The Planning, Design, and Delivery of Environmental Education and Interpretation in Ecotourism: A Case Study of Tiritiri Matangi Island

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Abstract

Ecotourism, focusing on sustainable and responsible travel in natural environments, aims to conserve ecosystems, benefit local communities, and promote environmental awareness through education. Central to the success of ecotourism ventures are the planning, design, and delivery of environmental education and interpretation programmes, as these play a pivotal role in enhancing visitor experiences, fostering environmental awareness, and promoting conservation efforts. In an era marked by ongoing environmental challenges, the need for environmental education and interpretation in ecotourism has become more pronounced than ever. However, a significant knowledge gap exists regarding the planning, design, and delivery of such programmes, especially within the context of New Zealand. This research aimed to bridge this gap by delving into these three elements in relation to environmental education and interpretation on Tiritiri Matangi Island, a renowned ecosanctuary situated near Auckland, New Zealand. This qualitative case study was underpinned by research philosophies encompassing the interpretive paradigm, a relativist ontology, and intersubjective epistemology. Through a comprehensive data collection process involving document analysis and semi-structured interviews with key stakeholders responsible for planning, designing, and delivering environmental education and interpretation on Tiritiri Matangi Island, the study sought to provide a holistic understanding of how these elements contribute to enriching the understanding and connection between visitors and the natural environment, as well as inspiring active engagement in conservation endeavours. The data were analysed and described using a thematic analysis technique to uncover recurring patterns and essential insights. The research uncovered the diverse historical facets that form the foundational backdrop for educational and interpretive experiences on Tiritiri Matangi Island. Additionally, the study shed light on the island's strategic conservation plan, which encompasses five pivotal areas, all crucial to its overarching conservation, community engagement, and advocacy mission. Moreover, the findings revealed that the island's environmental education and interpretation objectives were multifaceted, spanning four key dimensions directed at three different audiences to enhance visitors' understanding and foster a deeper connection with the environment. The study sets out the island's various environmental education and interpretation components, including guided tours, school education programmes, interpretive signage, and interactive displays. The results suggest that guided tours were designed to cater to a broad spectrum of visitors, establish links between the island's conservation efforts and visitors' daily lives, and offer relevance and immediacy. Furthermore, these tours were led by trained individuals with personal connections to the island and expertise in relevant subject matter, fostering a personalised and co-created experience for visitors. The findings also show that school education programmes target diverse school-age groups, focusing on nurturing environmental stewardship among children. Another outcome was that the island's signage was meticulously designed to enrich the island

experience by aiding in navigation, deepening botanical and ecological knowledge, enhancing avian understanding, serving as checklists, and motivating visitors to take conservation actions. Finally, the study reveals that the island employed nature immersion, multi-sensory experiences, storytelling, role modelling, and practical guidance to educate and inspire visitors, fostering a deep connection with nature and encouraging environmental stewardship beyond the site.

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This thesis reflects my favourite quote, *"She believed she could, so she did."* My work embodies the spirit of believing in my capabilities and turning this belief into action and accomplishment.

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree of diploma of a university or other institution of higher learning.

Signed:

Date: 29th October 2023

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Chapter 1: Introduction

1.1 Introduction

This thesis explores the planning, design, and delivery of environmental education and interpretation in an ecotourism setting. It draws on data presented in strategic documents and the perspectives and experiences of stakeholders involved in this process on Tiritiri Matangi Island. This introductory chapter provides a general overview of the study by first discussing the background and research problem, then identifying the aim and objectives of the research and highlighting its significance. The structure of the thesis is then presented to offer a clear overview of the subsequent chapters.

1.2 Study Background and Research Problem

In recent years, ecotourism, which focuses on sustainability and responsible travel in natural environments, has gained significant prominence to appreciate natural wonders and conserve fragile ecosystems (Fennell, 2015; Self et al., 2010; Weber, 2019). This is because environmental conservation, community benefits, and environmental awareness through education are all goals of ecotourism ventures (Lee & Jan, 2019; Yeoman, 2001), thus reflecting the complex relationship between nature and human beings. Central to the success of ecotourism is the planning, design, and delivery of effective environmental education and interpretation programmes. These initiatives are pivotal in enhancing visitor experiences, fostering environmental awareness, and promoting conservation efforts. This stems from the two primary purposes of environmental education and interpretation, which are: (1) satisfying visitor demand for information regarding natural and cultural experiences, thereby providing a satisfying recreational experience, and (2) developing a view to minimise negative impacts and produce a more environmentally and culturally aware citizenry (Blamey, 2001). While the first purpose of environmental education in ecotourism coincides with what will often be the primary motivation for undertaking an ecotourism experience (Ban & Ramsaran, 2017), the second is often perceived as the ultimate goal of ecotourism, which is to encourage sustainability beyond the visitor experience, adopt sustainable practices, and contribute to the long-term preservation of natural and cultural resources (Walker & Moscardo, 2014).

The world is currently facing persistent environmental challenges, such as climate change and the loss of biodiversity (Huang et al., 2023; Kline et al., 2022; Nadakavukaren & Caravanos, 2020; Reed et al., 2016). For example, according to the World Wildlife Fund (2022), the Earth has seen a temperature increase of 1.2 degrees Celsius since the pre-industrial era. This temperature rise has led to a higher frequency of severe weather events, which, in turn, have been linked to the decline of more than a thousand plant and animal species populations.

Additionally, the World Wildlife Fund (2022) reported an average 69% reduction in species populations since 1970, which poses a significant threat to ecosystems and the delicate balance of life on Earth. As a result of these pressing environmental challenges and their far-reaching consequences, the need for effective environmental education and interpretation in ecotourism has become more pronounced than ever (Aswita, 2018; Fennell, 2020; Ramírez & Santana, 2019). This is because environmental education and interpretation programmes provide information about a site's natural history and cultural significance while promoting conservation ethics. Through these educational interventions, there is a potential to instil stronger pro-environmental perceptions and behaviours in visitors, especially if the conservational knowledge resides with them (Albrecht & Raymond, 2021; Black & Crabtree, 2007; Lee, 2007; Lowman, 2004). To delve further, environmental education is characterised as a learning process that not only enhances people's understanding and awareness of the environment and its pertaining issues but also equips them with problem-solving skills and cultivates the attitudes, motivation, and commitment needed to make informed decisions and take action (Juma & Khademi-Vidra, 2022). In addition, interpretation is recognised as a fundamental means of effectively conveying educational messages to visitors (Christie & Mason, 2003; Moscardo, 2015). Therefore, knowledge about environmental concerns is a crucial prerequisite for engaging in environmentally friendly behaviours (Kaiser et al., 1999; Kollmuss & Agyeman, 2002). This is evident in visitors absorbing destination characteristics and interpretations during their visits and subsequently incorporating them into their everyday routines (Sheldon, 2020). Furthermore, it is argued that for an activity to be viewed as ecotourism, some type of conservation effort must be extended on behalf of the operation's managers and visitors (Skanavis & Giannoulis, 2010). This means ecotourism is not merely about experiencing natural or cultural surroundings; it fundamentally involves a mutual commitment to preserving and protecting these environments.

Despite the growing recognition of the importance of environmental education and interpretation in ecotourism, there is a significant gap in our understanding of how these programmes are planned, designed, and delivered at ecotourism destinations. For example, while there is growing literature within the field of ecotourism that recognises the economic, biophysical, and social components of the sector (Campbell, 1999; Hunt et al., 2015; Stronza et al., 2019; Wearing & Neil, 2009), little is known about the educational and interpretational aspects, and thriving ecotourism destinations that implement this process remain unexplored. Moreover, the limited number of studies that concentrate on environmental education and interpretation primarily offers insights into the influence of these programmes on the overall quality of the attraction (Jacobson & Robles, 1992; Simarmata & Astuti, 2020; Skanavis & Giannoulis, 2010) and the development of pro-environmental knowledge, attitudes, and behaviours among visitors in ecotourism settings (Cheng et al., 2013; Lee & Moscardo, 2005;

Powell & Ham, 2008); however, there is a lack of knowledge regarding the process that brings these programmes to life. Therefore, various tourism researchers have noted the need for further inquiry into soft visitor management approaches, as well as design and communication techniques that focus on education and interpretation, to enable visitors to be better informed and better behaved (Albrecht & Raymond, 2022; Boyd, 2000; Boyd & Butler, 1996; Cousins et al., 2009; Orams, 1995; Welford et al., 1999; Xu et al., 2018). Moreover, scholars, practitioners, and policymakers have increasingly recognised the importance of studying the strategies, methods, and best practices employed in the planning, designing, and delivering of such programmes at ecotourism destinations (Department of Conservation, 2011; Drumm & Moore, 2005; Jones et al., 2003; Ministry of Business, Innovation and Employment, 2020; Noll et al., 2019). Ultimately, as the recognition of the crucial role of education in promoting shifts towards sustainability becomes increasingly apparent (Boluk et al., 2019; McGrath et al., 2021; Moscardo & Benckendorff, 2015), it is crucial to gain deeper insights into how destinations can effectively serve as a means of educating visitors while simultaneously supporting conservation endeavours.

New Zealand has emerged as a leading ecotourism destination because its environment is an ideal location for the consumption of nature and indigenous culture (Morrow & Mowatt, 2015). The New Zealand Department of Conservation (a government agency dedicated to safeguarding the country's natural environment, biodiversity, national parks, reserves, and cultural heritage while promoting sustainable outdoor recreation and education) is committed to equipping New Zealanders, especially children and young people, with the knowledge, skills, and motivation to tackle environmental issues (Department of Conservation, 2017). However, while it is argued that New Zealand's ecotourism destinations and ecosanctuaries present critical opportunities for the creation of environmental education (Zhang et al., 2018), research explicitly focusing on the planning, design, and delivery of such programmes in New Zealand is scarce, warranting a comprehensive investigation to harness their full potential.

Tiritiri Matangi Island, a popular ecosanctuary near Auckland, New Zealand, exemplifies this research gap, as recent studies on the island have predominantly focused on its scientific, natural, and social aspects (Armstrong et al., 2022; Baling et al., 2013; Forbes & Craig, 2013; Franks et al., 2022; Galbraith, 2013; Galbraith & Cooper, 2022; Graham et al., 2013). Notably, these studies acknowledge the need for more attention to ecotourism's environmental education and interpretation components, especially on ecologically rich and conservationally significant sites such as Tiritiri Matangi Island. Tiritiri Matangi Island is an essential case for this study because it offers an opportunity to bridge this research gap by delving into the intricate landscape of environmental education and interpretation practices within a unique ecosanctuary setting. Therefore, this study sought to examine the planning, design, and delivery of environmental education and interpretation in the ecotourism context using Tiritiri Matangi

Island as a case study. The study sought to offer a deep understanding of the conservation opportunities and challenges and advance the comprehension of developing environmental education and interpretation and future actions for sustainability. By gaining insights into practical strategies, this research endeavoured to provide valuable guidance for ecotourism stakeholders, ensuring that these destinations continue serving as vehicles for environmental conservation and visitor education.

