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EXPLORING VOLUNTEERS' MOTIVATIONS AND PERCEPTIONS IN SEA TURTLE CONSERVATION: A THEMATIC ANALYSIS THROUGH VOLUNTEER FUNCTION INVENTORY (VFI) PERSPECTIVE

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ABSTRACT

Background and Purpose: Despite the rise in environmental volunteering, limited empirical research has explored the unique motivations behind marine-based initiatives like sea turtle conservation. This study utilizes Volunteer Function Inventory (VFI) to address this gap, exploring the specific environmental and socio-cultural factors that drives volunteers. Ultimately, this research serves a dual purpose (i) it expands the theoretical reach of the VFI into marine contexts and (ii) it equips program coordinators with the insights needed to foster sustained volunteer engagement and maximise conservation impact.

Methodology: This article presents evidence-based findings from a focus group discussion (FGD) involving nine volunteers who participated in sea turtle conservation programs in Malaysia. The participants included both company-nominated and self-initiated volunteers. The FGD explored their motivations, perceptions and experiences with volunteering, as well as their views on sea turtle egg consumption, ecotourism development and the power of volunteers to influence conservation-oriented tourism.

Findings: A thematic analysis revealed six key themes based on motivations, perceptions and experiences with volunteering. The themes are awareness and education, government roles and regulation, community empowerment, ecotourism impacts, sustainable practices and volunteer agency.

Contributions: By interpreting these findings through the lens of the VFI framework, the study highlights how diverse motivational functions operate in an environmental volunteering context. Beside theoretical enrichment of VFI through integration with environmental citizenship and community-based conservation perspectives, the article concludes with implications for conservation organizations on participatory and community-based conservation, which underscores the importance of mutual trust, local knowledge and shares decision-making in achieving sustainable outcomes and ecotourism policy.

Keywords: Sea turtle conservation, volunteerism, volunteer motivation, Volunteer Function Inventory (VFI), community perceptions.

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1.0 INTRODUCTION

In recent years, studies on Malaysia engagement in volunteerism have expanded considerably. Youth appear to have notably positive views on volunteerism, which are manifested in their active engagement. A recent study on Malaysian youth volunteers found that values, social and enhancement motivations were the strongest predictors of participation, whereas career, understanding and protective motives played comparatively minor roles (Othman et al., 2025). Similarly, Wei et al. (2025) reported that accessibility, altruism and utilitarianism exert positive effects on youth volunteerism in Malaysia, with altruism emerging as the most influential motivational factor. Beyond the youth demographic, evidence also indicates that volunteering has a meaningful impact on older adults. A study of Malaysians aged 50 and above found that demographic, cultural, and social factors are associated with individual's decision to volunteer (Sutan et al., 2024). What is more critical, however, is that maintaining engagement in the long run, regardless of volunteer demography, necessitates consistent and enduring commitment (Abd-Rahman et al., 2025).

Volunteerism also plays a pivotal role in environmental and wildlife conservation, providing crucial human and social capital that complements limited institutional resources. In Southeast Asia, community-based conservation initiatives have gained prominence as vehicles for education, local empowerment and ecotourism sustainability (Fadliyanti et al., 2024). Conservation projects depend on the act of volunteerism to sustain the project in the long term. A systematic review of volunteer motivations by Sextus et al. (2024) recorded an increasing popularity of nature conservation projects in the last two decades. From the literature, several factors have contributed to the growing trend of volunteering in nature conservation, including the rise of environmentalism and the increasing pressure on natural ecosystems. For instance, the push toward a circular economy and the pursuit of sustainable development goals in Thailand have made youth empowerment through volunteerism a vital component in building a more sustainable and equitable future (Ferng, 2025). Furthermore, volunteers are increasingly being used by non-governmental organisations (NGOs) and government agencies entrusted with managing ecologically significant and recreation-oriented regions to conserve biodiversity, nurture healthy habitats and administer leisure and conservation programmes (Ewane, 2024). Another aspect of volunteerism is linked to the increasing popularity of *voluntourism* over the past two decades (Ocanas & Thomsen, 2023). The numbers of volunteer tourists and available conservation projects have risen greatly and created a new opportunity for expanding the volunteering program via edutourism. Edutourism is a subtype of tourism which in recent decades that has received much attention among the researcher, tourism policy maker and public or private sectors.

