance theory since it is based on a dynamic and equitable relationship between the tourist, environment, and activity [38]. Through the lens of ED, affordances encapsulate the possibilities for action derived from the environment (e.g., climbable or trekking features, shelter opportunities) that can be potentially captured or actualised by a tourist with relevant capacities, skills, and capabilities [16].

From this, it is crucial that the design of the products offered within the ecotourism environment be made easily understood and apparent to the tourists. This is where the Gestalt theory is used to explain the encounter between a tourist and an ecotourism product, since the concept of affordances and ED is derived from the ecological psychology of perception [40]. This presumption originated from numerous scholars' considerations of

affordances as properties of the connection between instruments and objects, describing them as possibilities for action [41]. The action is what we posited as the outcome of the human visual perception of ecotourism products. It is based on the tenet of Gestalt psychology, which is centered on the theory that ‘the whole is greater than the sum of the parts’ [42,43]. Deemed as the precursor to Gestalt theory, the tenet explains that rather than perceiving the ecotourism product as its separate constitutive elements (the parts), the tourists perceive the product as a whole form. This suggests that the holistic perception of an ecotourism product is fundamental in this study, binding all these theories together as a tourist accepts, chooses, arranges, and understands information according to the numerous encounters with the destination. Within this process, tourists will construct a significant impression of the value destination experience and destination reputation at cognitive stage, which eventually leads to the behavioural outcome in the form of destination loyalty.

2.1. Perceived Ecotourism Design Affordances and Perceived Value of Destination Experiences

The original conceptualisation of affordances cites the method of utilising an object as perceived by the user. This was later revised to the idea of perceived design affordances, an idea that accentuates the facility of the uptake of products and their uses [44]. Considering that affordance exists naturally, designers try to include the elements of product designation, which reflect perceived affordances [16,44]. Some scholars effectively applied the concept to the design field and attempted to differentiate between real and perceived affordance [45]. Design affordances—how these conversational platforms are constructed and the rules that regulate them—play an important part in forming tourists’ social behaviour and can encourage the development of biases. For example, the existence or exclusion of particular characteristics found in ecotourism products can drive and indirectly influence tourists to assume a particular behaviour over another [46].

The combination of design affordances, various environmental and socio-cultural elements, and individual properties can influence the magnitude of the individual–environment relationships [47]. Therefore, perceived ecotourism product design dimensionality, based on cognitive and contextual conceptions from a tourist’s viewpoint, must to be integrated to provide an expanded and enriched theoretical conceptualisation of PEDA. For this reason, the social/symbolic and functional/aesthetic components are considered in this research to reflect the perceived product design affordances in the ecotourism context [44]. The social/symbolic component refers to the user-centered design, which conveys to the tourist what the product design permits them to do, allowing them to express and define themselves [48]. As for the functional/aesthetic component, it comprises the form and function of the product.

Both components are crucial for tourism managers as they formulate products based on deeper insights into the way tourists experience and evaluate the success and failure of their designs [49,50]. Within this process, tourists perceive the different visible features or usability of the product, which will communicate their meaning or sign value in their minds (see [44]). For this reason, the matching perceptions of the values generated from the uptake of the product by the tourist can lead to significant interaction with the tourism managers, while reducing the possibilities of diminishing values (see [51]). Conceivably, individuals will be steered away from consuming or using a product if the anticipated values are less, irrespective of any other factors [52]. Reviewing past literature, little research has been done in the realm of tourism—or other fields of study—regarding the relationship between affordance and perceived value. The few existing studies on this relationship are mainly conducted in the context of technology.

For instance, Cheng et al. [53] focused on the affordances and constraints regarding the use of the travel-related WeChat mini-programs mobile app in China and analysed their impacts on the perceived value. Through structural equation modelling, they revealed that affordance derived from the mobile app significantly impacts the perceived value. Albeit in a different context, similar results can also be found in the study by Wen et al. [52], where there is a significant relationship between the affordances of open-access data

repositories and perceived value. They assessed this relationship through PLS-SEM, due to the suitability of the method, to test a model that contains both formative and reflective constructs. The following hypotheses are constructed based on the above discussion and past findings.

Hypothesis 1 (H1). *PEDA positively impacts PERVAL.*

2.2. Perceived Value of Destination Experiences, Destination Reputation, and Destination Loyalty

According to Jeong and Kim [54], the values that a tourist recognises are currently the focus of interest for tourism players because the competitive advantage of a location stems from the capacity to construct and deliver the main values of a destination. To assess the perceived value, scholars have measured the construct as a unidimensional and multidimensional model. Emulating Sweeney and Soutar's [55] scale-development study, perceived value is usually conceived through various elements, including utility, quality, price, and emotional and social impact [56]. Previous studies have adopted various perceived value dimensions to fit their respective research context (see [57–59]). The adoption of various combinations of perceived value dimensions stems from the concept's nature. Every single product or service represents different and independent values and may influence experience-dependent consumption in any given situation [60,61]. Based on this premise, functional and epistemic values are considered suitable, as this study revolved around the cognitive capabilities of tourists to perceive and actualise an array of affordances derived from the ecotourism products (see [16]).

