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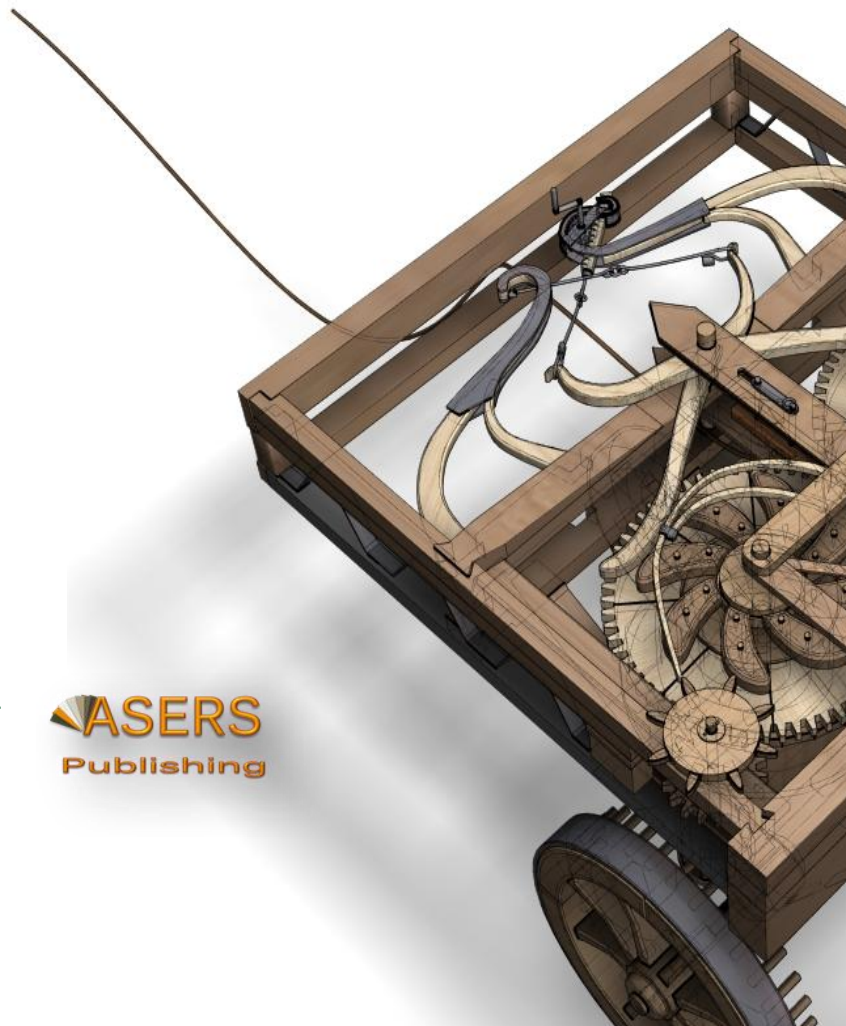
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## Insights from Malaysian World Heritage Sites on Heritage Sustainability

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**Abstract:** This study explores the role of domestic tourists in heritage sustainability, focusing on Malaysia's World Heritage Sites (WHS) since most literature focuses on local communities and international tourists.

Extending the Value-Attitude-Behavior (VAB) model with additional variables, this study examined domestic tourists' value on sustainability, attitude, norms, moral obligation, and participation behavior related to heritage sustainability. Subsequently, the moderator of the Big Five Personality traits was also applied in the research model.

The results found that value on sustainability significantly influenced the attitude, norms, and moral obligation of domestic tourists where social and subjective norms, through a vital bottom-up approach, are not merely beneficial but essential for ensuring the longevity of these heritage sites for future generations. Furthermore, openness, extraversion, extraversion, and agreeableness partially moderate the relationship between attitude, norms, moral obligations and heritage sustainability participation behavior in the VAB model.

This study provides a novel contribution in heritage sustainability studies particularly addressing the sustainability of WHS and using the VAB model and employing the MGA in analyzing the moderator of the Big Five Personality traits. Subsequently, the Important-Performance Analysis was also performed which identified that both social and subjective norms can drive significant behavioral changes among domestic tourists.

It is recommended that future research employ controlled variables such as age and gender to have a deeper understanding of consumer behavior. This paper presents a robust theoretical framework in behavioral research which serves as a solid foundation for further exploration in sustainability domains.

**Keywords:** domestic tourists; heritage sustainability; moral obligation; norms; value on sustainability; Value-Attitude-Behavior (VAB) model.

**JEL Classification:** Z32; Q01; Q26; R58; D91; Z13.

### Introduction

The global heritage tourism market was valued at USD 604.38 billion in 2024, and the future looks promising with a projected expansion at a compound annual growth rate (CAGR) of 4.5% between 2025 and 2030 (Grand View Research, 2025). Heritage tourism and sustainability are deeply interconnected, as both aim to sustain cultural and natural landmarks while ensuring they remain relevant in the modern world. Tourism is vital to heritage sustainability, generating revenue through entrance fees, guided tours, and local businesses, which can be reinvested in targeted projects and programs. This financial support enables the conservation and preservation of heritage sites, ensuring they remain functional and accessible to future generations. Heritage is a legacy from the

past, handed down through generations, shaping cultural identity, values, and traditions. It serves as a tangible and intangible link between locals and their historical roots, fostering a sense of belonging and continuity. However, ensuring its continuity requires active efforts beyond mere conservation and preservation of heritage sites. One critical approach is ensuring the sustainability of heritage, which extends beyond the physical upkeep of structures or artifacts. Heritage sustainability encompasses the long-term safeguarding of cultural and natural assets in ways that maintain their significance and relevance for present and future generations (Geçikli *et al.* 2024). This involves protecting the integrity of heritage sites and encouraging the meaningful engagement of communities, policymakers, and stakeholders in sustainability efforts. It is a dynamic process that integrates environmental, socio-cultural, and economic considerations to ensure heritage remains a living, evolving part of society. Sustainable heritage management requires inclusive strategies that empower individuals to participate in decision-making, benefit from heritage-based tourism, and develop a strong sense of stewardship. The need for inclusive strategies in heritage management should be stressed, as it ensures the active involvement of all stakeholders and fosters a sense of shared responsibility and ownership. This collective effort ensures that heritage sites do not become static relics of the past but continue to thrive as active symbols of identity, education, and shared memory (Rosetti *et al.* 2022; Roslan *et al.* 2021).

## 1. Research Background

In general, there are two categories of World Heritage Sites (WHS), which are urban heritage sites like George Town and Malacca and remote heritage sites like Kinabalu Park, Mulu National Park, and the Archaeological Heritage in Niah Caves and Lenggong Valley (UNESCO, 2024). While these sites differ in geographical context and visitation by the locals, they all face common challenges in sustaining their relevance and appeal to visitors. These tourists, who are familiar with the heritage resources due to their visits, play a crucial role in the future viability of these unique destinations. The sustainability of heritage sites is at a critical juncture, where the active participation of domestic tourists is essential for their continued prosperity (Pan *et al.* 2024; Rosetti *et al.* 2022). Their understanding and commitment to heritage sustainability significantly influence their value, attitudes, norms, moral obligations, and participation behavior, shaping efforts to ensure the survival of these sites (Xu *et al.* 2024). However, this journey towards sustainability is fraught with challenges, ranging from economic limitations to environmental pressures and social disruptions. Since the inscription as a WHS by UNESCO, these sites have experienced significant boosts in tourist visitations (Saleh *et al.* 2022). The influx of tourists brings numerous challenges, such as pollution, extensive development, damage, and vandalism in heritage sites (Hanafiah *et al.* 2021; Mtani *et al.* 2023). Without prompt intervention, the site's condition will likely deteriorate, diminishing its appeal to tourists and risking its potential delisting as a World Heritage Site. The potential loss of these unique sites' rich history and cultural significance should cause deep concern for all stakeholders (Hang & Arifin, 2021; Talib *et al.* 2022). It was noted that many locals are unaware of WHS's historical and cultural relevance, which contributes to their limited engagement and interest in visiting these sites (Hang & Arifin, 2021). Emphasising domestic tourists' role in visiting and sustaining heritage sites would foster a sense of shared responsibility and positive engagement. This lack of awareness leads to a disconnect between the public and these landmarks, diminishing the sites' role in fostering national identity and pride. Therefore, without understanding the value of these sites, public support for sustainability efforts is limited (Abdul Aziz *et al.* 2023).