Despite the encouraging landscape of conservation volunteerism, limited research has been conducted to examine the underlying motivations of individuals participating in marine-based conservation programs, such as sea turtle conservation. While theoretical frameworks such as the Volunteer Function Inventory (VFI) provide a valuable foundation for interpreting volunteer motivations, empirical studies in this specific context remain scarce. Given the unique environmental and socio-cultural dimensions of sea turtle conservation, understanding the motivations and perceptions is crucial. Such understanding not only informs the design of more effective volunteer programs but also contributes to sustaining long-term engagement, strengthening conservation outcomes and expanding the theoretical application of the VFI to marine-based conservation initiatives. The primary questions concern community-level perceptions:

Research Question 1: What are the volunteers' perceptions regarding sea turtle egg trade and consumption, ecotourism development, and their influence on tourism development in sea turtle conservation contexts?

Research Question 2: How are these perceptions shaped by and reflective of the motivational functions outlined in the Volunteer Functions Inventory (VFI)?

2.0 LITERATURE REVIEW

For millions of years, sea turtles have inhabited the oceans with remarkably little evolutionary change. They play vital ecological roles as prey for other protected species and as contributors to ecosystem functioning, often described as potential ecosystem engineers. Historically, they have also provided humans with food and valuable resources, a demand that persists in some regions. In many coastal areas, sea turtles now hold additional economic significance through tourism, although poorly managed tourism practices can have negative impact both turtles and their habitats (Godley et al., 2020). The species' complex biological traits, including lifespans, delayed maturity and wide-ranging dispersal, pose unique conservation challenges while simultaneously capturing public interest. Their charismatic appeal makes them powerful flagship species for mobilizing support in marine conservation campaigns, such as those targeting single-use plastics or coastal habitat protection. Over the years, a vast and expanding global network of organizations has emerged to safeguard sea turtles, often supported by a disproportionately high number of dedicated professionals and volunteers compared to other marine taxa (Godley et al., 2020). To better understand what drives volunteers, VFI which was developed by Clary et al. (1998) provides a widely accepted framework majorly to understand the psychological functions served by volunteering. The six VFI dimensions, i.e. protective, values, career, social, understanding, enhancement describe the personal and social motives that drive voluntary participation (refer Figure 1). However, relatively limited empirical research applies the VFI in environmental and citizen-science contexts, especially in Southeast Asia. This study addresses that gap by examining volunteer motivations and perceptions within the sea turtle conservation domain and analysing how these experiences align with, extend or challenge existing VFI perspective.



Figure 1: Volunteer Function Inventory (VFI)

2.1 Motivation to Volunteer

Volunteer community, wherein members of the public collaborate with professional scientists to generate scientific knowledge, has increasingly demonstrated success in marine conservation. This rise of volunteer is framed as a response to the growing need for comprehensive data on environmental changes, the limitation of government in environmental management (McAteer et al., 2021). It has been shown that volunteer community is an important and economical way to add to the body of knowledge supporting marine policy and give recommendations for management to those making decisions. Volunteer community initiatives are employed to collect fine-grained data to advance understanding and extend the temporal and spatial scope of study. Volunteers in conservation programs also experience participant outcomes, such as increased scientific and environmental literacy, a sense of environmental and marine citizenship, and more informed participation in decision-making (McAteer et al., 2021). Individual's attitudes toward nature and its preservation, as well as their evaluations of conservation situations and actions, are influenced by a set of fundamental beliefs and values regarding biodiversity. Responses to biodiversity are generally the result of a prolonged interaction between cultural contexts and personal experiences that shape volunteers' attitudes toward nature. These perspectives are subsequently culturally imprinted and manifested in the form of constructed representations (Loyau & Schmeller, 2016). Volunteer community support and willingness to participate in volunteer projects have been demonstrated to be influenced by their perceptions of the results of conservation efforts, including socioeconomic and environmental repercussions (Anuar et al., 2022). Volunteers' attitudes and intentions to maintain engagement can be further strengthened by perceptual shifts regarding the knowledge, abilities and community involvement acquired through conservation volunteering (Puiu & Udristioiu, 2023).