Epistemic value is deemed crucial among ecotourists [62], as it represents consumers' desire to experience novelty and explore new ideas, knowledge, and innovation. This is attributed to the basic motivations of tourists to seek novelty in the shape of escape and thrill, which can be found in the context of adventure or ecotourism [16,57,62]. As for functional value, the dimension is chosen due to its representation of the perceived destination's ability to provide tourism attractions and infrastructure [63]. Hypothetically, both dimensions reflect the rational and sensible outcome of how tourists perceived and actualised possibilities for action in the context of ecotourism. Suppose the perceived value resulting from such action is positive. In that case, it is posited that it is based on a good destination reputation, which is a crucial factor for competitiveness in the tourism industry [29,64]. Albeit in different contexts, this dynamic can also be observed in organisational settings, where service providers can improve their competitiveness through a good organisational reputation, which subsequently increases the organisation's overall value [65]. This is due to the nature of the reputation, which encompasses the overall subjective evaluation of the value centered on quality, characteristics, or competence [24,65,66]. Importantly, the reputation will also influence the customers' behavioural intentions and illustrate their perspectives on the service quality [67]. Since destination loyalty is a form of tourist behavioural intention, scholars have suggested that perceived value is one of its positive and significant antecedents [68,69].

Several past studies have addressed the interrelationship between perceived value, destination reputation, and destination loyalty. For instance, Mayr and Zins [25] compare different conceptual approaches for measuring perceived value in the airline industry and reported that the impacts of the construct on reputation was among the strongest indicators. In the same vein, perceived value is found to significantly impact destination loyalty among sports tourists [70]. Interestingly, a similar pattern of results was also reported in another study regarding the impact of destination reputation on destination loyalty [71]. These studies clearly indicate that tourists' perceived value of a destination has a great impact on them, and this perceived value can collectively contribute to shaping the reputation of a particular destination, leading to destination loyalty. On this basis, the subsequent hypothesis has been formulated.

Hypothesis 2a (H2a). *PERVAL positively impacts destination reputation.*

Hypothesis 2b (H2b). *PERVAL positively impacts destination loyalty.*

Hypothesis 3 (H3). *Destination reputation positively influences destination loyalty.*

2.3. Mediating Effect of Perceived Value of Destination Experiences on Perceived Ecotourism Design Affordances, Destination Reputation, and Destination Loyalty

This study focused on the perceived affordances derived from the design of the products offered in the ecotourism context. Within the management literature, empirical evidence suggests significant impacts of various design dimensions on performance-based variables, namely customer purchase intention and market share [44,48,72]. In this study, destination reputation and destination loyalty are performance-based outcomes, given their standing as a more solid measurement of performance than images or brands, from a tourist's viewpoint [73]. This is because a positive reputation can significantly affect the depiction of the destination, perception of value, and the tourists' loyalty regarding the destination, eventually influencing their satisfaction [28].

Destination reputation can be defined as the people's and stakeholders' assessment of the destination, established from their own understanding of the destination and/or gathered from numerous sources, along with word-of-mouth and digital, print, and broadcast media [30]. Furthermore, destination reputation allows tourists to differentiate those high-quality destinations from their comparatively inadequate competition [29]. Contrastingly, destination loyalty incorporates a viewpoint that designates tourists' long-term revisiting behaviour towards a destination, associated with their past travel experience at the same destination [74]. In this sense, travel destinations can be regarded as products, and tourists may return to, or advocate travel destinations to other possible tourists, such as relatives or friends [75].

Therefore, it can be postulated that affordances derived from good product design may influence destination reputation and loyalty. The operationalisation of affordances can further support this through a three-phase process, as suggested by Wen et al. [52]. The first phase looks at how people realise what possibilities can be actualised from a product. This is a cognitive process. The second phase is a recognition phase, in which people internally assess the affordances and its associated values. Lastly, the third phase is centered on the actions taken to actualise the affordance and its subsequent perceived value. Accordingly, the consideration of this three-phase process and the preceding discussions have called forth the potential mediating role of PERVAL in the relationship between PEDDA, destination reputation, and destination loyalty. This conclusion is formulated based on the discussion on antecedent of perceived value in the shape of PEDDA. In the same vein, PEDDA is also posited to influence both destination reputation and destination loyalty. This is also the case for PERVAL, where the above discussion addresses its impact on destination reputation and destination loyalty. Given the overall dynamics of the constructs, the following hypotheses are proposed.