1.3 Research Aim, Objectives, and Questions

The research aim refers to the primary purpose of a research project (Thomas & Hodges, 2010). This study aimed to understand how environmental education and interpretation is planned, designed, and delivered on Tiritiri Matangi Island. Typically, multiple research objectives exist within a research project to provide a detailed explication of the research aim (Thomas & Hodges, 2010). Consequently, three objectives were established for this study:

Objective 1: Develop a comprehensive overview of Tiritiri Matangi Island's background and strategic framework in a broader context and with a specific focus on its environmental education and interpretation components.

Objective 2: Understand how environmental education and interpretation were designed on Tiritiri Matangi Island and the rationale behind their design choices.

Objective 3: Investigate the different methods used to deliver environmental education and interpretation to visitors on Tiritiri Matangi Island.

To guide the investigation, three research questions were formulated:

Question 1: What is the general background and strategic plan of Tiritiri Matangi Island, and what are the objectives behind its environmental education and interpretation efforts?

Question 2: How is environmental education and interpretation designed on Tiritiri Matangi Island, and what are the reasons driving its design approaches?

Question 3: What methods are employed to deliver environmental education and interpretation to visitors on Tiritiri Matangi Island?

Establishing these research objectives and questions provided a robust foundation for this study on environmental education and interpretation on Tiritiri Matangi Island. It laid the groundwork for a comprehensive investigation into the planning, design, and delivery of these vital initiatives. By attending to these objectives and questions, the researcher was able to delve into the intricacies of this unique context and offer valuable insights to inform and inspire

enhancements in environmental education and interpretation practices throughout New Zealand and beyond. This amplifies the research's significance, as it contributes to a deeper understanding of environmental education and interpretation on Tiritiri Matangi Island and the broader discourse on sustainable conservation practices.

1.4 Research Significance

There is a critical gap in the contemporary knowledge base regarding the planning, design, and delivery of environmental education and interpretation in ecotourism settings, especially in the New Zealand context. By comprehensively examining these processes, the study contributes valuable insights into the fields of ecotourism, environmental education, and interpretation, facilitating a deeper understanding of how to balance conservation and visitor experience objectives. As a result, the study determined whether ecotourism ventures are effective in closing the gap between awareness and behaviour by presenting conservation opportunities and challenges (Antimova et al., 2012) and advancing the understanding of engaging in environmental education and future actions for sustainability (Department of Conservation, 2017). Secondly, the study is significant on a global scale, as it addressed the United Nations World Tourism Organization's (2015) Sustainable Development Goals (SDGs); specifically, SDG 4: Quality Education, as ecotourism ventures can promote conservational knowledge; SDG 12: Responsible Consumption and Production, as environmental education and interpretation can change visitor behaviour; and SDG 15 Life on Land, as environmentally responsible visitors can play a significant role in preserving biodiversity and respecting ecosystems. Thirdly, the research has practical significance for ecotourism stakeholders, including tour operators, conservation organisations, and policymakers. This is because the findings will inform the development of more effective strategies and guidelines for integrating environmental education and interpretation into ecotourism destinations, thereby enhancing the overall quality of visitor experiences and contributing to the sustainable management and protection of natural resources. Lastly, for participants, the result of the research will be helpful in their reflection on their own planning and design choices as well as the methods they employed to deliver environmental education and interpretation. Stakeholders can thus be empowered to make informed decisions, improve existing practices, and foster more sustainable and enriching experiences for visitors while protecting the environment.

1.5 Structural Outline

This thesis is presented in five chapters. This introductory chapter explained why environmental education and interpretation are essential globally and that crucial gaps exist in the planning, design, and delivery of environmental education and interpretation in New Zealand. By focusing specifically on the practices on Tiritiri Matangi Island, this research sought to delve

into the intricacies of environmental education and interpretation in this unique context. In this regard, the research aim, objectives, and questions were designed to address these critical gaps by conducting a comprehensive investigation of the general and strategic background of Tiritiri Matangi, as well as its environmental education and interpretation design and delivery practices.

Chapter 2 presents a review of the existing literature. It commences by detailing the theory and fundamental concepts underpinning ecotourism, visitor management, the experience economy, and the evolution of the visitor experience. It then delves into comprehensive discussions on environmental education and interpretation. Additionally, this chapter provides insights into the intricate process of planning, designing, and delivering environmental education and interpretation in ecotourism destinations. To establish the setting for the study, the New Zealand context and the notable example of Tiritiri Matangi Island are introduced. Throughout this chapter, research gaps are identified, serving as pathways for exploration in this study.

Chapter 3 presents the methodology and methods. It provides an overview of the philosophical foundations underpinning the research design and the rationale for using qualitative methods for data collection and analysis. This chapter also outlines the ethical considerations and describes the various stages of this study's data collection and analysis process.

Chapter 4 presents and describes the study's findings and the underlying themes that arose from the data analysis process. The series of themes are identified to infer the key results of the research. This chapter also unpacks the findings through a discussion that interprets and describes the significance of the analysis results, thereby formulating deeper insights and developing solutions to the research problem as the findings are compared with those in the extant literature.

Chapter 5, the conclusion of the research, summarises the key research findings in relation to the research aims and research questions, as well as the value and theoretical and practical contribution thereof. The final chapter also addresses the study's limitations and proposes directions for future research.

Chapter 2: Literature Review

2.1 Introduction

This chapter provides a systematic and critical review of the relevant literature for this thesis. The purpose of this literature review is to outline key concepts, theories, and findings from seminal and contemporary studies to deliver a fundamental understanding of the planning, design and delivery of environmental education and interpretation experiences in the ecotourism context. The review first highlights the significance of ecotourism within the broader tourism industry, elucidating its definitions, guiding principles, conceptual models, and pivotal role in sustainable development. Subsequently, the chapter delves into the realm of visitor management, clarifying the contrast between hard and soft approaches, followed by exploring the experience economy as a catalyst for reshaping the visitor experience to foster environmental awareness and environmentally responsible behaviour. The chapter then explores the models and determinants of behaviour change, including emotions, environmental concern, mindfulness, and reflective engagement, setting the stage for exploring environmental education as a tool to counter environmental problems and develop ecological literacy, which is required to draw relationships between the human and environmental spheres. The review then pivots to interpretation, recognising it as one of the core elements of communicating educational messages, as it investigates its components and platforms. It then ventures into planning, designing, and delivering environmental education and interpretation in ecotourism, highlighting the distinct phases and requirements. The final leg of this chapter contextualises the study within New Zealand's ecotourism landscape, emphasising the fundamental concepts underlying New Zealand's environmental education and the imperative of safeguarding the country's biodiversity before briefly introducing the exemplary case of Tiritiri Matangi Island. Research gaps are identified throughout the review to direct the study and are synthesised in the concluding section.

2.2 Ecotourism

In recent decades, there has been a significant shift in the global perception of tourism due to increased recognition of environmental concerns and a rising demand for authentic, nature-based experiences (Holden, 2016; Murphy & Price, 2005; Newsome et al., 2012). Consequently, there is a growing global awareness of the significance of sustainable travel and positive attitudes towards participating in ethical and educational tourism products (Weber, 2019). This transformation has paved the way for the emergence of ecotourism, which strongly emphasises immersive and educational experiences, encourages responsible visitor behaviour, and aims to positively impact the natural environment and local communities (Ballantyne & Packer, 2011).

2.2.1 Defining Ecotourism

Until recently, the immense volume of ecotourism literature confused the term's origin and true definition, especially given the ambiguity associated with its historical origins. For example, Orams (1995), Hvenegaard (1994) and Thompson (1995) supported the idea that Ceballos-Lascuráin was the first to use this term in the 1980s when he formally defined ecotourism as "travelling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestations, both past and present, found in these areas" (Ceballos-Lascuráin, 1987, p. 14). Conversely, others such as Higgins (1996) argued that ecotourism can be traced back to the mid-1970s through the ecodevelopment work of Miller (1975), which revealed that to address human welfare and the environment, development must take place in a manner that integrates biological considerations with economic, social, and political factors. Fennell (2008) traced the term's origin back to Hetzer (1965), who coined it to describe the complex interaction between visitors and the ecosystems and cultures they come into contact with. Hetzer (1965) outlined four fundamental principles that must be followed for a more responsible form of tourism: (1) minimal environmental impact, (2) minimal impact on - and maximum respect for - host cultures, (3) maximum economic benefits to the host country's grassroots, and (4) maximum recreational satisfaction to participating visitors. According to Hetzer (1965), ecotourism developed in response to dissatisfaction with negative approaches to tourism development, particularly from an ecological perspective. This stance was also adopted by Nelson (1994), who highlighted that ecotourism emerged in the 1960s and early 1970s because of scholars' growing concern over the inappropriate exploitation of natural resources that the tourism industry was embedded in and depended on. Since then, the literature on ecotourism has grown tremendously, as it continually aims to minimise harmful environmental impacts and contribute to conservation through its set of nature-based, sustainable, and learning principles.

2.2.2 Principles of Ecotourism

2.2.2.1 Nature-Based Principle

There appears to be a consensus in the literature that ecotourism is a subset of the larger nature-based tourism industry (Beeton, 2006; Butler, 2006; Fennell, 2008; Hall, 2010; Wearing & Neil, 2009). The nature-based focus of ecotourism is important because ecotourism is a form of tourism that occurs in nature; however, many other types of tourism take place in nature, so ecotourism must be defined using other criteria. This is evident from the discussion by Goodwin (1995), who stated that all forms of tourism, including mass tourism, adventure tourism, low-impact tourism, and ecotourism that use natural resources in a wild or undeveloped form, such

as species, habitats, landscapes, scenery, and salt and freshwater features fall under the umbrella of nature tourism. Therefore, nature tourism is defined as travel undertaken to enjoy wildlife or untouched natural places. According to Orr (1992), experience in the natural world is necessary for understanding the environment and promoting innovative thinking. This view was supported by Capra (2013), who believed that nature provides information about observable natural patterns in ecosystems that we can apply to our social institutions. On the contrary, ecotourism was defined by Goodwin (1995) as low-impact nature travel that supports the preservation of species and habitats either directly by aiding in conservation efforts or indirectly by generating enough income for a local population to value and protect its wildlife heritage area as a source of livelihood. In other words, nature tourism concentrates on the motivation and satisfaction of individual visitors, while ecotourism promotes behaviour change by planning societal goals. This notion was reflected by Ziffer (1989), who argued that the ecovisitor visits relatively underdeveloped areas in the spirit of appreciation, participation, and sensitivity. According to Ban and Ramsaran (2017), this is important, as visitors who are highly involved in nature-based leisure activities are more likely to spread conservation ideas. Therefore, the visit should deepen an ecovisitor's dedication to conservation issues and enable them to contribute directly to the site and the local community's well-being. However, there is little knowledge and some scepticism regarding ecotourism's ability to make tangible contributions to conservation and deliver benefits for host communities (Li et al., 2020). For example, while there may be close ties between conservation and governmental and private-sector tourism organisations in locations where tourism depends on the natural environment (Albrecht et al., 2021), it is argued that ecotourism is merely a component of a neoliberal conservation toolkit that cannot help but highlight the very inequalities it seeks to address (Hunt et al., 2015). This is because many contend that ecotourism is a marketing tactic and buzzword used to fascinate customers and enhance business policy (Courvisanos & Jain, 2006; Das & Chatterjee, 2015; Drumm & Moore, 2005). This is problematic, as Wu et al. (2010) argued that the environmental dimension is more important than the economic dimension in ecotourism issues. Furthermore, Das and Chatterjee (2015) claimed that there is a policy gap regarding poor planning and unethical management of ecotourism, as well as a lack of education for visitors and locals. Therefore, it is argued that ecotourism threatens to destroy the resources it depends on, as many experiences fail to deliver a strong conservation message and reach their sustainability potential (Ballantyne & Packer, 2011).