2.2 Perception of Sea Turtle Egg Trade and Consumption

Human activity has put sea turtles in risk all throughout the world, particularly regarding hunting for meat and shells, collecting eggs and unintentional catch in fishing gear. There are two types of uses for sea turtles, consumptive and non-consumptive. Consumptive usage means removing eggs, adults or subadults from the environment permanently to use their meat and shells. Governments occasionally authorize consumptive usage in Costa Rica, Nicaragua, and Suriname, for instance, egg collection is legal. The non-consumptive use of sea turtles is associated with ecotourism, a form of wildlife exploitation in which visitors pay to view turtles without removing the animals or their products from the environment. Although the trade of sea turtle eggs is regulated and enforced by the law in Malaysia and the restriction is made under the state government, for instance, Terengganu state government has long established its sea turtle protection initiative. However, the consumption of the eggs is still noticeable. Before the arrival of colonialism, sea turtle eggs were the only animal component that was eaten in Malaysia that was both locally sold and governed by local laws (Mohd Jani et al., 2020). Since Malaysia's independence, each state in Peninsular Malaysia has been able to use the authority granted to them by the Fisheries Act 1963 and its amendment in 1985 to enact regulations pertaining to sea turtles and their eggs. This is because the animal is constitutionally recognized as a natural resource, the management of which is up to the federated states. Consequently, the trading and consumption of sea turtle eggs are either completely outlawed in Sabah and Sarawak, completely unregulated in Perlis and Selangor, where turtle nesting is negligible, or controlled by trade concessions in the nine federated states that remain. Of the third group, Terengganu presents the most compelling case study because of its historical significance as the world's most well-known leatherback turtle rookery that tragically ended in disaster, as well as its contemporary significance as one of the principal green turtle nesting sites in

Southeast Asia (Mohd Jani et al., 2020). Because of this, there is a lot of pressure from the sea turtle conservation front to impose additional, stronger legislative requirements on top of those established by the 1951 Terengganu Turtle Enactment (TTE).

2.3 Perception of Ecotourism Development

In the last 20 years, ecotourism, wildlife tourism and volunteer tourism have all grown in popularity as developing kinds of alternative travel (Rattan et al., 2012). A rise in environmentally and socially concerned travellers has contributed to the growth of these alternative tourism activities. Attractions for ecotourism frequently include tourist destinations and events that focus on improving the environment and the local community (Rattan et al., 2012). Ecologists and conservation biologists have recently started to criticize ecotourism more harshly, claiming that it may even be detrimental to species in addition to being ineffective for conservation. Biologists perform a large portion of the task, forming their opinions mostly on hypotheses concerning the dangers of predators or physiological indicators of stress. According to them, ecotourism reduces a population's overall fitness for survival, increases the possibility that animals and humans would feed on one another and acclimates animals to human presence (Stronza et al., 2019). A counterargument casts doubt on the viability of habituation spreading to a variety of wild predator species and proposes that an 'ecotourism shield' can screen entire wildlife populations across large regions, with human-wildlife interactions taking place in a few select spots (Stronza et al., 2019).

It is impossible to conduct a thorough analysis of the claim that ecotourism promotes development and conservation if evaluations are skewed using data from non-ecotourism-related activities (Stronza et al., 2019). Broad criticism of tourism has the potential to erode support for ecotourism and hinder initiatives that would otherwise create incentives for conservation, maintain protected areas, or promote community development (Stronza et al., 2019). Even with sparse empirical data and imprecise classifications, research indicates that ecotourists typically share the following traits: equal participation rates for men and women, participants are highly educated, outgoing and come from comparatively wealthy homes (Nolan & Rotherham, 2012). Despite having charitable status, many volunteer-based conservation-ecotourism organizations operate in commercial marketplaces to find enough volunteers to achieve their conservation goals. Similarly, while volunteer tourists could be driven more by compassion than by hedonistic desires, self-interest is still very much present. The amount of money volunteers is likely to spend on planning their trip, purchasing insurance, booking flights, purchasing equipment, purchasing medical and personal hygiene goods, and planning their leisure time while participating may be indicative of the latter (Nolan & Rotherham, 2012). According to Nolan and Rotherham (2012), research conduct on volunteers' perceptions of an ecotourism experience: a case study of ecotourism to the coral reefs of Southern Negros in the Philippines, the result that they gathered shown a few perceptions of volunteers in ecotourism. What stood out most about the occasion was how much support and comfort new volunteers were able to offer each other when they talked about what they thought would happen when they went on an expedition. This was evident in the way some volunteers described themselves before leaving for the adventure and how they expected the experience to be valuable to the consumer; they were 'struggling to get the funds but it will be worth it'. It was observed, although, that additional comments regarding 'value' were made in a way that went beyond simple monetary terms and included experiential elements as well, such as the calibre of the destination's surroundings, scuba diving, conservation efforts and interactions with the locals and other volunteers.