Hypothesis 4a (H4a). *PERVAL positively mediates the relationship between PEDDA and destination reputation.*

Hypothesis 4b (H4b). *PERVAL positively mediates the relationship between PEDDA and destination loyalty.*

Figure 1 illustrates the research framework and hypothesis. It analyses the mediating role of PERVAL in the relationship between PEDDA, destination reputation, and destination loyalty.

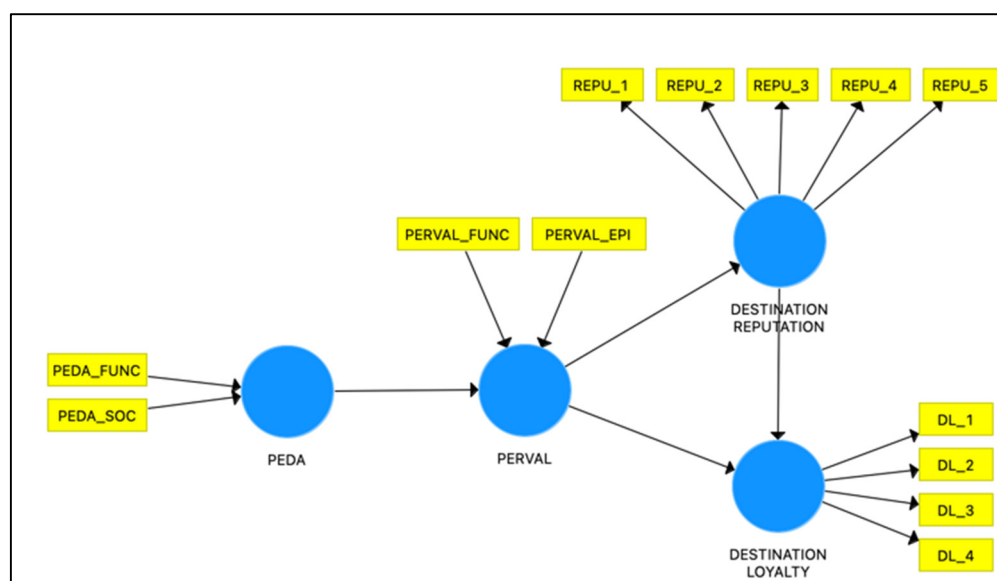


Figure 1. Research Framework.

3. Methodology

This research aims to identify the interrelationships between PEDA, PERVAL, destination reputation, and destination loyalty. Using cross-sectional and quantitative techniques, this research population comprises tourists, aged 18 years or above, touring Langkawi Island, Malaysia. GPower version 3.1.9.6 software from Heinrich Heine Universität Düsseldorf (Düsseldorf, Germany) was used to determine the minimum sample size of 120 respondents. To collect the data, purposive sampling is employed. This sampling methodology is employed to ensure respondents' eligibility and confirm their validity for participating in this study.

The questionnaires were prepared in English, and the first section contained the interviewees' demographic profile, including gender, age, reasons for travelling, and place of origin. The succeeding sections assessed their perception through 6 items regarding PEDA [13,44], 11 items related to PERVAL [76], 5 items concerning destination reputation [28] and 4 items assessing destination loyalty [77]. A five-point Likert scale extending from one (strongly disagree) to five (strongly agree) was utilised, and a pilot study ($n = 30$) was employed to evaluate its reliability and validity. Prior to the pilot study, four experts in the field of tourism and hospitality were approached to determine the suitability of the measurements, and they subsequently established the questionnaire's face validity. The execution of the pilot study among the 20 tourists of Langkawi Island then resulted in Cronbach's Alpha values of more than the minimum acceptable level of 0.70. Both phases improved the clarity of the questionnaires through slight rewording and modification of the questions.

The finalised survey was issued in person at Langkawi Island over a period of three months, from January to March 2022. Strict standard operating procedures (SOP) in Langkawi Island were still enforced during the data collection due to the COVID-19 pandemic. Due to this fact, the approval from relevant authorities was secured in order to conduct the data collection. Furthermore, the interviewer's interaction with the tourists was kept to minimum and did not allow for extensive probing. As the interview was planned to be direct, the field study still yielded a satisfactory number of participating tourists. A total of 280 tourists were involved in this research; 41.1% were men, and 58.9% were women, and the majority of them originating from Peninsular Malaysia. The majority of the respondents were touring for holiday purposes (72.9%) and were between 25 and 34 years of age (47.5%). The collected data were filtered, coded, and analysed in SPSS version 28 software.