2.2.2.2 Sustainability Principle

While a single universally accepted definition of ecotourism is absent due to the need to blend product, management, and outcomes (Ballantyne & Packer, 2013), the term has expanded in the literature to represent sustainability. This is because it includes environmental protection, economic development, social inclusion, cultural preservation, human rights, and ethical

concerns (Cobbinah, 2015; Donohoe & Needham, 2006; Fennell, 2008; Hoppstadius & Dahlström, 2015), all of which are related to sustainable development. Sustainability is defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Inskeep, 1998) and is thus a core criterion of ecotourism. This is because academics such as Hunt et al. (2015) and Skanavis and Giannoulis (2010) argued that for an activity to be viewed as ecotourism, there must be some type of conservation effort extended on behalf of the ecovisitor and/or managers, and the initiative should return the benefits and place control into the hands of local people. Therefore, ecotourism is generally considered the most typical form of sustainable tourism (Skanavis & Giannoulis, 2010) as it aims to redirect societal processes and behaviour on a broad and integrated path towards sustainable development (Bramwell et al., 2017). From this perspective, ecotourism can be viewed as environmentally friendly travel that aims to discover new opportunities, safeguard the environment's interests, and meet the long-term demands of diverse stakeholder groups (Kiper, 2013). Wallace and Pierce (1996) also recognised that ecotourism could be used as a tool for conservation and sustainable development, especially in areas where locals are asked to renounce the wasteful use of resources for others. Thus, ecotourism in a sustainability context can be regarded as a community-based practice, as it can help build stewardship of nature and strengthen local institutions for managing shared resources (Stronza et al., 2019). Therefore, the primary reason developing nations embrace ecotourism and incorporate it into their economic development and conservation policies is its recognised potential as a powerful instrument for sustainable development (Kiper, 2013). This is reflected in the United Nations World Tourism Organization's (2013) claim that ecotourism creates significant opportunities for the conservation, protection, and sustainable use of biodiversity and natural areas by encouraging local and indigenous communities in host countries and visitors to preserve and respect the natural and cultural heritage. Hence, ecotourism can contribute to broader discussions and advancements in tourism under the sustainable tourism umbrella and bring positive benefits to conservation initiatives and host communities. This view was evident in Hunt et al.'s (2015) study, which revealed that Osa, Costa Rica residents viewed ecotourism as contributing more than other businesses in improving their quality of life and providing benefits for conserving the region's rainforest. Therefore, ecotourism is greatly aided by sustainable development because it pushes to consider the needs of local people and the necessity to conserve or preserve the natural world for present and future generations (Fennell, 2020). Hence, The International Ecotourism Society (2015) has distinguished ecotourism from conventional forms of tourism because, for the first time, it specifies the tourism activity of recreational travel to natural areas and its intended impact. Similarly, Lee and Jan's (2019) and Yeoman's (2001) studies revealed that environmental conservation, community benefits, and environmental awareness through education are all goals of ecotourism ventures. Powell and Ham (2008) categorised components of ecotourism as environmental conservation, equity, education, and economics, otherwise

known as the "4Es." These authors also revealed that ecotourism balances tourism development and resource protection due to the complex relationship between nature and human beings (Powell & Ham, 2008). Similarly, Stronza et al. (2019) portrayed ecotourism as an expansion and refinement of the relationship between tourism and conservation, as they must co-occur. These studies provide an essential basis for understanding how ecotourism principles correspond with and contribute to achieving Sustainable Development Goals.

2.2.2.2.1 Ecotourism Principles and Sustainable Development Goals

The fundamental principles of ecotourism align closely with the Sustainable Development Goals (SDGs) the United Nations World Tourism Organization outlined in 2015. These goals are an urgent call for action by all developed and developing countries in a global partnership. The goals acknowledge the need for a holistic approach that combines efforts to end poverty and other detriments with strategies aimed at improving health and education, reducing inequality, and driving economic growth while also tackling climate change and working to preserve the oceans and forests (United Nations World Tourism Organization, 2015). The principles of ecotourism bear a significant resemblance to three SDGs, creating an intricate web of interconnectedness that can profoundly influence sustainable tourism. Firstly, SDG 4, focusing on Quality Education, resonates with the heart of ecotourism ventures. This is because by engaging visitors in immersive and educational experiences, ecotourism can serve as a powerful platform for disseminating conservational knowledge and fostering a deep understanding of the importance of environmental stewardship and conservation. The essence of SDG 12, Responsible Consumption, resonates deeply with the transformative potential of environmental education and interpretation in the context of ecotourism. Visitors can be made aware of their environmental impact through tailored educational initiatives and encouraged to adopt responsible consumption practices. This shift in visitor behaviour towards sustainability and mindful consumption can contribute substantially to preserving natural resources, reducing waste, and promoting ecologically responsible tourism. In tandem with these aspects, SDG 15, focusing on Life on Land, emphasises the pivotal role ecotourism can play in safeguarding biodiversity and maintaining the ecosystem's vitality. By fostering a sense of environmental responsibility among visitors, ecotourism can be a driving force for protecting and restoring native habitats, conserving wildlife, and mitigating the detrimental effects of invasive species. This highlights the significance of each environmentally conscious visitor as a custodian of biodiversity, working to ensure the perpetuation of life on land for generations to come.

The synergy between ecotourism's guiding principles and the United Nations World Tourism Organization's SDGs presents a remarkable opportunity to forge a path towards responsible and sustainable tourism practices. This is accomplished by establishing and maintaining a competitive framework of rules that is well-developed and widely recognised, together with

learning opportunities to foster cooperation among key sustainability components (Hassan et al., 2021).

2.2.2.3 Learning Principle

Learning by visitors has been the most thoroughly theorised and researched component of ecotourism, as learning about a destination is one of the key features that sets ecovisitors apart from other visitors (Fennell, 2020). Almost all definitions in contemporary literature contain the learning principle (Walter, 2013). To illustrate, Kiper's (2013) definition of ecotourism reveals that it primarily focuses on learning about nature, its landscape, flora, fauna, and their habitats, as well as cultural artefacts from the host community to raise environmental consciousness. Ban and Ramsaran (2017) similarly stated that ecotourism activities' main benefit is learning about the environment, natural ecosystems, and local culture. According to Falk et al. (2012), the pursuit of knowledge and understanding through travel will continue to be a motif of the 21st century, while it is the responsibility of the tourism sector to provide engaging and transformative first-hand learning experiences for visitors. This is important in tourism, as visitors can learn about their connections to the environment, history, and culture through information they encounter when engaging in leisure activities (Moscardo, 1998). Similarly, Falk et al. (2012) affirmed that tourism settings have developed into a significant medium for individuals to learn, form ideas and create new visions for themselves and their society.

Previous studies have examined how learning relates to the need to gain knowledge on-site through interpretation and the information provided by ecotourism facilitators (Bachert, 1990; Brown, 2009; Gnoth & Matteucci, 2014; Wearing, 2001). However, according to Fennell (2020), knowledge is information one applies to a situation, whereas learning results from participation, which is continuous or ongoing. This viewpoint is like Riyanto's (2009), who argued that learning is a mental or psychological process that involves active engagement with the environment and leads to modifications in knowledge-understanding, skills, and values-attitudes. In the same way, Falk et al. (2012) claimed that the ability to integrate prior knowledge with the present to truly comprehend and, to a certain extent, anticipate and control the future is the essence of learning. This is reflected in Ballantyne and Packer's (2011) three-stage model of visitor learning in ecotourism: pre-visit learning dispositions, free-choice learning experiences, and post-visit learning reinforcement. While pre-visit learning dispositions focus on the characteristics, beliefs, and motivations that visitors bring to the experience, free-choice learning experiences occur when a learner has significant control and choice over the learning process (Falk & Heimlich, 2009). For example, visitors not only choose whether they will learn but also what, where and when. Accordingly, Falk and Heimlich (2009) revealed that the combination of motivations and free-choice learning experiences will likely influence how people go about a visit and can play a significant role in addressing

environmental challenges. This can be achieved by inspiring long-term practical changes in visitors' behaviour and lifestyle decisions post-visit. This is important because long-term initiatives that combine conservation, education, research, and capacity building can inform locals about their biodiversity and the reasons for preserving it (Şekercioğlu, 2012). Ballantyne and Packer (2011) asserted that if an intervention can be extended beyond the experience itself, the impact of contact with nature in the context of a free-choice environmental learning experience may increase. Expanding the on-site experience to include access to take-home materials and ongoing reinforcement activities optimises the experience's potential impact on visitors' adoption of environmentally sustainable behaviours in their personal and professional lives (Stronza et al., 2019). Visitors thus have the chance to turn behavioural intentions into actions. However, Falk et al. (2012) pointed out that although visitor learning is almost universally acknowledged as an essential element of visitor experiences in ecotourism textbooks, many fail to specify how and what this learning might entail.

2.2.3 Minimalist and Comprehensive Ecotourism

Ecotourism was categorised as either minimalist or comprehensive by Weaver (2005) because it can be focused on a particular site or species and involve superficial learning or be broader in scope by encouraging greater learning opportunities. Weaver (2005) described the minimalist ecotourism model as surface-level educational opportunities based on charismatic megafauna with site-specific sustainability goals that focus on the status quo. This was echoed by Falk et al. (2012), who indicated that the knowledge of sites, settings, and species was frequently referenced in literature on visitor learning. Similarly, Fennell (2020) noted that while information may alter visitors' behaviours on-site, it is uncertain if it has value over longer periods. The comprehensive model, however, attempts to overcome these issues by adopting a holistic and global approach to attractions and involving interpretations that foster environmental enhancement, deep understanding, and transformation of behaviour (Weaver, 2005). However, Powell and Ham (2008) argued that there is little evidence to support ecotourism's claims to accomplish its goals, and less is known about the planning, design, and delivery of ecotourism experiences that aim to improve visitors' environmental knowledge, attitudes, and behaviours. Therefore, more research is required to examine the visitor management aspect of environmental education and the interpretive component of ecotourism experiences, which might boost support for sustainability and conservation (Powell & Ham, 2008).