2.4 Perception of Power to Influence Tourism

The ideal cooperative relationships between volunteers' tourism stakeholders would be one of togetherness and partnership between volunteers and destination communities. Contributing organizations are crucial in operationalizing best practices that optimize good outcomes, and community engagement is particularly thought to be helpful in addressing socioeconomic inequality and empowerment (Eckardt et al., 2022). The imprecise portrayal of the relationships between the various stakeholders limits our capacity to fully comprehend the primary forces for example the internal and external contextual variables that drive sustainability in volunteer tourism. The internal contextual factors are determined by the stakeholders' commitment, expectations and readiness to interact with one another. On the other hand, the external conditions are defined by the local economic, social, political and environmental settings. Transparency, empowerment and equality currently characterize tourism's sustainability performance. These attributes are linked to particular operational practices, such as (i) making sure that the contributions made by volunteers are transparently accounted for, (ii) giving host projects the information they need about volunteers, (iii) making sure volunteers are prepared, (iv) taking precautions to protect vulnerable beneficiaries, and (v) enshrining the sending organization's long-term commitment to the host projects (Eckardt et al., 2022).

Ecotourism aims to create a profitable foundation that enables locals to enjoy respectable living conditions, rather than just setting up activities to draw tourists. The act of designating certain regions for tourism has frequently resulted in disputes over resource ownership since the indigenous population was forced off their land or had restricted access to the resources that allowed them to survive. Furthermore, numerous instances exist of societies that, despite having complete access to natural resources, utilized them in an unsustainable manner (Zacarias & Loyola, 2017). When properly designed and executed, ecotourism has the potential to influence policy and decision-making, directly promoting environmental management and conservation while also, indirectly, improving community livelihoods. Preserving natural resources is an essential measure to ensure enduring sustainability and protect advantages for the community.

3.0 RESEARCH DESIGN

This study employed a qualitative approach through Focus Group Discussion (FGD) with participants involved in sea turtle conservation programs in Malaysia. The use of FGDs allowed for an in-depth exploration of volunteers' experiences, perceptions and underlying motivations, providing nuanced insights that quantitative might overlook. Prior to FGD, the research received an ethical clearance approval. The FGD, which lasted for four hours, was held with nine respondents divided into two subgroups, (i) Group A (A1–A5) who are volunteers nominated by their companies to participate in sea turtle conservation programs and (ii) Group B (B1–B4) who are self-initiated volunteers motivated by personal and academic interests. Table 1 illustrates the respondents' background.

Table 1: Respondents background

Respondent	Sex	Age	Types of Volunteers	Turtle Volunteer Experience	Number of Activity	Duration	Location
A1	Male	20-29	Company-nominated	Yes	> 10	2016 - 2023	Klang Valley Redang
A2	Female	20-29	Company-nominated	Yes	8	2022 - 2023	Pulau Sibu Melaka Terengganu
A3	Male	20-29	Company-nominated	Yes	> 5	2023	Zoo Negara Raub Kertih Kuala Nerus
A4	Female	20-29	Company-nominated	Yes	> 10	2023	Redang Klang Valley Sabah
A5	Female	30-39	Company nominated	Yes	6	2023	Redang Pasir Gudang Tanjung Langsat
B1	Female	50-59	Self-initiated	Yes	2	2019-2020	Pulau Redang Desaru
B2	Female	20-29	Self-initiated	Yes	2	2021 - 2023	Jengka
B3	Male	20-29	Self-initiated	Yes	5	Latest in 2023	Klang Valley
B4	Female	20-29	Self-initiated	Yes	5	2012 - 2022	Terengganu

Source: Developed for this Study

The FGD explored four main areas: (i) participants' background in volunteering, (ii) perceptions of sea turtle egg trade and consumption, (iii) views on ecotourism development and (iv) perceived influence over tourism behaviour. The FGD was recorded and transcribed verbatim. A deductive approach in which a thematic analysis was conducted to identify recurrent ideas and interpret them within the VFI framework (Braun & Clarke, 2006). Themes derived were around awareness and education, government roles, community empowerment, the impact of ecotourism, sustainable practices and volunteer agency.