Previous literature has predominantly focused on the conservation and preservation of UNESCO WHS, particularly emphasising the roles and perceptions of local communities residing near these sites (Abdul Aziz *et al.* 2023; Ibrahim *et al.* 2023). While such studies have provided valuable insights into community engagement and heritage sustainability, they have largely overlooked the perspectives of the broader Malaysian population, particularly domestic tourists, who play a significant role in the sustainability and economic development of these heritage sites (Blackie *et al.* 2023; Jang & Mennis, 2021). This data scarcity significantly impacts heritage managers, hampering their ability to develop evidence-based heritage sustainability strategies. Domestic tourists, comprising Malaysians who travel within the country, are key stakeholders in the heritage tourism ecosystem. Their value, attitude, and behavior to participate in sustainability efforts can directly impact the long-term longevity of heritage sites. Unlike international tourists, domestic visitors often have cultural, historical, or sentimental connections to these sites, influencing their engagement levels and perceptions of heritage value (Farhana Nasir *et al.* 2020; Kifworo *et al.* 2020). Moreover, domestic tourists contribute significantly to the local economy, supporting businesses, employment, and infrastructure surrounding heritage sites. Their visitation patterns, spending behavior, and participation in heritage-related activities are essential for sustaining tourism demand. This gap highlights the need for a more inclusive approach that examines how Malaysians, beyond immediate heritage site communities, perceive and engage with heritage sustainability initiatives. Hence, this study seeks to

investigate the key variables influencing domestic tourists' behavior to address this gap. Active participation by domestic tourists through a bottom-up approach is essential to inspire and empower individuals to become trusted guardians and stewards of local heritage sites while promoting the historical WHS legacies to the younger generation. It is crucial to inspire the grassroots population so that participation in heritage sustainability becomes an integral part of their daily life.

There are three main areas where this study adds to the corpus of existing knowledge. First, this research makes a novel contribution to investigating Malaysian domestic tourists' values by analysing their attitudes and norms that influence their behavior in heritage sustainability activities. Most literature mainly examines the behavior of local communities and has not examined all Malaysian WHS in totality (Mtani *et al.* 2023; Phua & Tan, 2023). Next, the variables from the Value-Attitude-Behavior (VAB) model and the Theory of Planned Behavior (TPB) were integrated to offer a comprehensive analysis of critical factors such as attitude, norms (including personal, social, and subjective norms), and moral obligation (Bhattacharyya *et al.* 2020; Engel *et al.* 2020; Kim & Hall, 2021). Lastly, this study is also among the limited literature on heritage sustainability that incorporates the moderating role of the Big Five Personality traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism) in the Value-Attitude-Behaviour (VAB) model (Kim & Hall, 2022; Srivastava *et al.* 2021). Studies also indicate that individual personality traits shape behaviour, namely in the tourism industry, whereby there is a growing body of research that examines the psychological characteristics of individuals in this context (Li *et al.* 2024). Therefore, the research questions are: (a) How does the value of sustainability influence attitude, norms, and moral obligation? (b) How do attitude, norms, and moral obligation mediate the relationship between value on sustainability and heritage sustainability participation behavior? (c) What are the levels of moderating effects of the Big Five Personality traits in the relationship between attitude, norms, moral obligation, and heritage sustainability participation behavior? This approach provided valuable insights into domestic tourists' behavior and made a novel contribution to studying consumer behavior, specifically in heritage tourism. Thus, this research addressed individuals' motivations on a deeper level, such as forming their behavior specific to heritage sustainability.

## 2. Literature Review

### 2.1 Value-Attitude-Behavior Model

The hierarchy of value, attitude, and behavior used in the Value-Attitude-Behaviour (VAB) model emphasises that an individual's values serve as the cornerstone around which their attitudes and behaviors are built. According to Homer and Kahle (1988), a person's values determine their attitudes, which are thought to be more unpredictable and erratic. Subsequently, a person builds on their ideals and attitudes to exhibit actual behavior. The VAB model was tested in studies examining the interrelationships among value, attitude, and behavior of natural food consumers. Values are core concepts considered strengths or shortcomings, moral or immoral, or worthy of sacrifice. They are more resistant to change than beliefs, and a person usually needs to undergo a transformative life experience to change their values (Lee, 2019). Human action and behavior are significantly shaped by their intrinsic values, which are formed early in life (Kabir & Hassan, 2024). Some studies highlight that a person's core values start developing in their mother's womb and are shaped after birth through interaction with family, education, community, and society at large (van den Heuvel, 2022).

Attitudes are immediate reactions toward a conviction or an item and are usually more easily and regularly changed. A person's behavior or belief is based on past experiences and not automatically formed based on logic or facts, influencing their beliefs on political, economic, and religious issues. Behavior or belief also serves as reference points through which individuals interpret their surroundings (Kim & Hall, 2022). Studies indicate that attitude alone does not affect behavior, but behavior is affected by other factors like personal and social norms (Kim *et al.* 2020; Kim *et al.* 2021b; Van Tonder *et al.* 2023). Subsequently, researchers integrated different theories, such as combining the VAB model with the Value-Belief-Norm (VBN) model to examine the characteristics of personal value, moral obligation, and subjective norm on pro-environmental behavior (Bhattacharyya *et al.* 2020; Engel *et al.* 2020). The VAB model has been extensively used in numerous fields such as active sports, sustainable transport, green purchase, sustainable crowdfunding, veganism, sustainable fine dining, tourist biosecurity behavior, and many more (Brouwer *et al.* 2022; Fatoki, 2023; Hu *et al.* 2023; Kabir & Hassan, 2024; Kim *et al.* 2021a; Kim & Hall, 2021, 2022; Kwon & Namkung, 2022; Liu *et al.* 2023; Palmieri *et al.* 2024). Therefore, researchers have constantly studied the interplay and linkages between value, attitude, norms, moral obligation, and behavior variables.

## 2.2 Theory of Planned Behavior

The Theory of Planned Behavior (TPB), developed by Ajzen in 1985, is a psychological framework that establishes a connection between beliefs and behavior. This theory is an extension of the Theory of Reasoned Action, which was developed by Ajzen and Fishbein in 1980. TPB asserts that three fundamental factors: attitude, subjective norms, and perceived behavioral control collectively influence an individual's intentions to engage in a particular behavior (Ilagan *et al.* 2024; Nekmahmud *et al.* 2022; Salifu *et al.* 2024; Xie *et al.* 2024). According to Ajzen and Fishbein (1974), people form beliefs about an object by associating it with various characteristics, qualities, and attributes. Based on these beliefs, they develop favourable or unfavorable attitudes toward the object, depending on whether they associate it with positive or negative characteristics. Subjective norms refer to a person's beliefs about complying with what others think he or she should and should not do, which is an internal norm. Perceived behavioral control reflects an individual's beliefs regarding possessing the necessary resources and opportunities to perform the target behavior. It captures the extent to which individuals judge themselves as having the capacity to perform a specific behavior, reflecting their sense of how simple or complex the performance of that behavior (Bajar *et al.* 2024).

Meta-analytic reviews suggest that TPB is a valuable model for predicting a wide range of behaviors, and this was mainly because of the high correlation between intention and behavior (Md. Akhir *et al.* 2022). As new information is available on factors influencing an individual's attitude and subjective norms, it is more likely to alter or even reduce the intention-behavior gap (Ajzen & Fishbein, 1974). Studies also suggest that both TPB and VAB indicate that a consumer's attitude towards a specific behavior is strongly influenced by positive behavioral intention, and individuals are highly likely to act on that intention, which translates to behavior (Angin *et al.* 2024; Tajeddini *et al.* 2021). TPB proposes that behavioral intentions are the immediate antecedents of actual behavior. Therefore, this study does not use the intention variable but evaluates the relationship between attitude, personal norm, social norm, subjective norm, and moral obligation with heritage sustainability participation behavior. Previous studies have referred to both personal and subjective norms as internal norms, while social norms and moral obligations are considered external norms (Bajar *et al.* 2024; Kim *et al.* 2021c).