2.3 Visitor Management

One of the key ways to establish awareness and responsibility among visitors in protected areas is through visitor management (Juma & Khademi-Vidra, 2022; Mason, 2005). Considerable

attention has been given to visitor management, particularly in terms of the environment, as there has been an increase in the number of people visiting protected natural areas over the past four decades (Tan & Law, 2015). Therefore, it is necessary to establish efficient visitor management measures at these locations because they can offer immediate advantages that could minimise the impact of other less environmentally friendly uses of natural resources (Kiper, 2013; Tan & Law, 2015). Mason (2005) also highlighted the importance of recognising the environment-tourism relationship through visitor management, as this has been a significant priority in protected areas focusing on mitigating adverse effects. For example, Mason (2005) emphasised that controlling the number of visitors is a crucial step in reducing the environmental impacts of tourism, particularly given the connection between tourism-related activities in protected areas. Moreover, several studies have revealed that the visitor management component of destination management promotes positive behaviours and discourages negative ones to lessen or prevent negative impacts on the destination (Albrecht & Raymond, 2021; Hall & McArthur, 1996). This behaviour change through managing visitors is crucial, as they are the active agents who can improve the visitation outcomes for a destination (Albrecht & Raymond, 2021). Overall, these reviewed studies demonstrate that the primary focus of visitor management in protected areas has been minimising visitors' negative impacts by regulating visitor numbers, altering visitor behaviours, and gradually transforming the resource itself.

2.3.1 Hard and Soft Visitor Management

In visitor management literature, two specific approaches have been studied. Kuo (2002) classified visitor management techniques as hard or soft, depending on the programme a protected area chooses to implement. For example, hard visitor management strategies involve various forms of management, including economic, physical, and regulatory, as formal rules and restrictions are placed (Kuo, 2002). In this context, hard visitor management implements more structured measures to control and regulate visitor behaviours and activities to protect the environment and preserve its integrity. For example, managing biosecurity risks with strict protocols and regulations, such as inspections of personal belongings, footwear, and equipment for potential pests before entering a sensitive area, is essential for destinations worldwide (Horrill et al., 2019; Le et al., 2018; Liu & Tien, 2019). This is because a lack of visitor biosecurity awareness could impede the prevention of biological invasions (Anderson et al., 2014; Baird et al., 2018). Therefore, with increased biosecurity breaches occurring in destinations globally through visitor movements, it is vital that destinations, especially islands, ensure socio-cultural, environmental, and economic sustainability by incorporating biosecurity measures (Melly & Hanrahan, 2021). This hard visitor management provides a platform for crucial biosecurity risk mitigation protocols, including enhancing visitor awareness and the communication of best practice guidelines (Cole et al., 2019; Hall & Baird, 2013). Therefore,

the timely communication of accurate and trustworthy information through hard visitor management is crucial to adopting preventative biosecurity measures among visitors (Anderson et al., 2014; Shannon et al., 2019). Through this, attitudes and behaviours by visitors can be adopted to reduce the risk of biological invasions (Hall, 2011). On the other hand, soft approaches to visitor management refer to interpretation and can be broadly viewed as educational processes that help people learn and self-regulate their behaviour (Albrecht & Raymond, 2022; Juma & Khademi-Vidra, 2022; Kuo, 2002; Mason, 2005). According to Albrecht and Raymond (2022), teaching visitors how to behave responsibly through education and interpretation is a part of soft visitor management, as they engage visitors and increase their knowledge and experience by providing a sufficient rationale for why visitors should abide by the guidelines. Similarly, Tan and Law (2015) stated that soft visitor management strategies have frequently promoted visitor education and interpretation as the foundations for influencing human behaviour and sustainable development. Such approaches can have long-lasting effects that can benefit other destinations, which is important because a common limitation in the literature is that outcomes are limited to individual sites (Ballantyne & Packer, 2011; Fennell, 2020; Hughes, 2013; Moscardo, 2015; Powell & Ham, 2008). Mason (2005) argued that research into soft approaches is urgently needed to preserve the long-term viability of the earth's protected areas. This was supported by tourism academics who noted the need for further inquiry into soft visitor management approaches that focus on education and interpretation to enable visitors to be better informed and better behaved (Albrecht & Raymond, 2022; Boyd, 2000; Boyd & Butler, 1996; Orams, 1995; Welford et al., 1999). Ultimately, the potential of soft visitor management approaches to create enduring impacts that extend beyond individual sites aligns seamlessly with the experience economy, which emphasises creating transformative and value-enhanced encounters that transcend geographical boundaries.

2.4 The Experience Economy

Pine and Gilmore's (1998) Experience Economy concept describes the progression of economic value from commodities to goods, services, and experiences. In this framework, experiences are considered the highest level of value creation. Pine and Gilmore (1998) proposed that businesses should focus on designing and delivering memorable and immersive experiences to customers, which would have the potential to engage emotions, create lasting memories, and cultivate customer loyalty. The foundation of an experience is built upon aspirations and emotions rather than tangible products or services (Jensen, 2001). According to Kumar and Meenakshi (2011), an experience occurs when a company deliberately uses services as a stage and goods as props to attract customers to create a memorable event. Therefore, experiences are a distinct economic offering that consumers are willing to pay more for as the value increases. This emphasises the importance of crafting unique and compelling experiences to differentiate products and services in a competitive marketplace.

Pine and Gilmore (1998) also developed the Four Realms of Experience framework to understand how businesses can create and stage experiences to engage customers. Each realm builds upon the previous one, creating a progression of increasing value and customer engagement. The first realm is “Entertainment,” characterised by passive engagement. In this stage, customers are spectators entertained by a performance or event, and the focus is on delivering an enjoyable experience; such customers seek to be amused and distracted. The second realm, “Educational,” involves active engagement and learning, as experiences are designed to educate and enlighten. This realm goes beyond entertainment to provide a more intellectually stimulating experience as customers seek to gain knowledge and insights. The third realm offers immersive and transformational experiences through “Escapism.” In this stage, customers are transported to a different reality or environment, allowing them to escape their everyday lives; the focus is on providing a transformative experience that changes their perspectives or emotions and challenges them physically and mentally. The final realm, “Esthetic,” is the pinnacle of the experience economy. It is characterised by experiences that engage customers on a deep emotional and sensory level; these customers seek experiences that resonate with their emotions and create lasting memories.

Tourism businesses that operate in the experience economy can design and deliver experiences that move customers through different realms, ultimately aiming to provide more profound, meaningful, and memorable interactions. Starting with the Entertainment realm, ecotourism experiences can begin by providing passive engagement, offering enjoyable and entertaining activities that captivate visitors’ interests. As visitors progress to the Educational realm, these experiences can shift towards active engagement, fostering learning and enlightenment about the natural world and conservation. Moving further, Escapism can come into play by immersing visitors in nature, allowing them to temporarily escape their daily routines and embrace the transformative power of nature. Finally, in the Esthetic realm, ecotourism can offer experiences that deeply resonate with visitors’ emotions and senses, leaving them with lasting memories of their encounters with nature. By guiding visitors through these realms, ecotourism businesses can provide increasingly meaningful and memorable interactions, ultimately shifting the visitor experience.

2.5 Shifting the Visitor Experience

Several studies have noted that soft visitor management approaches emphasise shifting the visitor experience rather than minimising tourism impacts. According to Ballantyne and Packer (2011) and Mason (2005), the traditional approach has tended to ignore the role of the visitor experience in relation to visitor management, which is problematic, as experiences can motivate visitors to adopt environmentally friendly practices and be aware of their environmental impact. This notion is reflected in Orams’ (1995) research, which contended that visitor management

regimes ought to try to shift visitors from a passive role, where their leisure is merely based on the natural environment, to an active role, where their activities contribute to the health and viability of those environments. Orams (1995) introduced four indicators to measure the effectiveness of a visitor management strategy that assists in the transition from enjoyment to behaviour change. These are satisfaction-enjoyment, education-learning, attitude-belief, and behaviour-lifestyle change. Similarly, Tan and Law (2015) and Blamey (2001) acknowledged that it is desirable to implement visitor management strategies that attempt to shift the visitor experience from simple enjoyment and satisfaction towards promoting environmentally responsible behaviour.

2.5.1 Environmentally Responsible Behaviour

Environmental conservation behaviour (Masud & Kari, 2015), environmentally significant behaviour (Stern, 2000), environmentally concerned behaviour (Axelrod & Lehman, 1993), environmentally friendly behaviour (Dolnicar & Grün, 2009), pro-environmental behaviour (Steg & Vlek, 2009), and ecological behaviour (Kaiser et al., 1999), are similar constructs in the literature relating to environmentally responsible behaviour. Despite the variations in wording, all share a common reference to personal behaviours that contribute to environmental protection and sustainability. Therefore, environmentally responsible behaviour is viewed in this study as identical to and representative of these constructs. Stern (2000) suggested that environmentally responsible behaviour can be defined by its impact and intent. According to Mehmetoglu (2010), intention-oriented behaviour refers to the motivation of an actor in relation to behaviours that aim to change the environment indirectly, such as petitioning on environmental issues, whereas impact relates to behaviours that directly cause environmental change. Two aspects of behaviour can be identified in the literature: visitors' individual and general behaviours. For example, Stern (2000) collected data on specific consumer consumption and disposal behaviours such as recycling practices, public transport use, avoiding certain consumer goods, seeking environmentally friendly products, and properly disposing of hazardous materials. Conversely, researchers such as Powell and Ham (2008) and Tisdell and Wilson (2005) evaluated visitors' willingness to pay for conservation and protection, and Lee and Moscardo (2005) investigated consumers' willingness to pay for environmentally friendly accommodation. According to Albrecht et al. (2021) and Reimer and Walter (2013), visitors are a key target group for articulating financial benefits through ecotourism in the form of park entrance fees, voluntary donations, and environmental conservation levies. This shows that for some protected areas, tourism is essential because the location and community may benefit from environmental protection through positive economic contributions (Holden, 2000). Moreover, Ham and Weiler (2002) argued that without profits, tourism could not support environmental conservation, community development, or educational efforts. However, while these economic benefits are necessary, Stronza et al. (2019) argued that they are insufficient to ensure

conservation. Therefore, some studies have evaluated social behaviours such as joining environmental organisations, participating in meetings or rallies, contacting government officials via letters, and considering environmental matters while casting political ballots (Dearden et al., 2007; Dubin, 2008; Rattan et al., 2012).

Although it is crucial to encourage environmentally responsible behaviour to support sustainable tourism (Bramwell et al., 2017), implementing such actions may prove more challenging than initially anticipated. This view was reflected in Ballantyne et al.'s (2011) study, which found visitors were more likely to engage in conservation activities that required minimal effort, such as recycling, conserving water, and conserving electricity, than those requiring more effort, such as donating money to environmental organisations or engaging in volunteer work for the environment. Similarly, Gill et al. (2019) observed that it can be difficult for visitors to incorporate environmentally responsible behaviour into their everyday lives due to the stress of work and other life commitments. Heimlich and Ardoin (2008) showed that conservation behaviours are complex, embedded in routine, and challenging to alter despite the advantages of the new behaviour. Considering the challenges associated with changing deeply ingrained routines and behaviours, as highlighted in these studies, the importance of shifting the visitor experience becomes even more evident. The elements of soft visitor management can bridge this gap by influencing visitors' sustainable choices even in the face of life's demands and complexities, as evident in the models of visitor engagement and behaviour change.