4.0 ANALYSIS AND DISCUSSION

Table 2 presents an overview of the six major themes that emerged from the focus group discussions, together with representative quotations, key findings and their corresponding Volunteer Functions Inventory (VFI) dimensions.

Table 2: Key findings based on themes

Theme	Respondent Quotations	Key findings	Related VFI
Awareness and Education	• "Education is very important to educate more people especially the new generation on why it is important to stop consuming and trading sea turtle eggs" (A5). • "We need to go back to the main thing, which is education, telling people the importance of sea turtles and how it will affect us as humans" (B2). • "Scientific literacy... it adds knowledge and practice. It opens up my mind" (B3). • "The volunteer program changed my perception because I learned about the process and the challenges faced by sea turtles" (B4).	Education was consistently viewed as the most effective way to reduce sea turtle egg consumption and increase conservation awareness. Volunteers also highlighted the importance of knowledge acquisition and scientific literacy.	Understanding, Values
Role of Government and Regulations	• "Penalties are too light." (A2, A5, B2, B3). • "We must have the rules and regulations to control it." (B1). • "Even if there is enforcement, people still need awareness." (B4). • "Prevention is better than cure." (B4).	Respondents supported stronger enforcement and legislation while recognising that regulations alone are insufficient without public awareness and education.	Protective, Values
Community Involvement and Empowerment	• "Locals must benefit directly from ecotourism." (A3). • "The involvement of local communities is important because they are part of the area and can help protect it." (B1). • "When the community benefits, conservation and tourism can work together in harmony." (B1).	Participants believed conservation efforts should involve and benefit local communities. Community ownership was viewed as critical for long-term conservation success.	Social, Enhancement, Values
Impact of Ecotourism on Conservation	• "Eco-tourism creates awareness, but not everyone who joins is aligned to the key objectives." (A1). • "Some participants may do damage because they lack interest." (A1). • "Ecotourism needs to start from putting conservation first, not profit first." (B2). • "Too many tourists can cause pollution and disturb the ecosystem." (B2).	Participants recognised both positive and negative consequences of ecotourism. While ecotourism can create awareness and funding opportunities, it can also threaten ecosystems if poorly managed.	Understanding, Values, Enhancement
Sustainable Practices and Conservation Priorities	• "I support the ban, but we also need sustainable alternatives." (B2). • "The new generation should understand why conservation is important." (B1).	Conservation was prioritised over economic gains. Participants	Values, Understanding

	• "The focus should be awareness and education, not only regulations." (B2). • "Conservation should come first before commercial interests." (Multiple participants).	advocated for sustainable, educational and culturally sensitive approaches rather than purely restrictive measures.	
Volunteers' Power to Influence Ecotourism	• "I have a role in influencing eco-tourism through advocating for sustainable travel practices, participating in conservation efforts and educating others about responsible tourism." (B4). • "I promoted the programme through Instagram and people I didn't know joined as well." (A4). • "Social media can go so much further if they market it even more." (A4). • "I promote it to my friends and encourage them to join." (A6).	Volunteers believed they could shape public attitudes and behaviours through advocacy, education and role modelling.	Values, Social, Enhancement, Generativity

The themes illustrate participants' perceptions of sea turtle conservation, ecotourism development and their role as conservation volunteers. The following sections provide a detailed interpretation of each theme in relation to the VFI framework and existing literature.

4.1 Awareness and Education

As shown in Table 2, awareness and education emerged as the most prominent theme across the discussions. Participants consistently identified education as the primary mechanism for reducing sea turtle egg consumption and fostering conservation-oriented behaviours. Beyond formal awareness campaigns, respondents highlighted the importance of experiential learning through volunteering activities, which enabled them to develop a deeper understanding of conservation issues and environmental challenges.

The finding aligns closely with the understanding function of the VFI, whereby individuals volunteer to acquire new knowledge, skills and experiences (Clary et al., 1998). Many participants described volunteering as a transformative learning experiences that enhanced both their environment literacy and appreciation of conservation efforts. The findings further suggest that educational experiences can strengthen the values function, as increased knowledge often translated into stronger ethical commitments towards wildlife conservation. Similar observations have been reported by Bruyere and Rappe (2007), Mesham and Barnett (2008), and Ardoin et al. (2023), who found that environmental volunteering promotes both cognitive learning and pro-environmental attitudes.