This study utilised partial least squares-structural equation modelling (PLS-SEM). This is due to the complexity of the proposed conceptual framework and the study's exploratory nature [78–80]. Furthermore, the research data were not normally distributed, and Hair et al. [81] proposes PLS-SEM as suitable for studies involving data with a non-normal distribution. In addition, as we extend the theory of affordances through ED and Gestalt viewpoints to underpin the interconnections of the PEDAs, PERVAL, destination reputation, and destination loyalty, PLS-SEM is deemed the appropriate analysis method for this study [81]. Moreover, PLS-SEM has been extensively used in hospitality and tourism management (see [82,83]). Due to these reasons, we adopted PLS-SEM in our study to test hypotheses.

Through partial least square structural equation modelling (PLS-SEM), measurement and the study hypotheses are assessed in two phases: (1) establishment of the measurement model's reliability and validity, and (2) analysis of the structural connections between the latent constructs. As the study is collected using a single source, common method bias and multicollinearity are pertinent issues. Podsakoff et al. [84] recommended that Harman's single factor be used to eliminate the common method bias. However, since Guide and Ketokivi [85] suggested that Harman's single factor test is no longer viable for assessing the common method bias, a full collinearity test by evaluating the variance inflation factor (VIF) is opted.

4. Analysis and Findings

4.1. Descriptive Analysis

The descriptive analysis results (see Appendix A) demonstrate that most of the respondents had the opportunity to perform their desired tourism activities on Langkawi Island. This is also attributed to the characteristics of the ecotourism product that allows them to try new activities. Furthermore, most of the respondents were content with building environmentally friendly behaviour, as well as protecting natural and cultural resources. As for PERVAL, most of the respondents had a positive impression of the destination experience, owing to the affordable service fees, maintenance of the attractions, quality, fun, and exciting experiences from the attractions, and an increase in personal knowledge.

This is congruous with most of the respondents' perceptions of the destination reputation ($M = 4.40$; $SD = 0.702$), in which they believe that Langkawi Island is respected as an ecotourism destination ($M = 4.13$; $SD = 0.854$) and that it possesses competitive ecotourism attractions ($M = 4.33$; $SD = 0.703$). With respect to destination loyalty, the majority of the respondents asserted that they would believe themselves as loyal Langkawi Island visitors ($M = 4.19$; $SD = 0.919$), since they have a strong determination to revisit ($M = 4.17$; $SD = 0.850$) and would also propose it to others ($M = 4.29$; $SD = 0.780$) through positive communications about the destination ($M = 4.35$; $SD = 0.702$).

4.2. PLS-SEM Assessment

4.2.1. Measurement Model

The research framework comprises two second-order reflective-formative constructs, namely PEDAs and PERVAL, as they comprise respective dimensions of functional/aesthetic, social/symbolic, functional, and epistemic values. The framework also contains two reflective constructs: destination reputation and destination loyalty. To assess the primary research framework, the reflective constructs in the first- and second-order measurement model are assessed for their reliability, convergence, and discriminative validity [78,81]. The results are presented in Table 1.

Factor loadings, composite reliability (CR), and Cronbach's Alpha were assessed to establish the reliability of the research constructs. Due to this, some items of PEDAs and PERVAL are removed, given their low factor loadings which affect the reliability of the measurement model. The removal of the items led to each latent construct of CR and Cronbach's Alpha to exceed the threshold level and achieve satisfactory reliability. As shown in Table 1, except for removed items of functional/aesthetic values of PEDAs and

both dimensions of PERVAL, all items surpassed the threshold of 0.70, while the range value of CR was 0.887 to 0.909, which satisfies the threshold value of 0.70. These results confirm the indicator and construct reliability [78,81].

Table 1. First-order measurement model assessment.

Constructs	Loadings	Cronbach's Alpha	Composite Reliability	AVE
PEDA (Functional/aesthetic)		0.842	0.887	0.610
PEDA_FUNC2	0.781			
PEDA_FUNC3	0.814			
PEDA_FUNC4	0.802			
PEDA_FUNC5	0.743			
PEDA_FUNC6	0.764			
PEDA (Social-symbolic)		0.858	0.898	0.638
PEDA_SOC1	0.743			
PEDA_SOC2	0.792			
PEDA_SOC3	0.821			
PEDA_SOC4	0.846			
PEDA_SOC5	0.787			
PERVAL (Functional Value)		0.867	0.904	0.655
PERVAL_FUNC2	0.736			
PERVAL_FUNC3	0.835			
PERVAL_FUNC4	0.861			
PERVAL_FUNC5	0.873			
PERVAL_FUNC6	0.731			
PERVAL (Epistemic Value)		0.850	0.909	0.770
PERVAL_EPI3	0.892			
PERVAL_EPI4	0.915			
PERVAL_EPI5	0.823			
REPU (Destination Reputation)		0.857	0.898	0.639
REPU_1	0.724			
REPU_2	0.746			
REPU_3	0.864			
REPU_4	0.856			
REPU_5	0.795			
DL (Destination Loyalty)		0.853	0.901	0.694
DL_1	0.785			
DL_2	0.844			
DL_3	0.873			
DL_4	0.829			

Concerning convergent validity, the minimum value of 0.50 for average variance extraction (AVEs) must be exceeded [86]. This has also been achieved, as the range value of AVE was 0.61 to 0.77. Next, the scales' discriminant validity is confirmed with all the HTMT values below 0.90, as suggested by Ringle et al. [87] (Table 2).