2.5.2 Models of Visitor Engagement and Behaviour Change

As the importance of encouraging people to engage in environmentally friendly behaviour grows, it becomes paramount to understand how visitor engagement influences behaviour prediction (Hassan et al., 2021). This understanding draws from Ajzen's (1985) Theory of Planned Behaviour and Fishbein and Ajzen's (1975) Theory of Reasoned Action, frequently used to explain behavioural decisions in this field of study. These psychological theories argue that behaviours and behavioural intents depend on an individual's attitudes towards the behaviour, knowledge of the environment, logical judgement of the target behaviour, and societal constraints and standards (Ajzen, 1985; Ajzen & Fishbein, 1980; Ham & Krumpe, 1996). In other words, the motivating elements that affect behaviour are presumed to be captured by factual knowledge, attitude, and intentions (Kaiser et al., 2006; Zaremohzzabieh et al., 2019). In an environmental context, behaviours result from personal traits, cognition, affect, and judgement of the situation (Cottrell, 2003; Hungerford & Volk, 1990). Several studies have incorporated these components of behaviour, such as Kaiser et al.'s (1999) proposal that ecological knowledge, ecological values, and ecological behaviour intention make up environmental behaviour, and Tilden's (1977, p. 38) idea that "through interpretation, we can reach understanding, through understanding we come to appreciation, through appreciation we

accomplish protection." Furthermore, Spring's (2017) research identified a process with three distinct phases: firstly, visitors gained new or heightened awareness and understanding of phenomena discussed during the guide-visitor interaction, secondly, they explored and assessed relevant issues associated with those phenomena, and finally, visitors felt empowered to address issues related to those phenomena.

Similarly, drawing from their experiences with nature-based tourists in Hawaii, Forestell and Kaufman (1990) proposed a model for designing interpretation programmes during wildlife tours, emphasising their ability to engage visitors emotionally and deliver important conservation messages. Their model emphasises three key phases in the visitor experience: the pre-contact phase, the contact phase, and the post-contact phase. In the pre-contact phase, visitors approach the interpretive encounter with existing beliefs, leading to a state of dynamic disequilibrium. According to Forestell & Kaufman (1990), this stage aims to generate curiosity and a perceived need for information before visitor contact with the natural attraction and wildlife, thereby motivating visitors to learn. More specifically, this stage intends to create questions in the minds of the visitors rather than answer them. During the contact phase, visitors encounter new information or perspectives, promoting cognitive dissonance, which must be managed through the provision of relevant and engaging information. 'Cognitive dissonance' is referred to by Forestell and Kaufman (1990) as an instance when what an individual perceives externally is different from what is known internally. To elaborate, the required information should be provided in an informed and interesting manner and should be relevant to what the visitor is observing and experiencing. Finally, in the post-contact phase, visitors reflect on their experience, integrating new insights and resolving cognitive dissonance, potentially leading to shifts in their understanding or behaviour. This involves follow-up activities and opportunities that help visitors incorporate the new information into changed behaviour, including petitions, donations and advocacy efforts. Overall, the model aims to create a perceived need for information before contact with the natural attraction, stimulate engagement and reflection during the encounter, and facilitate the incorporation of new knowledge into changed behaviour afterwards. This model provides a structured framework for understanding and facilitating the transformative process of interpretation, emphasising the importance of guiding visitors through meaningful engagement and reflection. However, the authors acknowledge that not all nature-based tourism situations fit this framework, and the relationship between information assimilation, attitude change and behaviour change is complex (Forestell & Kaufman, 1990). Nevertheless, they advocate for interpretive strategies that go beyond simple information provision, aiming to create curiosity, emotional engagement, and opportunities for active learning.

Forestell and Kaufman's (1990) model served as the foundation for Orams' (1997) subsequent model, which proposed five phases of the learning process aimed at achieving effective behaviour change. More specifically, the Orams (1997) model integrates theories that address

both the cognitive dissonance and affective domain. The first phase involves creating questions and arousing curiosity in visitors' minds, aiming to stimulate their interest and engagement. Following this, the affective domain is emphasised, fostering emotional involvement among visitors to enhance the resonance of program messages as they are more effectively internalised and more likely to be acted upon. In the next phase, specific problems relevant to the observed wildlife are outlined, providing visitors with a clear incentive to take action. Subsequently, personalised messages are offered, suggesting ways to help address these issues, with opportunities for immediate action provided. Finally, the model includes a phase for assessment and feedback, allowing for reflection on visitors' responses and the effectiveness of the program in achieving its objectives.

Based on the segmentation of various stages in the visitor experience, as outlined by Forestell and Kaufman (1990), along with the affective cognitive domain introduced by Orams (1997), the Johnson and McInnis model (2014) was developed with a specific focus on behaviour change and follow-up strategies. Their Five Stage Approach to an Effective Education Programme during Wildlife Watching Experiences offers a holistic framework for embedding education within wildlife-watching outings. It commences with the anticipation phase, where visitors are equipped with preparatory information, including safety guidelines and realistic expectations, while also encouraging them to access additional resources online to enhance their understanding of the area's conservation efforts. The aim is to set the stage for an engaging and educational experience. During the journey to the site, guides utilise travel time to impart knowledge about the local ecosystem and wildlife spotting techniques, fostering an environment where visitors realise the tour can be both recreational and educational. Learning is visitor-initiated, with guides providing opportunities for transformative learning initiation, preparing visitors for wildlife encounters, imparting background knowledge, and engaging them during travel. Upon encountering wildlife, the on-site experience involves expert interpretation, beginning with accurate species identification and expanding into broader ecological discussions, including conversation statuses and threats. Johnson and McInnis (2014) emphasise balancing sobering information with actionable recommendations, aiming to interpret behaviour, evoke emotional connections, encourage reflection, and expand visitors' knowledge base for informed decision-making. As visitors depart the site, guides reinforce learning, address inquiries, and encourage further exploration, facilitating meaningful educational moments and personal connections to conservation. The recollection phase and follow-up stage promote sustained engagement through pledges, access to sustainable resources, and ongoing communication channels, ensuring lasting impacts beyond the excursion. Ultimately, this method highlights the significance of structured education in enhancing participant learning and conservation appreciation, suggesting that witnessing wildlife in its natural habitat can evoke powerful emotions, fostering a deeper connection with nature and inspiring individuals to contribute to conservation efforts.

In alignment with these models, the value-belief-norm theory as developed by Stern et al. (1999), offers another lens to understand pro-environmental actions. According to this theory, people feel obliged to take proper action when they perceive that highly valued objects are in danger and think that their efforts can assist in restoring these values. Therefore, emotion is essential in shifting the visitor experience, as it can evoke powerful feelings toward the environment, motivating individuals to actively engage in environmentally responsible behaviour.

2.5.3. Emotion

The extensive literature and adaptations of the theory of planned behaviour and the theory of reasoned action highlight that visitors' emotions drive their pro-environmental activities. Harbrow (2019) revealed that visitors are more likely to protect places they feel emotionally connected to. Changing behaviour towards environmentally responsible practices typically cannot be accomplished by simply providing information; attitudes and perceptions must also be influenced. According to Eagly and Chaiken (1993), when evaluating a behaviour, attitude can be a positive or negative way of thinking or feeling about something. A common definition of attitudes is that they are individual judgments made in response to socially significant issues involving particular things, people, situations, or behaviours (Albarracin & Shavitt, 2018; Fabringar et al., 2018). Similarly, perception is a person's interpretation of the external environment about whether it is a good or bad thing (Murianto, 2014). Both attitude and perception are reflective of emotions because in psychology, the term emotion refers to the feelings of joy, love, dread, rage, or hatred that are brought on by a present situation and have the power to change behaviour (Lazarus, 1991; Smith & Lazarus, 1993). Therefore, feelings significantly impact the likelihood of making decisions and acting responsibly (Xu et al., 2018). In a tourism context, visitors' emotions can negate the negative effects of such actions on the natural world because, alongside educational learning, visitors are immersed in natural experiences that can facilitate emotional connections with the local environment (Cripps, 2022). Ardoin et al. (2015) argued that emotional connections with wildlife must be encouraged so that visitors can reflect and develop strategies and opportunities for action. Similarly, Thapa (2010) revealed that outdoor recreation areas, which have grown in popularity over the past ten years, may be crucial for addressing ecological literacy in adults by fostering emotional ties to nature and disseminating knowledge about environmental protection and stewardship. Therefore, when visitors thoroughly know a particular location, they care about its landscape, its fauna and flora, and the locals who inhabit it (Martínez-Rodríguez et al., 2018). These studies support the relationships evident in the theory of planned behaviour and the theory of reasoned action, as emotions reflect the appreciation, care, and concern components that influence attitude and intention. For example, when there is an ecological understanding of an environment and awareness of its cycles and interrelationships, a strong sense of appreciation and belonging is

developed (Martínez-Rodríguez et al., 2018). Myers et al. (2004) explained that feelings of admiration and respect for creatures on display correlate with the urge to save a specific species. Similarly, Barnes and College (2013) and Martínez-Rodríguez et al. (2018) emphasised the importance of empathy and caring about the well-being of all living things because those who are inspired by and have a love for the Earth are more inclined to take steps to preserve, restore, and celebrate the planet. Chiu et al. (2014) argued that perceived value and satisfaction can encourage visitors to act in environmentally friendly ways. Therefore, there has been a transition from instrumental ethics, which guide behaviour towards nature, to more conservation-based ethics, which consider stakeholder interests in protecting natural resources (Das & Chatterjee, 2015). Walker and Moscardo (2014) highlighted that the focus must be shifted away from transmitting information towards facilitating concern.

While environmental concern is rarely used in the theory of planned behaviour, as researchers emphasise environmental consciousness (Ibrahim et al., 2022), the literature reveals that paying greater attention to concern is crucial. This is because environmental knowledge requires a comprehension of how society impacts the environment with problems such as global warming, deforestation, and marine contamination (Hamzah & Tanwir, 2021), while environmental concern relates to an understanding of how one's actions influence the environment (Fransson & Gärling, 1999; Haron et al., 2005; Passafaro, 2020). Therefore, environmental concern frequently refers to attitudes towards the environment through mindfulness and reflective engagement (Goleman et al., 2012). Mindfulness and reflective engagement imply a deeper change in the individual; Ballantyne et al.'s (2011, p. 8) study on wildlife tourism defined these terms as "feeling an emotional connection with the animals, reflecting on new ideas about animals and their environments, discussing new information with companions, experiencing something surprising or unexpected, and feeling sad or angry about environmental problems." Therefore, environmental concern, mindfulness, and reflective engagement directly influence behaviour intentions (Hassan et al., 2021; Mehmetoglu, 2010; Yadav & Pathak, 2017). For example, Ibrahim et al. (2022) found a strong direct correlation between anticipated emotion and the intention to buy local goods and support animal conservation. According to Hughes (2013), intentions are derived from visitors' utterances about their likelihood of or plan to carry out specific acts, while anticipated emotions are feelings that are not actually felt but are instead expectations of how a person would feel about a decision that has been made (Leone et al., 2005). For example, one might feel guilty after choosing not to recycle rubbish, while someone who decides to recycle is expected to feel proud. Accordingly, Hughes (2013) found that visitors were more likely to intend to modify their behaviour if they had been emotionally invested in an experience, whether negatively or positively. Therefore, researchers were encouraged by Eng et al. (2023) to consider emotional responses as antecedents to the theory of planned behaviour and the theory of reasoned action outcomes since they may influence

behaviour. Similarly, Peredo and Chrisman (2006) explained that a trigger to action is a shared perception of ecological loss combined with a motivation to take action. Overall, these studies show how tourism engages people emotionally, which may lead to the development of good intentions to protect wildlife through transformed behaviours.