## 2.3 Heritage Sustainability Participation Behavior

This study employed consumer behavior theory, which is the VAB model, to study domestic tourists' behavior in heritage sustainability. Participation behavior encompasses locals and broader entities such as government organizations, NGOs, state authorities, and other stakeholders (Foroughi *et al.* 2023). This study focuses on the participation behavior of domestic tourists in sustaining WHS in Malaysia since there was a lack of studies in this area. Through group activities, participation in heritage management improves and fortifies domestic tourists' bonds. Communal activities create a strong connection between the general public and the government while promoting social cohesiveness, inclusion, and trust. Studies by Eppich (2019) and Phua and Tan (2023) supported the idea that participation in heritage management cultivates a sense of ownership and responsibility, ensuring the continued survival of heritage sites. Kifworo *et al.* (2020) emphasized the role of domestic tourists as a critical factor in maintaining and safeguarding heritage for future generations. Similarly, Oladipo *et al.* (2022) emphasized the active participation of local communities. This type of behaviour is becoming more widely acknowledged as a crucial aspect of consumer behavior that goes beyond conventional buying habits (Li & Romainoor, 2024). It was seen that consumer behavior has historically concentrated on how customers behave and participate in creating and distributing goods and services (Palmieri *et al.* 2024). Nevertheless, domestic tourists' active engagement in heritage sustainability offers an enhanced and elevated context in understanding consumer behavior.

## 3. Hypothesis Development

### 3.1 Value on Sustainability

The importance that people place on behaviors, strategies, or initiatives that promote long-term sustainability initiatives is known as the value of sustainability (El Faouri & Sibley, 2024; Kim & Hall, 2021). It forecasts how a customer will feel and act in relation to environmental initiatives. Numerous investigations have delved into the interplay between values, attitudes, and behaviours within the sustainability and pro-environmental framework (Chang *et al.* 2020; Cheung & To, 2019; van Tonder *et al.* 2020; Zhou *et al.* 2025). Firstly, these studies indicate how values significantly affect attitudes and personal and social norms, which motivate individuals to adopt sustainable practices. Personal norms influence individual behavior, including selecting environmentally friendly products and endorsing sustainability programmes. Subsequently, social norms shaped by cultural and societal

factors contribute to behavioral sequences. When personal values resonate with societal expectations, individuals are more prone to participate in sustainable actions (Kim & Hall, 2022). Further to this, subjective norms, which refer to the perceived social pressures to engage in green behavior, are also driven by pro-environmental values (Dorce *et al.* 2021; Wang *et al.* 2022). Essentially, individuals are more likely to adopt environmentally friendly behaviour when they perceive that those around them (family, peers, society) expect or approve of such actions. Lastly, moral obligation was crucial in shaping personal values towards green behavior (Floriano & de Matos, 2022; Lin *et al.* 2022). This concept suggests that individuals who feel a moral duty to protect the environment or contribute to sustainable development are more likely to align their values with sustainability. Moral obligations reinforce the idea that sustainability is not just a choice but a responsibility, strengthening commitment to environmentally conscious behaviour. Therefore, based on these literatures, the hypotheses were developed:

- H<sub>1</sub>. Value on sustainability has a positive effect on attitude toward heritage sustainability participation behavior.
- H<sub>2</sub>. Value on sustainability has a positive effect on personal norms toward heritage sustainability participation behavior.
- H<sub>3</sub>. Value on sustainability has a positive effect on social norms toward heritage sustainability participation behavior.
- H<sub>4</sub>. Value on sustainability has a positive effect on subjective norms toward heritage sustainability participation behavior.
- H<sub>5</sub>. Value on sustainability has a positive effect on moral obligation toward heritage sustainability participation behavior.

### 3.2 Attitude

A fundamental element of many behavioral models, attitude refers to people's positive or negative views about any aspect of reality (Kim & Hall, 2021). In the VAB model, attitudes frequently serve as the "bridge" that converts individual ideals into practicable actions, emphasising their crucial function in forecasting and shaping sustainable behavior. The 1988 study by Homer and Kahle confirms that behaviour and values are not directly related. Value, on the other hand, has a direct impact on attitude, which in turn determines behavior. Numerous pro-environmental research has further investigated this association, indicating the critical significance of attitude as a mediator in the VAB model (Brouwer *et al.* 2022; Kwon & Namkung, 2022). According to Brouwer *et al.* (2022), anti-speciesism values are a major predictor of favourable attitudes about vegan diets, encouraging vegan behavior. Similarly, Kwon and Namkung (2022) discovered that values pertaining to meaningful experiences and information-seeking had a favourable impact on brand attitude in the coffee industry, encouraging customer participation and civic engagement. The following hypothesis was put up in this paper based on these studies:

- H<sub>6</sub>. Attitude mediates the relationship between value on sustainability and heritage sustainability participation behavior.

### 3.3 Norms

In the VAB model, norms were also discovered to be significant predictors of behavioral intentions and actions, particularly in the context of sustainability and pro-environmental behavior (Kim & Hall, 2022; Van Tonder *et al.* 2023). These norms encompass personal, social, and subjective dimensions, each representing a distinct layer of influence. Personal norms refer to an individual's internalised moral obligation to engage in or refrain from certain behaviours, grounded in their value system and self-expectations (Al Mamun *et al.* 2025; Elgammal *et al.* 2024; Kim *et al.* 2024). Unlike social or subjective norms, personal norms are intrinsically motivated and are not necessarily influenced by external societal expectations. They are often shaped by long-held beliefs and ethical considerations, which are crucial in guiding consistent behavioral choices that align with one's sense of responsibility or moral duty. On the other hand, social norms represent the perceived behavioral expectations within a particular community or society. In pro-environmental contexts, social norms typically reflect shared cultural or societal values regarding sustainability, conservation, and environmental responsibility. These norms influence individuals by reinforcing what is considered socially acceptable or desirable behaviour within a given group (Champine *et al.* 2023). Subjective norms, as conceptualized in the Theory of Planned Behavior, refer to a person's perception of social pressure from significant others such as family, friends, or peers to perform or avoid certain behaviors, coupled with a motivation to comply with these expectations (Ajzen, 2020).

Subjective norms and personal norms are operationally distinct. While subjective norms focus on actions others would prefer and wish people to take, personal norms highlight people's moral principles, which may guide behavior (Moser, 2015; Paul *et al.* 2016). Therefore, the subjective norm was operationalized in the context of this study to include views that customers' significant others believe they should assist others in need with environmentally friendly purchasing decisions and would prefer and want them to act in this manner (Paul *et al.* 2016). Studies have also explored the mediating role of these norms in shaping the relationships among values, attitudes, and behaviour within the VAB framework. The study by Kim and Hall (2022) and Van Tonder *et al.* (2023) highlighted the importance of the variables of personal, social, and subjective norms in studies such as understanding active transport behavior and green customer citizenship behaviors. According to Champine *et al.* (2023), descriptive social norms that portray sustainable behavior as generally acceptable have successfully promoted eco-friendly behaviors by giving the impression that other people share these values. This was mainly to promote enhanced social engagement when dealing with problems with biodiversity loss. In this light, several hypotheses have been proposed:

H<sub>7-9</sub>. Norms mediate the relationship between value on sustainability and heritage sustainability participation behavior.

### 3.4 Moral Obligation

A person's internalised sense of duty or responsibility to act in a way that is consistent with both their personal ideals and society's ethics is known as their moral obligation. Based on an internal sense of "rightness" or "wrongness," it represents one's ethical commitment to act or refrain from doing (Bhattacharyya *et al.* 2020; Wu *et al.* 2021). Moral duty is motivated by outwardly acceptable ethical standards and a sense of accountability, as opposed to subjective norms, which are internally developed and reflect perceived social pressures to act in a particular way. For example, Lin *et al.* (2022) revealed that environmental concerns and moral obligations are critical for motivating pro-environmental behaviors. This illustrates that people are more likely to adopt sustainable practices when driven by a combined sense of moral duty and awareness of environmental issues. This transformative interplay suggests that moral obligation, when combined with awareness and environmental concern, has the power to turn values into action. Floriano and de Matos (2022) conducted a study on consumers of sustainable fashion in Brazil and found that customers' views toward sustainable fashion were strongly impacted by their moral obligation and their awareness of the adverse effects of unsustainable fashion practices. Consumers were more inclined to support sustainable items when they believed they had a moral obligation to choose environmentally friendly options, emphasising individual accountability's significance in purchasing decisions. The following hypothesis was put forth after these researchers agreed that moral obligation is an essential mediator in the VAB relationship:

H<sub>10</sub>. Moral obligation mediates the relationship between value on sustainability and heritage sustainability participation behavior.