Table 2. First-order Heterotrait–Monotrait ratio (HTMT).

	PEDA_FUNC	DL	PERVAL_FUNC	REPU	PERVAL_EPI	PEDA_SOC
PEDA_FUNC						
DL	0.304					
PERVAL_FUNC	0.461	0.543				
REPU	0.299	0.674	0.651			
PERVAL_EPI	0.359	0.541	0.652	0.577		
PEDA_SOC	0.559	0.486	0.571	0.540	0.546	

As for the reflective constructs in the second-order measurement model, the results of its reliability, convergence validity, and discriminative validity are exhibited in Table 3. However, the factor loadings of the constructs are replaced with significance level, which is the p -values taken from the outer weight, as per Sarstedt et al. [88]. The outcomes are shown in Table 3.

Table 3. Second-order reflective measurement model.

Constructs	Significance Level	Cronbach's Alpha	Composite Reliability	AVE
REPUTATION		0.857	0.898	0.639
REPU_1	0.000			
REPU_2	0.000			
REPU_3	0.000			
REPU_4	0.000			
REPU_5	0.000			
DL		0.853	0.901	0.694
DL_1	0.000			
DL_2	0.000			
DL_3	0.000			
DL_4	0.000			

As illustrated in Table 3, the significance level for each construct's dimension indicates adequate reliability of the variables. In addition, all the values of Cronbach's Alpha, CR, and AVE surpassed the suggested threshold, therefore verifying the variables' convergent validity. The data analysis also reflects satisfactory discriminant validity, since none of the HTMT values exceed the advocated threshold value of 0.9.

4.2.2. Formative Measurement Model Assessment (Second-Order)

For the formative constructs in the second order, the factor loadings, size of the indicator weights, and variance inflation factor (VIF) need to be assessed for their multicollinearity, construct validity, and indicator reliability [81]. The results (see Table 4) demonstrated no multicollinearity issues with the weight of all indicators, and the respective loadings of PED A and PERVAL were significant [78,81]. This is based on the variance inflation factor (VIF) values (see Table 4) which are less than three, and Kock and Lynn [89] stated that a VIF value below three does not suffer from common method bias. The VIF values (see Table 4), which are less than three, also confirmed that there are no issues of collinearity in our estimation model [78]. Overall, the results indicate acceptable measurement models for the first and second stages.

Table 4. Structural estimates (path analysis).

Path Analysis	Beta (β)	Confidence Interval (Bias Corrected)		f^2	R^2	Q^2	VIF
		2.5%	97.5%				
PEDA→PERVAL	0.571 ***	0.428	0.693	0.481	0.325	0.225	1.313
PERVAL→REPU	0.596 ***	0.481	0.699	0.548	0.354	0.210	1.471
PERVAL→DL	0.280 ***	0.141	0.396	0.084	0.386	0.255	1.573
REPU→DL	0.410 ***	0.296	0.538	0.177			1.565

Note: *** ($p < 0.001$).

4.2.3. Structural Model

Moving on to the second phase, the structural model in the PLS-SEM path analysis was utilised to investigate the hypotheses. This is done via the evaluation of path analyses in the structural model in terms of beta (β), p value, confidence interval (bias corrected),

R^2 , Q^2 , and f^2 . Table 4 presents the result of the path analysis, while Table 5 shows the result of the mediation effects of PERVAL on the relationship between PEDAs, destination reputation, and destination loyalty.

Table 5. Mediation effects testing (indirect path analysis).

Path Analysis	Beta (β)	p Value	Confidence Interval (Bias Corrected)		Result
			2.5%	97.5%	
PEDA → PERVAL → REPU	0.343 ***	0.000	0.220	0.478	Significant
PEDA → PERVAL → DL	0.161 ***	0.000	0.078	0.262	Significant

Note: *** ($p < 0.001$).