Understanding the variables that influence environmentally responsible behaviour is essential, as it lays the groundwork for shaping attitudes, fostering emotional connections, and promoting pro-environmental actions through environmental education.

2.6 Environmental Education

Learning about the environment through carefully structured environmental education programmes is a crucial component of the ecotourism experience (Kiper, 2013). Education is the process through which knowledge is transferred from one person to another (Fennell, 2020). Therefore, as it is concerning that, as a species, humans do not fully comprehend how their activities can affect other crucial systems, there is growing recognition in environmental education literature. A study by Ban and Ramsaran (2017) revealed that an educational focus is now being planned and developed by the ecotourism industry to meet its philosophy and principles. Furthermore, Cantor et al. (2015, p. 1) highlighted the necessity of environmental education, as it advances the knowledge of the so-called "wicked problems" facing the environment. Environmental education is critical for countering environmental problems to protect and conserve the environment (Potter, 2009). The Belgrade Charter, known as a worldwide blueprint for environmental education, proposed that environmental education be developed as a critical element for addressing the world's environmental crisis (United Nations Educational, Scientific and Cultural Organization, 1975). While research has focused on learning through environmental education (Moscardo, 2015), Tilden (2008) revealed that education is a higher service than merely teaching facts. While environmental education is a way of helping individuals and societies resolve fundamental issues linked to the current and future use of the world's resources, simply raising awareness of these issues is insufficient to bring about change. Instead, environmental education must strongly promote the need for personal initiatives and social participation to achieve sustainability. This is evident in both seminal and contemporary literature, as education-based strategies can encourage visitors to actively preserve the environment's health and viability. Orr (1992) argued that environmental education relevant to the difficulties of building a sustainable society could improve a learner's competence with natural systems because it seeks to change how people live, not just how they talk (Orr, 1992). The United Nations Educational Scientific and Cultural Organization Biosphere Conference held in 1968 (cited by Palmer, 1998, p. 7) defined environmental education as

> the process of recognising values and clarifying concepts to develop skills and attitudes necessary to understand and appreciate the inter-relatedness among man, his culture, and his biophysical surroundings. Environmental education also entails practice in decision-making and self-formulation of a code of behaviour about issues concerning environmental quality.

Environmental education was defined by the Tbilisi Intergovernmental Conference on Environmental Education (1978, p. 2) as

> …a process aimed at developing a world population that is aware of and concerned about the total environment and its associated problems, and which has knowledge, attitudes, motivations, commitments and skills to work individually and collectively towards solutions of current problems and the prevention of new ones.

This was supported by Hungerford and Volk (1990), who emphasised that the primary aim of environmental education was shaping human behaviour. Knapp (2000, p. 34) stated, "The ultimate goal of this medium is to produce an environmentally literate and responsible citizen, one who can make decisions that will help check many of the environmental problems that will arise in the 21st century." Juma and Khademi-Vidra (2022) defined environmental education as a learning process that not only raises people's environmental knowledge and awareness but enhances their abilities and competency in problem-solving and fosters the attitude, motivation, and commitment necessary to make decisions and act. This was aligned with the work of Ban and Ramsaran (2017), who argued that environmental education can encourage participation in existing eco-friendly programmes at a destination. It was also noted by Juma and Khademi-Vidra (2022) that education about conservation can build an ecological foundation to construct principles that affect future growth components. Similarly, Jen and Hsu (2007) agreed that education plays a pivotal role in altering human attitudes, values, and behaviours to increase environmental literacy and address environmental problems to achieve sustainable development goals.

The traditional thinking in environmental education has been that humans can change behaviour by making them more knowledgeable about the environment and its associated issues. This thinking has primarily been linked to the assumption that if we make human beings more knowledgeable, they will become more aware of the environment and its problems and, thus, be more motivated to act toward the environment more responsibly. The Tbilisi Intergovernmental Conference on Environmental Education (1978) outlined a set of objectives for environmental education to foster environmental awareness, knowledge, values, attitudes, skills, and behaviour patterns among individuals and societies. The first objective, "Awareness," aimed to help social groups and individuals become aware of the total environment and its allied problems. This involves a conceptual awareness of how individual and collective actions may influence the relationship between quality of life and the quality of the environment. This was followed by "Sensitivity," which aimed to help social groups and individuals gain various experiences and a

basic understanding of the environment and its associated problems. This involves providing learners with sufficient ecological knowledge to eventually make ecologically sound decisions concerning environmental issues. Therefore, knowledge of environmental issues is an essential prerequisite for the intention to behave environmentally friendly (Kaiser et al., 1999). "Attitudes" was the third objective, which aimed to help social groups and individuals acquire values and feelings of concern for the environment and be motivated to actively participate in environmental improvement and protection. This involves understanding how these actions result in environmental issues that may be resolved through investigation, evaluation, values clarification, decision-making, and citizenship actions. The fourth objective, "Skills," aimed to help social groups and individuals acquire skills for identifying and solving environmental problems. The final objective was "Participation," which aimed to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolving environmental problems. These stages align with the concepts suggested by Stapp et al.'s (1969) framework, which highlighted that ecological knowledge, awareness of challenges and resolutions, and the cultivation of motivation for pro-environmental behaviour were pivotal components of environmental education. Moreover, these frameworks were echoed in Farmer et al.'s (2007) perspective that an individual attains positive, pro-environmental behaviour by accomplishing the goals of the three main phases of environmental education. In the initial phase, participants understand their connection to the natural world and the underlying principles that determine natural cycles. Subsequently, learners must integrate this ecological understanding and comprehend their roles within the environment before grasping how their actions can catalyse the necessary changes to ensure sustainable existence. Therefore, environmental education has been described in the following manner: "Increased knowledge leads to favourable attitudes…which in turn leads to action promoting better environmental quality" (Ramsey & Rickson, 1976, p. 16).

The literature also indicates that environmental education initiatives aimed at cultivating pro-environmental behaviours and fostering a personal understanding of ecological matters among participants should encompass various approaches and characteristics throughout different progressive phases. Suggested attributes include: (1) direct engagement with the natural surroundings to induce aesthetic experiences (Gigliotti, 1990), (2) involvement in environmental restoration activities to foster a sense of participant ownership (Hartig et al., 2001), (3) sensitive or emotional content (Armstrong & Impara, 1991; Pooley & O'Connor, 2000), (4) a multi-sensory learning environment to promote engagement (Gardner, 1993), and (5) relevant and personal information that promotes empowerment and ownership (Hungerford, 1996; Kals et al., 1999). Moreover, according to Keating (1993, p. 57), for education to give people the awareness, values, attitudes, skills, and behaviours required for sustainable development, "education needs to explain not only the physical and biological environment but

the socio-economic environment and human development." Accordingly, Martínez-Rodríguez et al. (2018) argued that environment-based education is essential, as it not only works with the natural environment but also with the social and cultural environment. This is because environmental education in ecotourism serves to provide information about the natural history and culture of a site while promoting conservation ethics through a soft intervention that serves as the building blocks for comprehending and engaging with both local and global challenges (Albrecht & Raymond, 2021; Ballantyne & Packer, 2011; Black & Crabtree, 2007; Hartono, 2020; Martínez-Rodríguez et al., 2018).

Ultimately, environmental education endeavours to construct ecological and environmental knowledge, nurture connections between individuals and the natural environment, promote skills required for active participation in ecological conservation, and stimulate pro-environmental attitudes and behaviours (Volk & McBeth, 1998).

2.6.1 Limitations of Environmental Education

In exploring the multifaceted realm of environmental education, it is imperative to scrutinise its limitations. The portrayal of the visitors in the literature as environmental education recipients often reveal a somewhat restricted focus. For example, Johns and Pontes (2019) argued that environmental education seems to be narrowly focused on increasing sensory enjoyment and a love of wild places or providing fundamental factual information about the environment. While individuals need to have a chance to enjoy the delight and beauty of nature, they also need to be exposed to the sobering truths of environmental challenges (Barnes & College, 2013). This view is aligned with that of Cripps (2022), who emphasised the importance of bringing environmental education and psychology together with tourism management. It can be argued that the two primary purposes of environmental education are satisfying visitor demand for information regarding natural and cultural experiences, thus providing a satisfying recreational experience, and developing a view to minimise negative impacts and produce a more environmentally and culturally aware citizenry (Blamey, 2001). While the first function of environmental education in ecotourism coincides with what will often be the primary motivation for undertaking an ecotourism experience (Ban & Ramsaran, 2017), the ultimate goal of ecotourism is to encourage sustainability beyond the visitor experience (Walker & Moscardo, 2014). Therefore, while there is growing literature recognising the sector's impact on the economic, biophysical, and social environments (Campbell, 1999; Hunt et al., 2015; Stronza et al., 2019; Wearing & Neil, 2009), there is insufficient discussion on the processes and techniques used to provide visitors with environmental education (Cousins et al., 2009; Xu et al., 2018). For example, some studies consider the positive influence and appeal that ecotourism ventures have on visitor purchasing decisions (Graci & Dodds, 2008; Manaktola & Jauhari, 2007; Sasidharan et al., 2002) while there are few demonstrating how environmental education

is planned, designed, and delivered to visitors. Ryan and Stewart (2009) argued that the conversation about sustainability in ecotourism has focused on changing the ecotourism suppliers' attitudes and behaviours, acknowledging that influencing visitors' environmentally responsible behaviours is an under-researched component of ecotourism. This is problematic, as the ultimate goal of environmental education is to assist people, communities, and civilisations to develop a stronger sense of moral obligation to the planet and a desire to adopt sustainable lifestyles and behavioural choices (Barnes & College, 2013) by creating awareness of and enhancing human-environment relationships (McBride et al., 2013). Various studies have explored the impacts that ecotourism education programmes have on the quality of the attraction (Jacobson & Robles, 1992; Simarmata & Astuti, 2020; Skanavis & Giannoulis, 2010) rather than the enrichment of visitors' educational experiences. This underscores the need to delve into the pivotal concept of ecological literacy, which goes beyond mere attraction enhancement, to cultivate a deeper understanding of our intricate interconnectedness with the natural world.