### 3.5 Big Five Personality Traits as Moderators

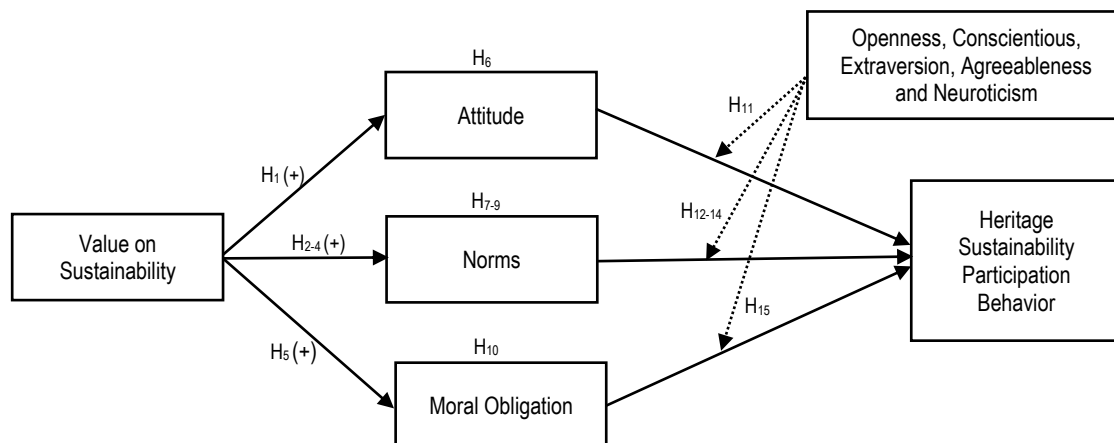
The five-factor model of personality can be used to classify all personality traits: openness, conscientiousness, extraversion, agreeableness, and neuroticism (Giango *et al.* 2022). Personality is an important part that motivates an individual's beliefs, values, and attitudes, whereby fundamental differences in personality influence environmentally friendly behavior. This study included the Big Five Personality traits as moderators for several reasons, even though prior research has shown conflicting results about their moderating influence. Firstly, because they are linked to social responsibility, commitment, and receptivity to new ideas, personality traits like agreeableness, conscientiousness, and openness are strongly associated with pro-sustainability behavior (Ahmed *et al.* 2022; Poškus, 2020; Yaban & Gaschler, 2025). Further, conscientiousness, extraversion, agreeableness, and neuroticism were found to have partial moderating effects on the VAB model in a study on crowdfunding and the Sustainable Development Goals (SDGs) (Kim & Hall, 2021). These characteristics can influence crowdfunding intentions for sustainable projects. Similarly, international tourists with higher levels of openness, conscientiousness, and extraversion are more inclined to favour biosecurity practices when travelling during the pandemic (Kim *et al.* 2021b). It was also revealed that individuals with higher attributes, such as openness and extraversion, frequently show higher alignments between their values and behavior, especially in pro-environmental areas where they may significantly regulate behavior in value-driven circumstances (Srivastava *et al.* 2021). Based on the existing literature, the following hypotheses were formulated:



- H<sub>11</sub>. The levels of openness positively moderate the relationships between attitude, norms, and moral obligation with heritage sustainability participation behavior.
- H<sub>12</sub>. The levels of conscientiousness positively moderate the relationships between attitude, norms, and moral obligation with heritage sustainability participation behavior.
- H<sub>13</sub>. The levels of extraversion positively moderate the relationships between attitude, norms, and moral obligation with heritage sustainability participation behavior.
- H<sub>14</sub>. The levels of agreeableness positively moderate the relationships between attitude, norms, and moral obligation with heritage sustainability participation behavior.
- H<sub>15</sub>. The levels of neuroticism positively moderate the relationships between attitude, norms, and moral obligation with heritage sustainability participation behavior.

The theoretical and empirical reviews were then used to conceptualize the research model of this study, and this is presented in Figure 1 (Bhattacharyya *et al.* 2020; Kim & Hall, 2021; Lee *et al.* 2019; Van Tonder *et al.* 2023; Walsh *et al.* 2021; Wang *et al.* 2022). It comprised seven first-order constructs: (1) value on sustainability as an exogenous construct or independent variable, (2) attitude, (3) personal norms, (4) social norms, (5) subjective norms, (6) moral obligation as mediators, and (7) heritage sustainability participation behavior as an endogenous construct or dependent variable. The Big Five Personality traits (openness, conscientiousness, extraversion, agreeableness, neuroticism) act as moderators in the VAB model. The hypothesis shows that value on sustainability positively influences attitude, norms (internal and external norms) and moral obligation, as shown in H<sub>1</sub> to H<sub>5</sub>. Subsequently, attitude, norms, and moral obligation mediated the relationship between the value on sustainability and heritage sustainability participation behavior expressed in H<sub>6</sub> to H<sub>10</sub>. Lastly, the moderators of the Big Five Personality traits are concluded in H<sub>11</sub> to H<sub>15</sub>.

Figure 1. Research Model of Study



Source: Own Elaboration

#### 4. Methodology

This research employed a quantitative method to understand domestic tourists' heritage sustainability participation behavior comprehensively. The questionnaire for this research was divided into two major parts: the respondents' demographics and eight research constructs that included 59 items. Notably, the value on sustainability, attitude, personal norms, and social norms was estimated by four questions each from the study by Kim and Hall (2021) (e.g., 'Heritage sustainability is vital to save of heritage sites', 'Participating in heritage sustainability activities is an affirmative behavior', 'I feel an obligation to participate in heritage sustainability activities', 'Most people who are important to me think I should participate in heritage sustainability activities'). Subjective norm was examined with six questions from the studies by Cheng and Tung (2014), Megeirhi *et al.* (2020), and Wang *et al.* (2023) (e.g. 'It is expected of me to support heritage sustainability activities'). The four questions on moral obligation were adapted from studies by Floriano and de Matos (2022), Lin *et al.* (2022), and Wu *et al.* (2021) (e.g. 'I feel a moral obligation to protect the WHS'). Lastly, the 25 questions relevant to examining the Big Five Personality traits were obtained from previous studies (Kim *et al.* 2021b; Kim & Hall, 2021) (e.g. 'I get excited about new ideas', 'I tend to implement my plans', 'I talk to a lot of other people at parties'). See more details in Table 1.

Table 1. Summarization of Constructs Used for the Research Model

Role	Construct	Item	Source
Antecedent	Value on Sustainability	<ol style="list-style-type: none"> <li>1. Heritage sustainability is vital to save our heritage sites.</li> <li>2. Heritage sustainability is important for the environment.</li> <li>3. I believe that heritage sustainability should be done to limit the impacts of climate change.</li> <li>4. Heritage sustainability is valuable in lessening heritage deterioration.</li> </ol>	Kim and Hall (2021)
Mediator	Attitude	<ol style="list-style-type: none"> <li>1. Participating in heritage sustainability activities is affirmative behaviour.</li> <li>2. Participating in heritage sustainability activities is beneficial behaviour.</li> <li>3. Participating in heritage sustainability activities is an essential behavior.</li> <li>4. Participating in heritage sustainability activities is legitimate behavior.</li> </ol>	Kim and Hall (2021)
	Personal Norms	<ol style="list-style-type: none"> <li>1. I feel an obligation to participate in heritage sustainability activities.</li> <li>2. Regardless of what other people do, because of my own values/principles, I feel that I should participate in heritage sustainability activities.</li> <li>3. I feel that it is important to participate in heritage sustainability activities.</li> <li>4. I am more likely to participate in heritage sustainability activities compared with other sustainability projects.</li> </ol>	Kim and Hall (2021)
	Social Norms	<ol style="list-style-type: none"> <li>1. Most people who are important to me think I should participate in heritage sustainability activities.</li> <li>2. Most people who are important to me would want me to participate in heritage sustainability activities.</li> <li>3. Most people who are important to me support my participation in heritage sustainability activities.</li> <li>4. Most people who are important to me are proud of my participation in heritage sustainability activities.</li> </ol>	Kim and Hall (2021)
	Subjective Norms	<ol style="list-style-type: none"> <li>1. It is expected of me to support heritage sustainability activities.</li> <li>2. People whose opinions I value would prefer that I support heritage sustainability activities in my country.</li> <li>3. I would be influenced by government guidance to participate in efforts to support heritage sustainability activities in my country.</li> <li>4. I would be influenced by local tourism planning organizations to participate in heritage sustainability activities in my country.</li> <li>5. I would be influenced by family members to participate in heritage sustainability activities in my country.</li> <li>6. I would be influenced by other residents to participate in efforts to support heritage sustainability activities in my country.</li> </ol>	Chen and Tung (2014); Megeirhi <i>et al.</i> (2020); Wang <i>et al.</i> (2023)
	Moral Obligation	<ol style="list-style-type: none"> <li>1. I feel a moral obligation to protect the WHS.</li> <li>2. I should protect the WHS.</li> <li>3. It's important that people in general protect the</li> </ol>	Floriano and de Matos (2022); Lin <i>et al.</i> (2022); Wu <i>et al.</i> (2021)