It can be verified that PEDAs can statistically significantly explain 32.5% ($R^2 = 0.325$) variance of PERVAL. Subsequently, PERVAL can significantly explain 54.8% ($R^2 = 0.548$) of destination reputation, which can be deemed as a strong explanatory power. A similar dynamic can also be reported in terms of the destination loyalty variance, where 38.6% ($R^2 = 0.386$) of it can be explained by PERVAL and destination reputation. In comparing the beta values, destination reputation ($\beta = 0.410$ ***) makes the strongest unique contribution to explaining destination loyalty, as compared to PERVAL ($\beta = 0.280$ ***). The results show that H1, H2a, H2b, and H3 are not rejected.

Next, it is discovered that the f^2 structural model shows a medium effect size ($f^2 > 0.15$) for PERVAL and destination reputation towards destination loyalty, whereas PERVAL towards destination reputation is found to have a large effect size ($f^2 > 0.35$). This is also the case for the effects of PEDAs on PERVAL. All the interpretations on effect size are made based on Hair et al.'s [90] suggestions. Furthermore, all the prediction relevance (Q^2) for the structural model assessment is above zero, with the Q^2 value of PEDAs and PERVAL at 0.225. Similarly, PEDAs, PERVAL, and destination reputation record a Q^2 value of 0.210. As for the variables of PEDAs, PERVAL, destination reputation, and destination loyalty, the Q^2 is 0.255. The predictive relevance outputs indicate that all the frameworks can be considered as substantial predictive models, per Henseler et al. [91].

Finally, it is also confirmed that PERVAL was found to fully mediate the relationship between PEDAs and destination loyalty. This is also the case with the mediating effects of PERVAL on the relationship between PEDAs and destination reputation. With regards to this, H4a and H4b are not rejected. Therefore, it can be concluded that the effect of PEDAs on destination reputation and destination loyalty can be explained by PERVAL as a mediator. Figure 2 illustrates the hypotheses testing results.

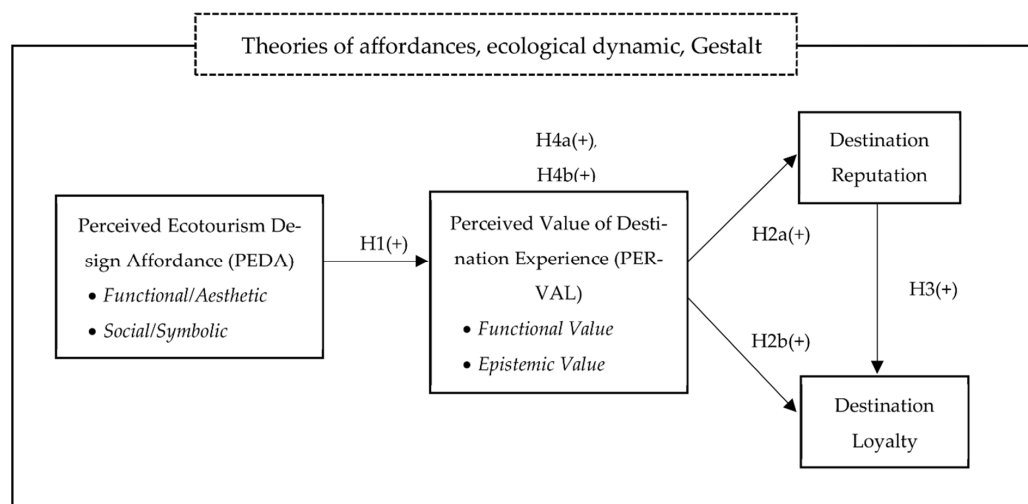


Figure 2. Hypotheses testing results.

5. Discussion and Conclusions

This research investigates the tourists' behaviours in an ecotourism destination by constructing a dynamic and comprehensive model that contemplates PEDAs, PERVALs, destination reputation, and destination loyalty. It analyses how PERVAL mediates the relationship between PEDAs and destination reputation and tourist destination loyalty, as well as how destination reputation affects destination loyalty among tourists of Langkawi Island, Malaysia. It revolves around the theoretical adoption of affordances through Gestalt and ED lenses, where it underpins the conceptualisation of research framework that illustrates the interrelationships of PEDAs, PERVALs, destination reputation, and destination loyalty. We believe that this study is crucial, given the nature and capabilities of affordances to capture a more dynamic and comprehensive insight into tourists' psychological behaviour, as compared to conventional personality psychology-based factors, which are rather inadequate [15,17].

In this sense, this research has provided the academic body of studies with a novel perspective on tourists' decision behaviour by scrutinising the interrelationship between the abovementioned variables. This is accomplished by addressing the knowledge gap in the extant literature, since there is a dearth of empirical evidence on affordance, especially in ecotourism [13]. Understudied and underexplored in the realm of tourism, the demonstration of how the current study utilising the PEDAs measurement in generating significant values that shape the reputation of a destination in the minds of tourists, positively impacting their loyalty, is asserted to be a meaningful platform for future studies to build upon.