2.6.2 Ecological Literacy

One common area of study in the literature is understanding the human-environment relationship, as considerable attention has been given to ecological literacy or eco-literacy. Johns and Pontes (2019) revealed while most adults are aware of environmental problems, with some citizens having made the connection between the environment and personal conduct, most cannot think critically and systematically and consider the root causes of critical challenges. Botkin (1990) asserted that the belief that one is separate from nature can promote environmental degradation and negligent management of natural resources. Therefore, settings that support environmental education are crucial, as they allow people to overcome this issue by advancing their eco-literacy (Ballantyne & Packer, 2005; Braun et al., 2018; Hartono, 2020).

Eco-literacy gained wide recognition in the 1990s from the seminal work of Orr (1992), who argued that to solve environmental problems, a person must understand how people and whole societies have become destructive to planet Earth. Orr (1992) defined eco-literacy as a broad understanding of how people and communities relate to each other and natural systems and how they might do so sustainably. More specifically, eco-literacy assumes both an awareness of how life is interconnected and knowledge of how the Earth functions as a physical system (Orr, 1992). In other words, ecological literacy implies that humans understand their place in the evolutionary narrative and that, in the end, their health, well-being, and survival ultimately depend on cooperating with rather than destroying natural forces. Therefore, eco-literacy requires consciousness and comprehension of the dynamics and development of the modern world as it aims to construct a holistic big-picture view. Hence, Orr (1992) suggested that eco-literacy merges the landscape and mindscape, as it demands the capacity to observe nature with insight. Another aspect of eco-literacy is that humans must recognise the planet and its

ecosystem's vital indicators while having some idea of the speed of the crisis upon us (Orr, 1992). Orr (1992, p. 93) further argued that being ecologically literate is "to know the magnitude, rates and trends of population growth, species extinction, soil loss, deforestation, climate change, ozone depletion, resource exhaustion, air and water pollution, toxic and radioactive contamination, and resource and energy use." By connecting natural resources and human survival, they can redefine their ways of interacting with nature, ecosystems, and biodiversity (Niemelä et al., 2011). Furthermore, it is necessary to build a constituency for global change in local communities, neighbourhoods, and households, according to Orr (1992), thus reflecting the need to exert an influence beyond a specific ecotourism site.

Various researchers have drawn heavily on the work of Orr (1992) and expanded eco-literacy to include an emphasis on the creation of sustainable human communities and society (Capra, 2013; Center for Ecoliteracy, 2013; Cutter-Mackenzie & Smith, 2003; Wooltorton, 2006). This is evident in the work of Martínez-Rodríguez et al. (2018), who stated that eco-literacy aims to develop awareness of the importance of collaborative work and civic participation. Ultimately, the ecologically literate individual possesses the cause-effect knowledge needed to comprehend interrelatedness and a caring or stewardship attitude to make informed decisions that contribute to a more sustainable society. Similarly, Kim et al. (2017) and Stone (2017) highlighted that eco-literacy not only increases the knowledge of environmental issues but also develops an understanding of the importance of global ecological awareness to create a balance between human needs and the earth's ability to sustain them. This is crucial because several academics believe that societies with higher levels of eco-literacy will be better positioned to deal with future difficulties related to population growth, resource depletion, and climate change (Capra, 2010; Tidd, 2015). In addition, eco-literacy is necessary, as it reflects people and the planet, which are at the centre of the United Nations World Tourism Organization's (2015) Sustainable Development Goals. Therefore, ecotourism programmes should have a complementary component that helps people journey towards a deeper eco-literacy (Barnes & College, 2013).

2.6.2.1 Frameworks of Ecological Literacy

Orr (1992) stated that ecological literacy is built on knowledge, empathy, and practical skills. Contemporary literature elaborates on this by providing frameworks of eco-literacy. The North American Association for Environmental Education (2011) constructed four pillars to clarify this concept. They are: (1) knowledge and skills (including the ability to think analytically and systematically about solutions to environmental problems), (2) affective and cognitive dispositions towards environmental issues, (3) knowledge of the environment and environmental issues, and (4) environmentally responsible behaviour. This was supported by McBride et al. (2013), who found that eco-literacy includes affective knowledge, cognitive skills, and behavioural components. Ramdas and Mohamed (2014) similarly observed that eco-

literacy encompasses more than just knowledge of environmental issues; it also calls for the capacity to synthesise information holistically through one's learning process and attitude development. According to Johns and Pontes (2019), these components lay the foundation for the growth of an environmentally literate society. They equip people with the knowledge and skills necessary to understand the state of human-environment systems to address the world's problems by linking experience with action. This is evident in Barnes and College's (2013) Awareness to Action in Environmental Education framework for individuals to deepen their eco-literacy as it progresses from awareness and appreciation, knowledge and understanding, to attitudes and values, problem-solving skills, and personal responsibility and action. In the same way, McBride et al. (2013) revealed that eco-literate members of society possess a full range of abilities of the head, heart, hands, and spirit. Overall, an individual who has an organic understanding of the world and engages in participatory action within and with the environment is considered eco-literate and can repair wide-ranging and urgent problems beyond the site at both local and global scales that can be sustained over time.

2.7 Interpretation

As destination managers work to balance the sustainable maintenance of visitor resources and visitor enjoyment, interpretation is regarded in both traditional and contemporary literature as one of the core elements of communicating educational messages with visitors (Christie & Mason, 2003; Moscardo, 2015). Visitors are quite inquisitive, so many authors consider interpretation more important than knowledge about the destination and the actual content (Bærenholdt et al., 2004; Pond, 1993; Weiler & Ham, 2001). This was recognised by Zhang et al. (2018), who argued that interpretation programmes must be carefully planned and executed to meet visitor expectations and enhance the experience of recreation and education. McIntosh and Prentice (1999, p. 590) state that "what is presumed to be authentic depends as much on the presented interpretation of the displays as that of the viewer." Therefore, interpretation plays a vital role in achieving a high visitor experience concerning authenticity at an ecotourism site. Tilden (1977, p. 110) offered one of the first and most often used definitions of interpretation, writing that it is "an educational activity which aims to reveal meaning and relationships through the use of original objects, by first-hand experiences and by illustrative media, rather than simply to communicate factual information." According to the Department of Conservation (2005, p. 8), "Interpretation is an explanation of the natural, cultural or historic values attached to places. It enables visitors to gain insight and understanding about the reasons for conservation and ongoing protection of our heritage." Based on these perspectives, Juma and Khademi-Vidra (2022) argued that nature interpretation is synonymous with environmental education, as knowledge about the environment and the interrelationships between nature and society are facilitated at a destination.

The primary aim of interpretation is to raise awareness and appreciation of the fragile state of the environment (Turley, 1999), the interrelationships between wildlife and habitats, and the impact of human activities upon the long-term viability of natural settings and their wildlife populations (Mason, 2000). According to Eagles et al. (2001), interpretive elements are designed with at least one of four purposes: (1) to increase visitors' awareness about a resource or attraction, (2) to alter the behaviour patterns of visitors and residents, (3) to explain communities, organisation, or agency goals and objectives to visitors and residents, and (4) to orient visitors to the area. Several authors report accomplishing these purposes through interpretation or educational programmes in ecotourism (Beckmann, 1988; Black & Ham, 2005; Eagles et al., 2002; Zeppel, 2008). For example, Moscardo (1996, p. 382) believed that "interpretation is trying to produce mindful visitors; visitors who are active, questioning and capable of reassessing the way they view the world." Others consider that interpretation contributes to managing the interactions between wildlife and visitors, behaving to minimise visitor impact on the environment, explaining management strategies and supporting safety messages (McArthur & Hall, 1993; Moscardo, 1998). For instance, Spring (2017) argued that interpretation in wildlife tours plays a crucial role in educating visitors about animal welfare and conservation, by providing information that reveals the impact of visitors' behaviour on the observed animals. Therefore, interpretation is a soft visitor management tool that attempts to reveal the truths that lie behind the appearance, as it helps a visitor move past the point of aesthetic gratification and towards an understanding of the natural processes that have combined to create the beauty around them (Tilden, 2008).

2.7.1 Components of Interpretation

A set of fundamental components of interpretation was suggested by Tilden (1977). These include relating the interpretive experience to visitors' personal lives and considering their individuality, attempting to elicit a reaction or revelation from a visitor rather than merely providing facts, and interpreting as a holistic experience (Tilden, 1977). This relates to Ham's (1992) four successful interpretation components: enjoyable, relevant, organised, and thematic. Moscardo (1998) similarly argued that interpretation is practical when it provides variety, participation, personal connections, and explicit content and allows for alternative audiences. Chiu et al. (2014) extended this idea by observing that increasing participation and satisfaction a visitor has with an activity influences their environmentally responsible behaviour. Therefore, interpretation is the most vital part of the visitor experience, as a fuller understanding allows the visitor to follow a sense of personal responsibility to safe keep the environment (Moscardo, 2015; Skanavis & Giannoulis, 2010). This is evident in Interpretation Australia's (2011, p. 1) definition, which holds that interpretation is a "means of communicating ideas and feelings which help people understand more about themselves and their environment." These elements of interpretation in the literature can, therefore, help expand the reach of environmental

education, as appreciation and support for conservation efforts can be promoted before visitor attitudes and behaviours can be altered (Falk et al., 2012; Kiper, 2013; Tan & Law, 2015. Similarly, Walker and Moscardo (2014) noted that in an ecotourism environment, interpretations can significantly impact the transformation of social structures and behaviours by encouraging visitors onto a broad and comprehensive path towards sustainable development. Hence, "interpretation lies at the heart and soul of what ecotourism is, and what ecotourism can and should be doing" (Weiler & Ham, 2001, p. 549). Interpretation is vital in the rapidly growing ecotourism industry because it involves educating visitors about the consequences of their actions and encouraging them to engage in sustainable behaviours by responding to information provided at destinations (Moscardo, 2015; Weiler and Ham, 2001).

2.7.2 Platforms and Media for Interpretation

Interpretation techniques are commonly explored in literature through personal practices such as talks and interpreter-led tours and non-personal conventions through tangible objects like exhibits, films, and publications (Skanavis & Giannoulis, 2010). The first interpretive feature present in ecotourism destinations is signage and viewing platforms. According to Fennell (2020), many parks and protected areas rely on these interpretive features to allow visitors to appreciate their natural surroundings and develop a better understanding of how natural features function. Moscardo (1998) observed that the first step in interpretation concentrates on the importance of visitor enjoyment and exciting curiosity and then on contributing to conservation. Visitors will develop a sense of place attachment through lookout points and become concerned about wanting to protect an area by comprehending the information displayed on signage. However, Tidd (2015) argued that while signage can be helpful by adding physical information to a site, visitors can easily ignore it, and those without prior ecological expertise may require more help to grasp complex systems and a better understanding. For that reason, interpreters serve as the primary informational and awareness-raising resource for many visitors in natural and culturally protected regions through direct interaction (Skanavis & Giannoulis, 2010) because the interpreters' expertise, abilities, and values can help co-create transforming experiences for visitors (Sheldon, 2020). Furthermore, Orr (1992) found that interpreters act as true leaders in ecotourism and can empower a citizenry capable of conservation, keeping visitors as the central focus, critically empowering them to spread conservation messages worldwide on their travels (Juma & Khademi-Vidra, 2022; Moscardo, 1998). However, a drawback of interpretation in ecotourism is that the educational or interpretive experience already appeals to a specific kind of visitor who may be predisposed to think about and care about environmental and social sustainability issues (Walker & Moscardo, 2014). Hughes et al. (2018) argued that acquiring this target audience is beneficial, as messages from the content of interpretative programmes are most likely to affect behavioural intentions and follow-up behaviour when they build upon visitors' pre-existing knowledge and attitudes. While there are

disagreements in the literature, Tilden (2008) argued that the presence of an interpreter can serve as the primary driver for the visitor experience and connect with all audiences. The central goal for interpreters is to provoke curiosity rather than instruction so that their words can be transformed into something visitors can relate to their prior knowledge and experience (Tilden, 2008). Therefore, interpretation can foster mindful visitors who participate in reflective engagement (Moscardo, 2015). While a growing body of research indicates that while thoughtfully crafted interpretive experiences and messages are an effective way to decrease a variety of unfavourable on-site behaviours such as littering, wandering off tracks, and feeding wildlife, little research has been conducted to discover how environmental interpretation plays a role in inspiring the adoption of conservation practices off-site (Ballantyne & Packer, 2011; Hughes, 2013; Moscardo, 2015, Powell & Ham, 2008). Therefore, for guides to be effective, Fennell (2020) argued that they must make use of their education to disseminate information about ecotourism destinations in ways that will have a beneficial influence on visitors' attitudes and routine behaviours, which can be achieved through an effective planning, design, and delivery process.