Role	Construct	Item	Source
		WHS. 4. Because of my own values, I feel an obligation to behave in an environmentally friendly way.	
Dependent Variable	Heritage Sustainability Participation Behavior	1. I participate in heritage sustainability activities. 2. When I participate in heritage sustainability activities, I engage in ecologically friendly activities. 3. When I participate in heritage sustainability activities, I engage in socially friendly activities. 4. When I participate in heritage sustainability activities, I engage in economically friendly activities. 5. When I participate in heritage sustainability activities, I expend effort on the environment. 6. When I participate in heritage sustainability activities, I make an effort on society. 7. When I participate in heritage sustainability activities, I make an effort for the economy. 8. When I participate in heritage activities, I am interested in projects for sustainability.	Kim and Hall (2021)
Moderator	Openness	1. I get excited about new ideas. 2. I enjoy thinking about a lot of things. 3. I enjoy hearing new ideas. 4. I enjoy looking for a deeper meaning. 5. I have a vivid imagination.	Kim and Hall (2021)
	Conscientiousness	1. I tend to implement my plans. 2. I pay attention to detail. 3. I am always well prepared. 4. I tend to abide by my plans. 5. I do my work perfectly.	Kim and Hall (2021)
	Extraversion	1. I talk to a lot of other people at parties. 2. I feel comfortable with people around me. 3. I tend to initiate conversations. 4. I make friends easily. 5. I do not mind being paid the center of attention.	Kim and Hall (2021)
	Agreeableness	1. I sympathize with the feelings of others. 2. I am concerned about others. 3. I respect others. 4. I believe that others have good intentions. 5. I trust what people say to me.	Kim and Hall (2021)
	Neuroticism	1. I get stressed out easily. 2. I worry about many things. 3. I fear the worst. 4. I am filled with doubts. 5. I fall into panic easily.	Kim and Hall (2021)

Source: Chen and Tung (2014); Floriano and de Matos (2022); Kim and Hall (2021); Lin et al. (2022); Megeirhi et al. (2020); Wang et al. (2023); Wu et al. (2021).

The demographics of the respondents included profiling the respondents to understand their background, lifestyle, and characteristics. The next step was to find out if the respondents had visited any of the Malaysian World Heritage Sites to qualify them as domestic tourists to proceed with answering the research construct questions. The questions on the research constructs were assessed based on the 7-point Likert Scale (Magano et al. 2024). Upon receiving approval from the Human Ethics Committee, the pilot test for this study was systematically administered to a diverse cross-section of the sample to ensure that the entire survey runs smoothly, and that the data analysis can be done effectively. The pilot test was done on a small sample for this study and used 50 participants, whereby further feedback was received from them after conducting this test. This process allowed for testing internal consistency and reliability among measurement items. Using Smart PLS 4.0, it was discovered that the Cronbach Alpha for all the constructs was above 0.70, indicating a high correlation between the items in the constructs (Nekmahmud et al. 2022; Saleh et al. 2022; Sarstedt et al. 2020). The high

Cronbach Alpha values indicate that the items in the constructs are reliable and consistent, thereby validating the research instrument. The questionnaire was also amended based on their feedback to ensure the respondents could answer the questions easily.

The data was collected online and face-to-face, targeting 500 Malaysian domestic tourists using purposive sampling. The researchers appointed two research assistants to speed up the data collection process. The respondents were given an online questionnaire link to fill in targeted public areas. They were also asked to recommend family, friends, and colleagues, who were then given the online link to fill out. In total, 700 questionnaires were handed out, and the total number of responses received was 599, which is a response rate of 86%. It was determined that 99 of the 599 surveys could not be used because the participants left the survey after the qualifying questions or provided incomplete responses. The remaining 500 surveys were therefore utilized to do additional analysis. This constitutes a legitimate response rate of 71%, which is regarded as high (Saunders *et al.* 2019).

## 5. Common Method Bias

This study implemented various procedural measures to mitigate the impact of common method bias. To alleviate evaluation anxiety, the participants were informed that there were no correct or incorrect answers to the questionnaire items. Additionally, they were guaranteed secrecy during the whole research procedure. The exogenous variables were separated from the endogenous variables in the questionnaire to enhance the validity of the results. The outcome suggests that no individual component was responsible for most of the exogenous and endogenous variables' covariance. Therefore, multicollinearity was deemed not problematic because the variance inflation factor (VIF) for all items was within the acceptable threshold below 5 (Hair *et al.* 2021). The unrotated first factor at 31.53%, which is the variance, accounted for Harman's one-factor test and was within the satisfactory range of below 50% (Nekmahmud *et al.* 2022). Thus, the current analysis demonstrated that common method bias is not a significant worry and is unlikely to exaggerate the connections between the measured variables (Hu *et al.* 2023).

## 6. Research Results

Data was collected from each state in Malaysia based on the individual state population ratio to guarantee an equitable representation of the population from each state. The respondents consisted of 289 females, making up 57.8%, and 211 males, accounting for 42.2% of the total. Among the respondents, the majority were between the ages of 30 and 39 (196 respondents, 39.2%), had at least a bachelor's degree (330 respondents, 66.0%), and were married (276 respondents, 55.6%). Most respondents reported a household income ranging from RM3,001 to RM8,000 (195 respondents, 39.0%) and RM8,001 to RM15,000 (203 respondents, 40.6%). The study also revealed that most participants worked in the service sector (158 respondents, 31.8%). Selangor, Johor, and Sabah were the three states with the highest number of respondents. Subsequently, the data from the respondents' visits to Malaysian WHS were analyzed and found that most respondents had visited George Town and Malacca while only a small portion had visited the other Malaysian WHS.

Following this, the measurement model was assessed to ensure the validity and reliability of the constructs. The factor loadings for each construct were  $> 0.70$  except for Items 7.23, 7.24, and 7.25 (on neuroticism), which were  $< 0.50$ . The Cronbach's alpha and Dijkstra-Henseler's rho\_A for all items were  $> 0.70$ , indicating that the reflective constructs exhibited reliability and were within acceptable levels except for neuroticism (Benitez *et al.* 2020). The convergent validity was then assessed. All constructs' average variance extracted (AVE) was found to be above 0.50, except for neuroticism. Therefore, as recommended by other studies, this construct was removed from further assessment (Ahmed *et al.* 2022; Damti & Hochman, 2022). The discriminant validity of the constructs was also examined using the Heterotrait-Monotrait ratio (HTMT), which was acceptable and below the threshold of 0.85 (Hair *et al.* 2021; Henseler & Schuberth, 2020). These results are shown in Table 2.

The findings of the direct hypotheses testing showed that value on sustainability had the most significant impact on attitude ( $\beta = 0.628$ ,  $t = 20.04$ ;  $p < .005$ ), followed by personal norms ( $\beta = 0.530$ ,  $t = 13.65$ ;  $p < .005$ ), moral obligation ( $\beta = 0.470$ ,  $t = 12.51$ ;  $p < .005$ ), subjective norms ( $\beta = 0.439$ ,  $t = 9.73$ ;  $p < .005$ ), and social norms ( $\beta = 0.414$ ,  $t = 8.25$ ;  $p < .005$ ). The findings validated every theory, hence bolstering the theoretical framework proposed in this study. Therefore, the hypotheses H<sub>1</sub>, H<sub>2</sub>, H<sub>3</sub>, H<sub>4</sub>, and H<sub>5</sub> were supported, which is shown in Table 3.