4.2 Role of Government and Regulations

Participants widely acknowledged the importance of government intervention in protecting sea turtle populations. While respondents generally supported stricter enforcement and stronger penalties for illegal egg trade and poaching activities, they also recognised that regulations alone may be insufficient without accompanying educational initiatives and public awareness efforts.

This theme reflects the protective function of the VFI, as participants expressed concern for mitigating environmental threats and protecting vulnerable species. At the same time, respondents viewed themselves as active contributors to conservation governance through advocacy, reporting violations and encouraging responsible environmental behaviour. Such findings support recent extensions of the VFI that highlight civic engagement and

environmental stewardship as important motivations for volunteering (Newton et al., 2020; Wong, 2024). Consistent with previous studies, participants perceived volunteers not merely as supporters of conservation initiatives but as important partners in achieving conservation objectives and strengthening environmental governance (Bruyere & Rappe, 2007; Measham & Barnett, 2008).

4.3 Community Involvement and Empowerment

Community involvement was identified as a critical component of successful and sustainable conservation efforts. Participants believed that conservation initiatives are more likely to succeed when local communities are actively engaged and receive tangible benefits from conservation-related activities, particularly ecotourism.

This finding strongly aligns with the social function of the VFI, whereby volunteering provides opportunities to build relationships, strengthen social networks, and contribute to collective goals. Participants viewed local communities as important stakeholders whose support is essential for reducing illegal activities and promoting long-term conservation outcomes. The emphasis on community benefits also reflects the enhancement function, as volunteers perceived personal satisfaction and fulfilment from contributing to community welfare and environmental protection. The findings are consistent with community-based conservation literature, which highlights the importance of local participation, shared ownership and collaborative decision-making in achieving sustainable conservation outcomes (Berkes, 2009; Bennett et al., 2019; Young et al., 2021). When communities perceive direct benefits from conservation initiatives, they are more likely to support and internalise conservation values, thereby enhancing the long-term effectiveness of conservation programmes.

4.4 Impact of Ecotourism on Conservation

Participants expressed mixed views regarding the role of ecotourism in conservation. While ecotourism was generally perceived as an effective mechanism for generating conservation awareness, environmental education and financial support, respondents also acknowledged the potential negative consequences of poorly managed tourism activities. Concerns included habitat disturbance, overcrowding and tourism activities that prioritise commercial interests over conservation objectives.

These findings demonstrate the interaction between the understanding and values functions of the VFI. Participants displayed a sophisticated awareness of the complexities involved in balancing environmental protection with economic development. Their responses suggest that volunteers increasingly adopt a systems-thinking perspective, recognising that ecotourism can function both as a conservation tool and as a potential environmental threat if not properly managed. Furthermore, participants' reflections indicate the emergence of an environmental moral identity, whereby conservation considerations are prioritised when evaluating tourism development. This observation supports Chawla’s (2020) argument that environmental volunteering contributes to the development of environmental citizenship and long-term stewardship behaviours.

4.5 Sustainable Practices and Conservation Priorities

Participants consistently emphasised that conservation objectives should remain the primary focus of ecotourism development. Although respondents generally supported conservation regulations, many advocated for balanced and culturally sensitive approaches that combine education, awareness and sustainable alternatives rather than relying solely on restrictive measures.

This theme is strongly associated with the values function of the VFI, reflecting participants' commitment to protecting wildlife and ecosystems. At the same time, the findings reveal elements of the understanding function, as participants demonstrated an appreciation of the complex social and cultural contexts surrounding conservation issues. Rather than viewing conservation challenges through simplistic regulatory solutions, respondents proposed adaptive and pragmatic approaches that consider both ecological and social realities. The findings therefore suggest that conservation volunteering may involve an additional dimension beyond the traditional VFI framework, namely adaptive problem-solving and contextual decision-making. This observation may warrant further theoretical exploration in future studies of environmental volunteer motivation.

4.6 Volunteers' Power to Influence Ecotourism

Respondents viewed themselves as advocates, educators and role models capable of promoting responsible tourism and conservation awareness within their social networks and communities. This theme reflects the convergence of several VFI dimensions, particularly the values, social and enhancement functions. Participants derived personal satisfaction from sharing knowledge, encouraging conservation-friendly behaviours and contributing to broader societal change. The findings also demonstrate characteristics of generativity, whereby individuals seek to create lasting environmental and social impacts beyond their immediate involvement.