5.1. Theoretical Contributions and Practical Implications

There are three central theoretical contributions of the study that can be highlighted. First, the integration of the aforementioned theories provides valuable insight in evaluating how the functionality of the ecotourism product leads the tourist in this study to realise actions that benefit the destination. Second, the assessment of the destination reputation and destination loyalty's antecedent in the shaping of a tourist-environment-based variable ensures a holistic and dynamic understanding of this interrelationship. Third, the capture of the significant mediating impacts of PERVAL generated from the design of the ecotourism product affordances highlights the importance of this dynamic in improving the perception and behavioural intention of the tourist.

These findings are important, considering that the destination competitiveness, growth, and success of a destination impacted by the perceived integrated values stemming from the coherent design of the ecotourism product. This feat is challenging, given the scale required to create and deliver such a product, as it demands strong collaboration and networking activities among key destination stakeholders [92–95]. Since the perception of the value can be viewed as an integrated value in the judgement of the tourist, the stakeholders' investment in the construction and maintenance of the products is seen as pivotal in the successful development of the ecotourism business model (see [96,97]).

This notion is supported by the empirical evidence provided in the study, where PERVAL significantly mediates PEDAs, destination reputation, and destination loyalty. Within this relationship, it is also found that PEDAs significantly impacts PERVAL, and the latter subsequently influences destination reputation and destination loyalty. The findings reflect that positive destination reputation and destination loyalty can be associated with great ecotourism product design that includes great perceived values. Furthermore, it helps to highlight the underlying mechanisms of how utilising the tourist environment as a unit of analysis can influence perceived value, destination reputation, and destination loyalty.

To a certain extent, the nature of these findings is consistent with what has been reported in previous studies, albeit in different settings, given the scarcity of research on affordance. It is also asserted that along with affordance, the qualities of ontology should also be viewed, as it is argued that the inter-relationship between PEDAs and PERVAL is also comparable to other studies (see [53]), where they report on the significant relationship

between information quality and perceived value. Furthermore, the concept of product design is similar to a certain degree, in that it is dynamic and incorporates quality as its overarching dimensions. Thus, it can be reported that product design generates experiential value that leads to customer satisfaction [98]. This is akin to what Mishra [99] suggests, in terms of positive interactions between consumer and product design leading to satisfying experiential value and increasing brand equity.

In the same vein, this implies that perceived value bridges the effect of the physical environment in which design affordances are present on tourists' loyalty [100]. Ecotourism managers should then emphasise the quality of attractions to enhance tourists' destination experiences, which will ensure their loyalty to the destination [101]. Therefore, it can be concluded that a successful ecotourism destination in a competitive market is driven by products designed by stakeholders who understand that significant values can be generated by recognising the tourists' cognitive expectations and their capabilities for actualising them. For this reason, enhancement of the product design quality to create the element of positive values and significant reputation in the mind of tourists will eventually lead to destination loyalty among them.

Accordingly, the importance of this research framework will enable ecotourism destination managers to make calculated decisions regarding investments in product design. This is to ensure that the design of the ecotourism products are easily understood in terms of their uses to minimise the misconception and miscommunication between tourists and destination management organisations. The stakeholders should then attempt to secure the necessary means to implement effective ecotourism product development through affordance perspectives. This will undoubtedly help them practically assess the design impact beyond the perception stage.

Lastly, this paper has proven that destination reputation is a substantial contributor to destination loyalty. In agreement with the study by Su et al. [29], this specific study ascertains that, to a certain extent, tourist loyalty to a given destination could be strengthened and secured by the destination reputation of the ecotourism site. The same author added that tourist destination loyalty is of prime importance in practice. In the absence of tourist loyalty, an ecotourism destination will steadily lose its competitiveness in today's tourism market. Therefore, ecotourism stakeholders should pay more attention to innovative products and services, adequate infrastructures, and a good environmental reputation, leading to more intentions to revisit.

5.2. Limitations and Future Studies

As in other studies, some limitations must be considered. Since purposive sampling through a cross-sectional approach is used to gather the data, it is important to note that the results cannot be generalised beyond the respondents in this study. In other words, it is important to elucidate that the findings generated from this analysis need to be treated cautiously. Future studies should build on this finding by adopting a probability sampling technique and collecting data in other ecotourism markets. For instance, PED measurement can be adapted by investigating other types of products in a general tourism context, or in niche setting such as astrotourism, adventure tourism, or blue tourism, to name a few. This will help to further solidify the adoption of affordance measurement in a general tourism context and subsequently enhance the validity and reliability of the findings.