Table 2. Reliability and Validity of Measurement Model

Constructs	HTMT Test Values											
	VALUE	ATT	PN	SN	SUBJ	MO	AGREE.	CONS.	EXTRA.	NEURO.	OPEN.	BEH.
VALUE												
ATTITUDE	0.661											
PERSONAL NORMS	0.557	0.655										
SOCIAL NORMS	0.424	0.519	0.777									
SUBJECTIVE NORMS	0.456	0.507	0.700	0.721								
MORAL OBLIGATION	0.494	0.574	0.613	0.545	0.602							
AGREEABleness	0.384	0.421	0.364	0.247	0.443	0.044						
CONSCIENTIOUSNESS	0.329	0.338	0.440	0.319	0.482	0.350	0.562					
EXTRAVERSION	0.257	0.289	0.421	0.456	0.474	0.273	0.421	0.619				
NEUROTICISM	0.082	0.042	0.089	0.062	0.055	0.064	0.154	0.070	0.061			
OPENNESS	0.254	0.382	0.382	0.306	0.446	0.385	0.490	0.712	0.456	0.086		
BEHAVIOR	0.334	0.467	0.558	0.613	0.579	0.438	0.318	0.345	0.449	0.071	0.385	
Cronbach's alpha > 0.7	0.952	0.928	0.933	0.957	0.945	0.922	0.861	0.946	0.952	0.932	0.948	0.966
Rho_A > 0.7	0.955	0.932	0.934	0.957	0.946	0.940	0.878	0.974	0.960	0.979	0.952	0.968
AVE > 0.5	0.874	0.824	0.833	0.886	0.784	0.810	0.637	0.822	0.838	0.404	0.828	0.811

Source: Output from PLS-SEM 4.0

Table 3. Direct Hypotheses Testing Results

Hypo	Relationship	Path coefficient	T statistics ( O/STDEV )	P values	CI 5.0%	CI 95.0%	Decision
H <sub>1</sub>	Value → Attitude	0.626	20.038	<b>0.000</b>	0.576	0.576	Supported
H <sub>2</sub>	Value → Personal Norms	0.530	13.646	<b>0.000</b>	0.465	0.592	Supported
H <sub>3</sub>	Value → Social Norms	0.411	8.245	<b>0.000</b>	0.331	0.495	Supported
H <sub>4</sub>	Value → Subjective Norms	0.436	9.732	<b>0.000</b>	0.363	0.512	Supported
H <sub>5</sub>	Value → Moral Obligation	0.468	12.512	<b>0.000</b>	0.407	0.531	Supported

Note: Statistically significant values are marked in bold.

Source: Own Elaboration from PLS-SEM 4.0

Subsequently, the indirect or mediation effects for the hypotheses H6 to H10 were tested. It was found that attitude, social norms, and subjective norms had significant mediations effects on heritage sustainability participation behavior that is value on sustainability → attitude → heritage sustainability participation behavior ( $t = 2.729$ ;  $p = 0.003$ ), value on sustainability → social norms → heritage sustainability participation behavior ( $t = 3.511$ ;  $p = 0.000$ ), and value on sustainability → subjective norms → heritage sustainability participation behavior ( $t = 3.008$ ;  $p = 0.001$ ). However, it was observed that value on sustainability → personal norms → heritage sustainability participation behavior ( $t = 0.705$ ;  $p = 0.240$ ) and value on sustainability → moral obligation → heritage sustainability participation behavior ( $t = 0.487$ ;  $p = 0.313$ ) were not significant. Therefore, hypotheses H6, H8, H9 were supported, whereas H7 and H10 were not supported. The results of the mediation effects showed that social norms had the strongest mediation effects followed by subjective norms and attitude which is illustrated in detail in Table 4.

Table 4. Results of Mediation Effects

Hypo	Relationship	Path coefficient	T statistics ( O/STDEV )	P values	CI 5.0%	CI 95.0%	Decision
H <sub>6</sub>	Value on Sustainability → Attitude → Heritage Sustainability Participation Behavior	0.085	2.729	<b>0.003</b>	0.036	0.139	Supported
H <sub>7</sub>	Value on Sustainability → Personal Norms → Heritage Sustainability Participation Behavior	0.026	0.705	0.240	-0.034	0.086	Not Supported
H <sub>8</sub>	Value on Sustainability → Social Norms → Heritage Sustainability Participation Behavior	0.133	3.511	<b>0.000</b>	0.073	0.199	Supported
H <sub>9</sub>	Value on Sustainability → Subjective Norms → Heritage Sustainability Participation Behavior	0.096	3.008	<b>0.001</b>	0.043	0.148	Supported
H <sub>10</sub>	Value on Sustainability → Moral Obligation → Heritage Sustainability Participation Behavior	0.012	0.487	0.313	-0.027	0.056	Not Supported

Note: Statistically significant values are marked in bold.

Source: Own Elaboration from PLS-SEM 4.0

Next, the multi-group analysis (MGA) was employed to test the high and low moderation effects of the Big Five Personality traits in the VAB model. The moderating variables of the Big Five Personality traits, which are openness, conscientiousness, extraversion, and agreeableness, were found to partially moderate the relationships in heritage sustainability participation behavior. In summary, domestic tourists with high and low openness and conscientiousness, low extraversion, and high agreeableness positively moderate heritage sustainability participation behavior. The results of the moderating effects are displayed in Table 5.

Based on the importance-performance analysis (IPA), it was found that the total effects for value on sustainability had the highest value (0.353), indicating the highest importance. This is followed by social norms (0.325), subjective norms (0.220), attitude (0.136), personal norms (0.049), and moral obligation (0.026). In terms of performance, moral obligation had the highest score (82.822), followed by attitude (80.473), value on sustainability (79.433), subjective norms (75.324), personal norms (74.687), and social norms (72.493). Therefore, the value on sustainability was located in the high importance, high-performance quadrant, indicating that this variable is performing well. Social and subjective norms were located in the high-importance, low-performance quadrant, indicating the need to drive strategic changes in this area to foster behavioural changes among domestic tourists. Also, personal norms and moral obligation were located in the low-importance, high-performance quadrant, indicating the 'possible overkill' of these factors. Table 6 and Figure 2 illustrate these results further.

Table 5. Moderating Effects of the Big Five Personality Traits

Hypothesis/Path Coefficient	Original (_High)	Original (_Low)	p value (_High)	p value (_Low)	Results
<b>Openness (H<sub>11</sub>)</b>					Partially Supported
Openness → Participation Behavior	-0.031	0.045	0.498	0.677	
Openness x Attitude → Participation Behavior	-0.049	-0.268	0.269	<b>0.042</b>	
Openness x Personal Norms → Participation Behavior	-0.057	-0.032	0.270	0.841	
Openness x Social Norms → Participation Behavior	-0.071	-0.143	0.398	0.210	
Openness x Subjective Norms → Participation Behaviour	0.229	-0.130	<b>0.000</b>	0.341	
Openness x Moral Obligation → Participation Behavior	0.177	0.298	<b>0.001</b>	<b>0.005</b>	
<b>Conscientiousness (H<sub>12</sub>)</b>					Partially

Hypothesis/Path Coefficient	Original (. High)	Original (. Low)	p value (. High)	p value (. Low)	Results
Conscientiousness → Participation Behavior	0.044	0.126	0.474	<b>0.040</b>	Supported
Conscientiousness x Attitude → Participation Behavior	-0.065	0.027	0.331	0.733	
Conscientiousness x Personal Norms → Participation Behavior	-0.024	-0.088	0.691	0.461	
Conscientiousness x Social Norms → Participation Behavior	-0.067	0.155	0.362	0.295	
Conscientiousness x Subjective Norms → Participation Behavior	-0.023	0.061	0.752	0.582	
Conscientiousness x Moral Obligation → Participation Behavior	0.137	-0.078	<b>0.037</b>	0.306	
<b>Extraversion (H<sub>13</sub>)</b>					
Extraversion → Participation Behavior	0.050	0.287	0.305	<b>0.035</b>	
Extraversion x Attitude → Participation Behavior	0.043	0.211	0.459	0.110	
Extraversion x Personal Norms → Participation Behavior	0.045	0.135	0.487	0.262	
Extraversion x Social Norms → Participation Behavior	-0.165	-0.477	0.120	<b>0.001</b>	
Extraversion x Subjective Norms → Participation Behavior	0.019	0.248	0.795	0.092	
Extraversion x Moral Obligation → Participation Behavior	0.091	-0.096	0.189	0.499	
<b>Agreeableness (H<sub>14</sub>)</b>					Partially Supported
Agreeableness → Participation Behavior	0.077	-0.105	<b>0.047</b>	0.580	
Agreeableness x Attitude → Participation Behavior	-0.042	-0.059	0.349	0.747	
Agreeableness x Personal Norms → Participation Behavior	-0.058	0.140	0.428	0.607	
Agreeableness x Social Norms → Participation Behavior	-0.015	-0.013	0.873	0.948	
Agreeableness x Subjective Norms → Participation Behavior	0.145	-0.055	<b>0.050</b>	0.777	
Agreeableness x Moral Obligation → Participation Behavior	0.043	0.065	0.428	0.751	

Note: Statistically significant values are marked in bold.