Interestingly, participants frequently referred to advocacy, leadership and social influence as important outcomes of volunteering. These observations extend the traditional interpretation of the VFI career function. Rather than seeking direct professional advancement, participants appeared motivated by opportunities to develop civic leadership and environmental stewardship capacities. Consequently, conservation volunteering may foster broader forms of personal development that transcend conventional career-related motivations and contribute to long-term environmental citizenship. The thematic analysis demonstrates that participants' motivations and perceptions resonate strongly with multiple VFI dimensions, while also revealing context-specific extensions. Collectively, the six themes provide a direct answer to Research Question 1, demonstrating that volunteers perceive education, community involvement and sustainable ecotourism as central to successful sea turtle conservation. Table 3 summarises this linkage.

Table 3: Themes and their corresponding VFI Functions

Theme	Corresponding VFI Functions	Interpretation
Awareness & Education	Understanding, Values	Desire for learning and expressing altruism through conservation.
Government & Regulation	Protective, Values	Volunteering to address societal threats and uphold moral responsibility.
Community Empowerment	Social, Enhancement	Seeking social connection and personal growth via community engagement.
Ecotourism Impact	Understanding, Values, Enhancement	Balancing knowledge-seeking with moral and self-development motives.
Sustainable Practices	Values, Understanding	Prioritizing ethical and ecological responsibility.
Volunteer Agency	Social, Enhancement, Career (civic)	Expressing leadership, advocacy, and identity within conservation networks.

4.7 Linking Findings to the Volunteer Function Inventory (VFI)

These findings directly address Research Question 2 by demonstrating that volunteers' perceptions are strongly aligned with multiple VFI dimensions while also revealing two

additional motivational functions that extend the original framework. The study contributes theoretically by suggesting two potential concepts from the themes to the VFI, (i) Ecological Citizenship Function and (ii) Advocacy and Influence Function. Ecological Citizenship Functions is described by motivation derived by volunteers from the belief that they have a civic and ethical duty to protect the environment. Advocacy and Influence Function is described as the motivation that extends beyond participation to influencing others, shaping policy and promoting sustainable behaviour. These concepts integrate elements of environmental citizenship and transformational leadership theories, highlighting that environmental volunteers are active agents of change rather than mere supporters of institutional agendas (West & Pateman, 2016; Shutaleva, 2023). These concepts embody the proactive and transformative aspects of marine-based volunteerism, where individuals seek to amplify their impact through education, policy advocacy and leadership in sustainability initiative (Dekoninck & Schmuck, 2022). Research on environmental citizenship suggests that these advocacy-oriented motivations play a crucial role in fostering civic participation and collective action, thereby enhancing the societal capacity for environmental governance (Melo-Escrihuela, 2015). By merging personal ethics with public activism, these two motivational concepts increasingly represent a shift from traditional, service-oriented volunteerism to a more politicised and participatory form of environmental engagement.

4.8 Integrated Volunteer Function Inventory (IVFI)

In understanding volunteerism, this study advances in three significant ways. Firstly, by applying the VFI framework to sea turtle conservation in Malaysia, the research enriches cross-cultural perspectives on volunteering. Prior studies predominantly examined Western contexts and humanitarian domains (Clary & Snyder, 1999; Stukas et al., 2014). The findings here demonstrate that environmental and citizen-science volunteers exhibit complex motivational blends shaped by ecological, cultural and community dynamics. Secondly, the notion of volunteers as advocates and educators extends the VFI toward environmental citizenship framework, where participation embodies both rights and responsibilities toward ecological stewardship. The *"power to influence"* theme illustrates how volunteers internalize sustainability values and transmit them socially, which is an underexplored dimension in existing VFI literature. And finally, the study contributes practically to conservation organisations and ecotourism operators via volunteer engagement. This can be done through designing education-centred programs, creating community partnership and recognising volunteer as change agents capable of advocacy and implementing feedback mechanisms that allow volunteers to see tangible impacts of their contributions. These recommendations contribute to a more sustainable and participatory conservation model, aligning with global goals for biodiversity protection and responsible tourism.