Furthermore, the significant role of PERVAL as a mediator heightens the importance of key stakeholders in creating ecotourism products with a synergistic feature, appearance, and symbolic value that can be understood, eliciting positive tourist attitudes and behaviours. Redesigning the data collection by using the longitudinal approach is also proposed for capturing the evaluations of PED and PERVAL in different phases of the travel experience. Furthermore, the relevance of PED in the ecotourism context indicates that more research closer to the line of sustainability is clearly needed.

In this sense, factors such as pro-environmental behaviour, pro-environmental destination image, environmental concern, environmental knowledge, or sustainable intelligence are significant research avenues for future scholars to investigate. These variables are highlighted, given their conceptual predisposition to cognitive and behavioural elements toward appreciative or positive impacts on natural-based destination management. Future research perspectives should also integrate other aspects of PERVAL, such as emotional, monetary, or social value, to further expand on the theoretical links between the variable and PEDAs. Finally, tourists' various cultural and demographic backgrounds (e.g., gender, age, education) should be accounted for to improve the universality and representation of the results. This suggestion is considered crucial to provide richer insight into the interrelationship between PEDAs, PERVAL, destination reputation, and destination loyalty.

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Appendix A

Sources	Code	Items
Perceived Ecotourism Design Affordance (functional/aesthetic)		
Azinuddin et al. (2022) [13] and El-Amri and Akrouf (2020) [44]	PEDA_FUNC1	I understand immediately the ecotourism attractions at Langkawi Islands.
	PEDA_FUNC2	Characteristics of Langkawi Islands ecotourism attractions allow me to do touristic activities that I want (e.g., jungle trekking, hiking, swimming, rafting).
	PEDA_FUNC3	The diverse characteristics of Langkawi Island ecotourism attractions allow me the opportunities to do activities that are not available in my everyday life's routine.
	PEDA_FUNC4	Characteristics of Langkawi Island ecotourism attractions allow me to be flexible in choosing various touristic activities and experiences.
	PEDA_FUNC5	Characteristics of the ecotourism attractions reflect the nature of touristic experiences in Langkawi Island.
	PEDA_FUNC6	The potential of touristic experience at Langkawi Island ecotourism attractions makes it easier for me to understand what I can do as a visitor.
Perceived Ecotourism Design Affordance (social/symbolic)		
Azinuddin et al. (2022) [13] and El-Amri and Akrouf (2020) [44]	PEDA_SOC1	The ecotourism attractions at Langkawi Island makes me happy.
	PEDA_SOC2	Characteristics of Langkawi Island ecotourism attractions make me feel socially obliged to develop eco-friendly behaviour.
	PEDA_SOC3	Characteristics of Langkawi Island ecotourism attractions make me feel morally obliged to save and protect nature and culture resources
	PEDA_SOC4	Characteristics of Langkawi Island ecotourism attractions allow me to feel positive towards nature while traveling.
	PEDA_SOC5	I feel proud to share my experiences at Langkawi Island ecotourism attractions with other people

Perceived Value of Destination Experience (functional value)		
Prebensen et al. (2012) [76]	PERVAL_FUNC1	Langkawi Island's ecotourism attractions reflect 'value for money'
	PERVAL_FUNC2	Langkawi Island ecotourism attraction service fees are affordable
	PERVAL_FUNC3	Ecotourism attractions on Langkawi Island have an acceptable standard quality
	PERVAL_FUNC4	The ecotourism attractions on Langkawi Island are well maintained
	PERVAL_FUNC5	Ecotourism attractions on Langkawi Island have a consistent quality
	PERVAL_FUNC6	The ecotourism attractions of Langkawi Island make me feel excited to travel
Perceived Value of Destination Experience (epistemic value)		
Prebensen et al. (2012) [76]	PERVAL_EPI1	Langkawi Island provides an authentic ecotourism experience
	PERVAL_EPI2	Langkawi Island ecotourism attractions satisfy my curiosity
	PERVAL_EPI3	Ecotourism Island attractions at Langkawi Island are exiting
	PERVAL_EPI4	Ecotourism Island attractions at Langkawi Island are attractive
	PERVAL_EPI5	Ecotourism attractions at Langkawi Island increases my knowledge
Destination Reputation		
Artigas et al. (2015) [28]	REPU1	Langkawi Island has a very good reputation
	REPU2	For me, Langkawi Island has a better reputation than other similar places
	REPU3	I feel that people will respect Langkawi Island highly as an ecotourism destination
	REPU4	I can see others people speak very well of Langkawi Island as an ecotourism destination
	REPU5	Langkawi Island's good reputation is backed up by its competent ecotourism attractions
Destination Loyalty		
Azis et al. (2020) [77]	DL1	I consider myself a loyal visitor at Langkawi Island
	DL2	I would recommend Langkawi Island to others as a tourism destination
	DL3	I have strong intention to revisit Langkawi Island
	DL4	I will say positive things to others about Langkawi Island as a tourism destination

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