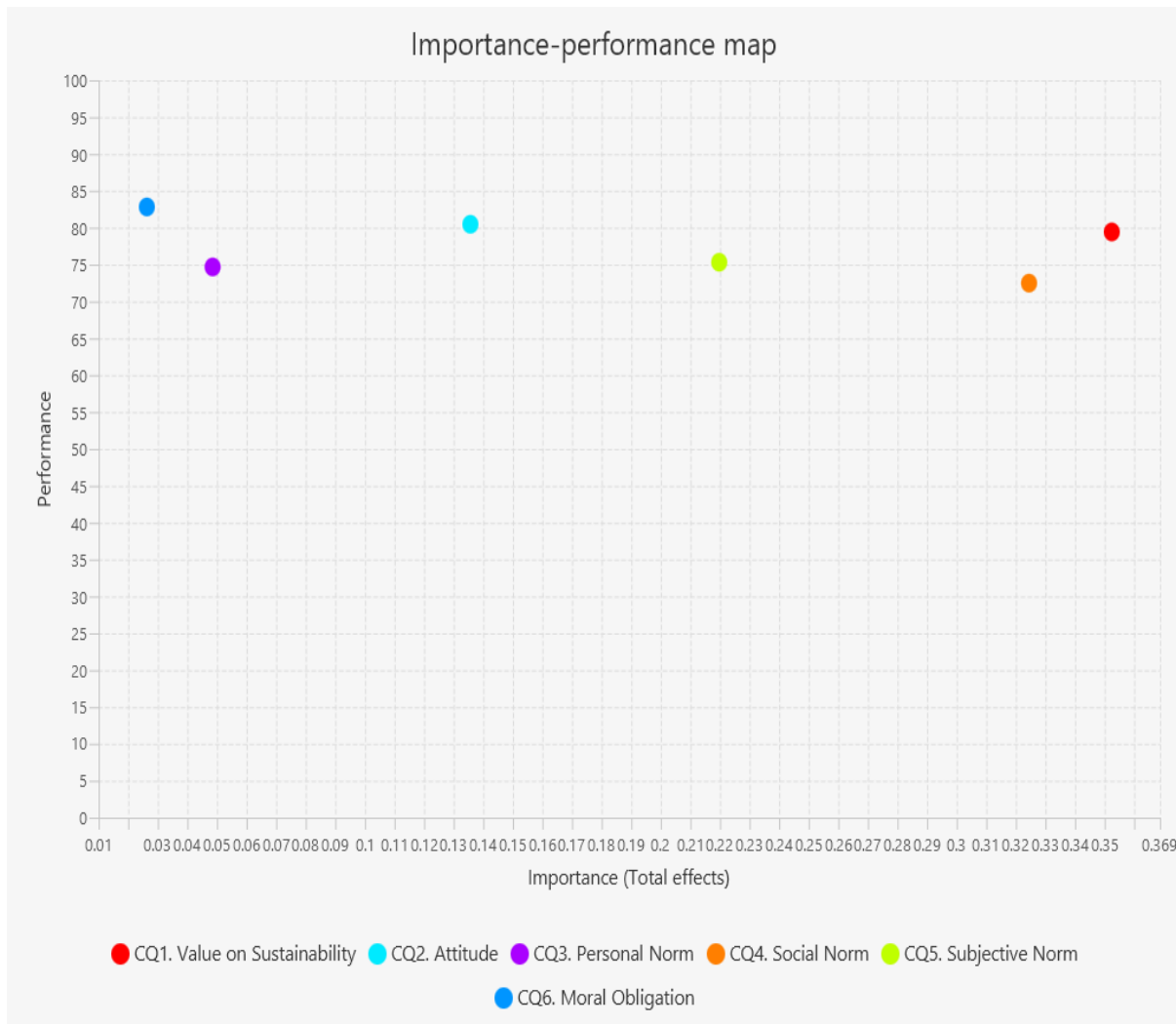
Source: Own Elaboration from PLS-SEM 4.0

Table 6. Importance-Performance Analysis

Constructs	Importance	Performance
Value on Sustainability	0.353	79.433
Attitude	0.136	80.473
Personal Norms	0.049	74.687
Social Norms	0.325	72.493
Subjective Norms	0.220	75.324
Moral Obligation	0.026	82.822

Source: Own Elaboration from PLS-SEM 4.0

Figure 2. Importance-Performance Matrix



Source: Output from PLS-SEM 4.0

## 7. Discussions

Based on previous studies, value was not directly related to behavior. However, value indirectly affects behavior through attitude (Bhattacharyya *et al.* 2020; Kim *et al.* 2021b). Also, as the VAB model indicates, value can influence behavior indirectly via attitude. Past studies also suggest that the VAB model cannot fully explain consumer behavior and should be expanded further (Jacobs *et al.* 2018). Therefore, this is confirmed in this study which integrates both the VAB and TPB and extends preceding research by incorporating other internal and external norms in explaining heritage sustainability participation behavior (Anuar *et al.* 2020; Ma & Chang, 2022; Walsh *et al.* 2021; Wang *et al.* 2022). Value on sustainability significantly influences attitude, personal norms, social norms, subjective norms, and moral obligation, with attitude having the most substantial path coefficient value, followed by personal norms, moral obligation, subjective norms, and social norms. These results correlate with previous research from Cheung and To (2019) together with Kabir and Hassan (2024), who found that consumers with positive environmental values exhibit a favorable attitude towards environmental issues and eco-social advantages. Similarly, the significant relationship between the value of sustainability and personal and social norms was supported by the study by Kim and Hall (2022), and Wang *et al.* (2022). This study also reinforces the findings by Fatoki *et al.* (2023) and Nekmahmud *et al.* (2022), where subjective norms have a highly positive relationship in the VAB model together with the positive influence on moral obligation as revealed in the study by Floriano and de Matos (2022).

The results further found that attitude, social norms, and subjective norms are significant mediators, whereas personal norms and moral obligation do not mediate the relationship between value on sustainability and heritage sustainability participation behavior. Based on the path coefficients, the strongest mediator was social



norms, followed by subjective norms and attitudes. These findings concur with previous studies on positive mediation by attitude and social and subjective norms (Kim *et al.* 2021b; Kim & Hall, 2021; Kwon & Namkung, 2022). There are also contradicting studies indicating that social norms do not necessarily indicate or influence customer loyalty and positive behaviour (Tajeddini *et al.* 2021). However, the studies by Bhattacharyya *et al.* (2020) and Chen and Tung (2014) reinforce the positive relationship of subjective norms as a mediator in the VAB model. It was also found that the Big Five Personality traits of openness, conscientiousness, extraversion, and agreeableness partially moderate the relationship between attitude, personal norms, social norms, subjective norms, and moral obligation with heritage sustainability participation behavior, which is supported by previous research (Kim *et al.* 2021b; Kim & Hall, 2021). Therefore, personality traits influence domestic tourists' willingness and ability to participate in heritage sustainability efforts. This can be associated with behaviors that support conservation and preservation efforts through communal initiatives.

The IPMA matrix highlighted that significant behavioral changes among domestic tourists can be achieved by focusing on social and subjective norms (Fakfare, 2021; Hu *et al.* 2024). These findings underscore the influential role of normative pressures in shaping individual intentions and actions. For instance, when there is a strong societal emphasis on valuing and preserving cultural and natural heritage, individuals and organisations are more likely to internalise and reflect these values in their behaviours (Lee *et al.* 2021; Yi *et al.* 2024). This alignment often results in a greater willingness to engage in sustainability initiatives, ranging from responsible tourism practices to active participation in heritage conservation and preservation programmes. In the context of heritage sustainability, subjective norms which relate to the perceived expectations of significant others such as family, friends, or community leaders can serve as a strong motivational force (Sulivyo *et al.* 2024; Wang *et al.* 2019). When individuals believe people they respect approve of heritage sustainability behaviours, they are more inclined to act accordingly, not only to gain social approval but also to avoid disapproval or criticism. This personal and relational dimension of normative influence complements social norms, which operate at a broader cultural or societal level, establishing what is commonly accepted or expected within a group or community (Zhu *et al.* 2022). Together, social and subjective norms can create a powerful feedback loop. Social norms help establish the cultural framework and shared values around heritage conservation, while subjective norms reinforce these values on a more personal level, encouraging behavioural consistency. This interplay fosters a community culture in which heritage sustainability is not only a collective goal but also a socially endorsed and personally meaningful practice (Javed *et al.* 2025).