The preceding thematic analysis and discussion collectively address the study's two research questions. As for research Question 1 (i.e. What are the volunteers' perceptions regarding sea turtle egg trade and consumption, ecotourism development, and their influence on tourism development in sea turtle conservation contexts?), the findings indicate that volunteers overwhelmingly perceived sea turtle egg trade and consumption as a major threat to marine biodiversity and strongly advocated reducing these practices through education, awareness campaigns and stronger regulatory enforcement. Rather than relying solely on punitive measures, participants emphasised the importance of changing public attitudes by improving environmental literacy, particularly among younger generations. Respondents also recognised ecotourism as an effective mechanism for promoting conservation awareness and generating financial support for conservation programmes. However, they cautioned that poorly managed ecotourism may negatively affect sea turtle habitats through overcrowding, pollution and commercialisation. Consequently, participants consistently argued that

conservation objectives should take precedence over economic gains. Furthermore, volunteers perceived themselves as active contributors to tourism development by promoting responsible tourism practices, educating visitors, advocating sustainable behaviours and influencing wider communities through social media and interpersonal networks. Overall, the findings demonstrate that volunteers view themselves not merely as participants but as important agents of conservation and sustainable tourism development.

As for Research Question 2 (i.e.How are these perceptions shaped by and reflective of the motivational functions outlined in the Volunteer Functions Inventory?), the findings indicate that volunteers' perceptions are not only reflective of the established VFI dimensions but also extend the framework through the emergence of two context-specific motivational functions. The Understanding function was reflected in participants' desire to acquire scientific knowledge and environmental literacy through volunteering. The Values function emerged strongly through participants' commitment to protecting biodiversity and advocating ethical conservation practices. The Social and Enhancement functions were evident in volunteers' emphasis on community engagement, collaboration and personal fulfilment gained through conservation activities. The Protective function was reflected in participants' support for stronger regulations to safeguard endangered species and reduce environmental threats. Beyond these established dimensions, the findings also suggest two context-specific extensions to the VFI framework. The proposed Ecological Citizenship Function captures volunteers' sense of civic responsibility toward environmental stewardship, while the Advocacy and Influence Function reflect their motivation to educate others, shape public behaviour and contribute to broader conservation and tourism policy. These findings therefore extend the applicability of the VFI by demonstrating that environmental volunteers increasingly function as educators, advocates and change agents within sustainable tourism and conservation contexts.

5.0 CONCLUSION

The thematic analysis of sea turtle conservation volunteers reveals that motivations for participation are multifaceted and deeply rooted in both personal and collective values. The interplay of awareness, education, regulation, community empowerment and sustainable practices reflects a sophisticated understanding of conservation challenges. Volunteers perceived themselves not only as helpers but as influencers and educators, bridging the gap between conservation science and public awareness. By situating these insights within the Volunteer Function Inventory framework, this study demonstrates the adaptability and continued relevance of VFI in explaining environmental volunteering behaviour. It also proposes conceptual refinements, namely, the ecological citizenship and advocacy functions that capture the transformative, agent roles of volunteers in contemporary conservation.

Moving forward, future research should advance the IVFI by subjecting it to rigorous empirical validation. Quantitative approaches such as large-scale surveys, exploratory and confirmation factor analyses (ECA/CFA) and structural equation modelling (SEM) can be employed to test the factorial structure and the interrelationships between the newly proposed Ecological Citizenship and Advocacy and Influence functions with the six classical VFI dimensions. Such validation would strengthen the theoretical precision and confirm whether these additional functions contribute unique explanatory power in predicting volunteers' willingness to participate and sustain engagement in conservation activities. Studies have shown that confirmatory factor analysis remains a robust approach to validate VFI's structural consistency across contexts (Martins et al., 2024), while SEM has been widely used to test predictive relationship between motivation, engagement and retention in volunteerism (Lorente et al., 2024). Future research could test these extended VFI dimensions empirically across

larger and more diverse volunteer populations, thereby advancing both theoretical and practical applications in environmental management and sustainable tourism.

Finally, future research could also explore interdisciplinary applications of the IVFI, linking it with behavioural theories such as the Theory of Planned Behaviour (TPB). Such integrations have shown promise in environmental volunteering contexts (Tan et al., 2025), revealing that pro-environmental behaviours are influenced not only by personal motives but also by perceived moral obligations and normative beliefs. This integration could offer a more comprehensive understanding of pro-environmental volunteering behaviour, bridging psychological motivation with social norms, attitudes and environmental values. Through such empirical and theoretical advancement, the IVFI may evolve into a foundational framework for modelling volunteer engagement across environmental, education and community development domains.

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