## 8. Conclusions and Further Research

### 8.1 Theoretical Implications

This research makes a significant and novel contribution to the underexplored domain of heritage sustainability participation behavior by integrating two prominent behavioral frameworks which is the Value-Attitude-Behavior (VAB) model and the Theory of Planned Behavior (TPB). By doing so, it offers a comprehensive and theoretically robust model that incorporates both internal norms (*i.e.* personal norms and moral obligation) and external norms (*i.e.* social norms and subjective norms). This dual-norm approach provides a more holistic understanding of the drivers behind individuals' engagement in heritage sustainability practices, a perspective that has been largely overlooked in prior studies. Importantly, this study goes beyond conventional behavioral models by incorporating the Big Five Personality traits as moderating variables within the VAB framework, an area that remains under-researched in the context of heritage tourism and sustainability. By examining how personality traits influence the relationship between values, attitudes, and behavior, the study bridges a critical gap in the literature and highlights the psychological underpinnings that shape participation behaviour in heritage-related initiatives. From a theoretical standpoint, this research expands existing models by emphasising the dynamic interplay between attitude, personal norms, social norms, subjective norms, and moral obligation. It underscores the importance of fostering broader societal values, belief systems, and identity-driven motivations, particularly in domestic tourism settings, to encourage meaningful engagement in heritage sustainability.

Furthermore, the application of PLS-SEM combined with multi-group analysis (MGA) allows for a nuanced and granular analysis of how different personality types respond to various psychological and normative constructs. This methodological advancement enhances the precision of behavioral predictions and offers valuable insights into segmentation strategies based on personality profiles. Specifically, the comparative analysis of high and low groups across constructs such as attitude, personal norms, social norms, subjective norms, and moral obligation enables a deeper understanding of heterogeneity in domestic tourist behavior thereby supporting more targeted and effective policy and intervention strategies. Collectively, the research not only contributes a novel theoretical framework for examining heritage sustainability participation behaviour but also provides

empirical evidence and practical recommendations for policymakers, heritage managers, and tourism stakeholders. It advocates for more personalised and psychologically attuned outreach strategies that align with individuals' core values, social contexts, and personality dispositions that ultimately foster stronger and more sustainable community participation in heritage sustainability.

## 8.2 Practical Implications

This research provides a strategic roadmap for policymakers to harness individuals' belief systems to cultivate cohesion and support for heritage sustainability efforts. Governments can encourage long-term community participation by fostering a more profound sense of awareness and appreciation for heritage. One practical approach is implementing human development and social programmes, such as integrating heritage education into the school curriculum, promoting intergenerational storytelling, and organizing awareness campaigns at family and community levels. These initiatives can shape personality traits like openness and conscientiousness, which are linked to a greater sense of responsibility and engagement in heritage sustainability. In addition, targeted campaigns, community and municipality engagement programmes, and partnerships with local organisations can emphasise the cultural, economic, and social benefits of sustaining heritage sites. Public-private collaborations, such as corporate sponsorships for restoration projects and incentives for local businesses to invest in heritage tourism, can further strengthen these efforts. By aligning policies with community values and fostering a sense of ownership over heritage assets, governments can create a sustainable and inclusive model for sustainability.

This suggests that well-designed government interventions not only shape individual and societal behaviours but also have the potential to foster a collective commitment to heritage sustainability. The recent designation of Niah Caves as a UNESCO World Heritage Site in July 2024 further underscores Malaysia's rich cultural and natural heritage. This recognition, combined with Malaysia's strong economic performance in recent years, highlights the role of heritage sites in driving economic growth, tourism, and national identity. There are five other sites in Malaysia on the World Heritage tentative list, including the FRIM Forest Reserve Park in Selangor, the Gombak Selangor Quartz Ridge, Taman Negara in Pahang, Royal Belum Forest in Perak, and the Sungai Buloh Leprosarium. These sites are being evaluated as World Heritage Sites, showcasing Malaysia's rich cultural and natural heritage. This study also proposes the need to actively promote heritage sites in remote areas to gain more engagement, visibility, and visitation by domestic tourists. By leveraging these assets, Malaysia can enhance its global reputation while ensuring its historical and cultural treasures are sustained for future generations.

## 8.3 Limitations and Further Research

There were limitations in obtaining a representative sample of the Malaysian population due to constraints such as geographical accessibility, language barriers, and variations in understanding the term 'sustainability'. As a result, the study employed a purposive sampling method, which may limit the generalizability of the findings. Future research could address this limitation by expanding the study to other locations, particularly WHS or heritage buildings facing similar challenges in Malaysia. Additionally, research could be extended to other developing countries in Asia-Pacific, such as Indonesia, Thailand, or Vietnam, to explore cross-cultural perspectives on heritage sustainability. The proposed research model can also be applied to other domains within heritage tourism, such as ecotourism, virtual tourism, or cultural heritage tourism, to assess its broader applicability. Furthermore, this study employed a cross-sectional data collection method, which helped identify the directional relationships among variables but did not allow for strong causal inferences. To address this, future studies could adopt a longitudinal approach to examine how these relationships evolve over time and establish stronger causal linkages.

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## Credit Authorship Contribution Statement

**Geetha Krishnapillai:** Conceptualization, Investigation, Methodology, Project administration, Software, Formal analysis, Writing – original draft, Data curation, Validation, Writing – review and editing, Visualization;

**Filzah Md Isa:** Supervision, Validation, Writing – review.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Declaration of Use of Generative AI and AI-Assisted Technologies

The authors declare that they have not used generative AI and AI-assisted technologies during the preparation of this work.

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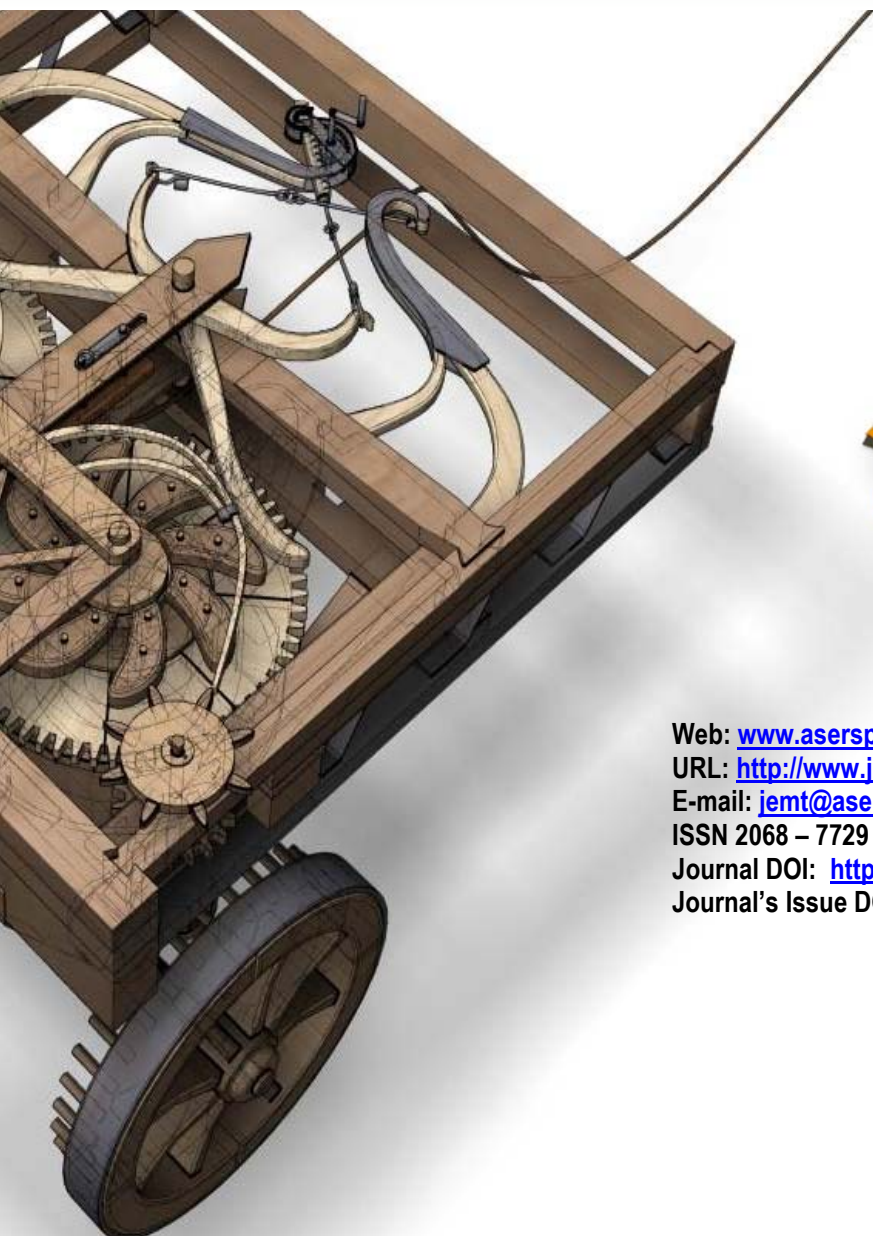
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