2.8 Planning, Design, and Delivery of Environmental Education and Interpretation in Ecotourism

Planning, design, and delivery are coordinated steps often used in various industries to conceptualise, create, and bring a product, service, or experience to fruition. This procedure ensures that the final outcome aligns with an organisation's goals and meets the target audience's needs. In ecotourism, the planning, design, and delivery phases follow a similar framework in other industries but with specific considerations tailored to creating sustainable and responsible travel experiences focusing on conservation, environmental engagement, and education. According to Drumm and Moore (2005), when intertwined with environmental education, an ecotourism management strategy becomes a mechanism for developing tourism within a protected area and synthesising stakeholders' visions while fulfilling the site's conservation goals. This was reflected in Getz's (1987) perspective on tourism planning as a process aimed at maximising the potential contribution to human well-being and environmental quality. Similarly, Inskeep (1987) argued that tourism should be developed carefully and controlled, resulting in the best possible socio-economic advantages without causing significant environmental or cultural issues. Therefore, Kiper's (2013) assertion of the necessity to implement processes that manage natural resources to guarantee ecological and environmental integrity underlines the significance of strategic planning, design, and delivery of environmental education and interpretation in ecotourism. Powell and Ham (2008) suggested that well-planned, designed, and delivered environmental interpretation during an ecotourism experience can increase environmental knowledge of a natural area, attitudes towards environmental issues affecting a natural area, and environmentally responsible behaviour intentions such as support

of conservation efforts. Therefore, planning, designing, and delivering environmental education is a comprehensive and essential endeavour, as these phases are crucial for raising awareness about ecological conservation, fostering a deeper connection to nature, instilling a sense of environmental stewardship, and promoting sustainable behaviour among visitors.

2.8.1 Planning

Planning is the initial stage for establishing the destination, objectives, and stakeholders. According to Getz (1987), planning in ecotourism involves a systematic approach that relies on research and evaluation to maximise its positive impact on both the well-being of humans and the quality of the environment. This involves destination selection by identifying the appropriate location where the travel and environmental educational experience will take place and outlining what the destination and educational programme intends to achieve by defining goals and objectives and identifying the stakeholders, including the individuals or groups who have an interest in or influence on the project's outcome.

2.8.1.1 Destination Selection

The first part of the planning phase is selecting the ecotourism destination itself. The significance of this cannot be overstated, as it entails careful examination and decision-making that will profoundly impact the environmental, experiential, and educational aspects of the ecotourism endeavour. Central to the process is the identification of ecologically significant areas. These areas are selected for their unique natural attributes, such as biodiversity, pristine landscapes, or exceptional ecosystems (Clark et al., 2014). These features are not only aesthetically appealing but also hold immense educational value, as they serve as natural classrooms where visitors can gain first-hand knowledge of ecosystems, biodiversity, and environmental processes. Therefore, the chosen destinations should be rich in ecological wonders that visitors can explore, learn about and appreciate (Hill et al., 2014). Another critical consideration in destination selection is accessibility; it is essential to choose destinations that are easily accessible, ensuring that the educational benefits of ecotourism are available to a broad audience. However, accessibility must be balanced with environmental sensitivity. The selected destinations should be capable of supporting ecotourism activities without causing harm to the delicate ecosystems they shelter. Ultimately, the chosen destination will define the ecological richness and diversity visitors encounter and determine the accessibility and feasibility of ecotourism activities while ensuring minimal environmental disruption. In this context, destinations are likely to be ecosanctuaries near urban areas.

2.8.1.1.1 Ecosanctuaries

An ecosanctuary is a designated area of land set aside and managed explicitly to protect native flora and fauna and aims to create a haven where native species can thrive without the threats posed by introduced predators, habitat destruction, or other human-induced pressures. According to Campbell-Hunt (2014), ecosanctuaries are relatively new conservation initiatives in which individuals or interest groups strive to safeguard and rehabilitate a region that is often public land rather than formally protected. Ecosanctuaries work to restore and rehabilitate degraded habitats, including planting native vegetation and removing invasive species that can disrupt the natural balance of ecosystems. They prioritise the conservation of indigenous plants, animals, and ecosystems by implementing strict predator control measures to allow native species to breed and establish populations without the constant threat of predation.

While Campbell-Hunt and Campbell-Hunt (2013) argued that government regulation, involvement, and support impact ecosanctuaries daily activities, many ecosanctuaries involve local communities in their conservation efforts, promoting community ownership and stewardship of the environment; Albrecht et al. (2022) noted that community groups are typically the driving force behind establishing these protected areas. By linking community advocates and governance stakeholders, ecosanctuaries are examples of the community-driven tourism development described by Beeton (2006) rather than Murphy's (1985) geographically framed community tourism. Hence, ecosanctuaries are viewed as more of a social than a biological network because practitioners often meet annually to discuss shared problems and successes (Innes et al., 2019). In addition, as the volunteers are typically locals interested in nature conservation, community-based tourism is strongly involved in the ecosanctuaries' offerings (Asia Pacific Economic Cooperation Tourism Working Group, 2010; Murphy, 1985). Hunt and Campbell-Hunt (2013) argued that if ecosanctuaries are to realise their original vision, they must continue to be dedicated to all four sustainability goals: (1) protecting a self-sustaining ecology, (2) making enough money to cover expenses, (3) retaining strong support of the community, and (4) maintaining their independence in partnerships with governmental organisations.

According to Zhang et al. (2021), some ecosanctuaries offer nature-based tourism, as they are chosen as a pathway to facilitate conservation goals, offering vital opportunities for natural heritage and nature-based development through environmental education (Zhang et al., 2018). Consequently, they can play an educational role by providing opportunities for visitors to learn about the local ecosystem, conservation, and the importance of preserving biodiversity (Tidd, 2015). Destinations encouraging visitors to appreciate the outdoors in a largely uninhabited terrain may provide the groundwork for additional learning and active participation in conservation efforts (Johns & Pontes, 2019). As noted by Tilden (2008), ecosanctuaries must be

utilised to teach visitors the basics of ecology, as they are the greatest natural classroom available. For example, they can offer guided walks, walking trails, interpretive signage, and visitor centres to engage the public and foster an understanding of the value of native biodiversity. Zhang et al. (2018) clarified that ecosanctuaries must commit to providing visitors with quality conservation education and experiences while guaranteeing the regular operation of ecological restoration programmes, interpretation, and visitor management.

2.8.1.1.2 Urban Ecology

Urban development has created conditions for many new types of ecosystems and ecosanctuaries to flourish. Ecosanctuaries within or near urban areas enhance biodiversity and ecological understanding within urban environments, as they are more likely to be open to visitation (Campbell-Hunt & Campbell-Hunt, 2013). This is important because attention has been given to environmental education in urban communities (Kudryavtsev & Krasny, 2012) and the negative consequences of limited access to nature (Louv, 2006). Urban ecology, according to Schliephake (2014), deals with the complex interrelations between urban communities and their natural environments. Several researchers have defined urban ecology as the study of the ways that human and ecological systems develop together in urbanising regions (Alberti, 2008; Niemelä et al., 2011); it is the study of nature within cities, humans within cities, and the interrelated links between humans and nature within cities (Endlicher et al., 2007). Therefore, urban ecology plays a significant role in reconnecting visitors to other living systems (Wu, 2014) and allowing them to realise that there is no divide between human cities and the natural environment (Tidd, 2015). Wu (2008) argued that the main objective of urban ecology is to comprehend how spatial and temporal patterns of urbanisation relate to ecological processes. Wu (2014) divided the various concepts and viewpoints in urban ecology into two categories: ecology <u>of</u> cities, which views the entire city as an ecosystem, and ecology <u>in</u> cities, which focuses mainly on the non-human organisms in the urban environment. In response to the new developments in urban studies, Wu (2014) added a third category of the sustainability of cities that treats cities as coupled human-environment systems or social-ecological systems, with an increasing emphasis on the relationship between ecosystem services and human well-being in urban areas. These insights in the literature show that urban ecology can help societies become more sustainable due to the broader understanding of how human and ecological processes coexist in a human-dominated system (Niemelä et al., 2011). The literature also notes that when and where environmental problems are most likely to arise affects people's perceptions of their significance (Passafaro, 2020). Martínez-Rodríguez et al. (2018) contended that for the learning process to be meaningful, its activities must be pertinent and connected to the physical, social, cultural, and emotional environment visitors belong to. Therefore, urban ecology is useful, as it offers the chance to develop environmental education in a setting that people are familiar with (Tidd, 2015).

In a tourism context, Gibson et al. (2003, p. 324) defined urban ecotourism as “travel and exploration within and around an urban area that offers visitors with enjoyment and appreciation of the city’s natural areas and cultural resources, while inspiring physically active, intellectually stimulating and socially interactive experiences.” Furthermore, Niemelä et al. (2011) argued that leisure and tourism are responsible for changing how people view urban environments. This supports Alberti’s (2008) claim that it is crucial to understand how human-ecological systems work within tourism in urban areas to effectively address the conflict amongst the systems due to metropolitan areas’ rapid sprawl. From the literature, it is evident that cities have been the epicentres of significant environmental issues since the industrial revolution (Wu, 2014) and because people choose to live in cities as their predominant form of settlement, their choices have had a considerable negative impact on natural surroundings, other species’ habitats, and natural resources (Schliephake, 2014). Ramalho and Hobbs (2012) observed that contemporary urbanisation can have significant implications for protected areas outside city limits, such as ecosanctuaries, as they may soon be incorporated into urban landscapes as cities expand.

Overall, by incorporating destination selection into the planning phase, ecotourism programmes aim to establish a strong foundation for the educational experiences. This approach ensures that the chosen destination supports educational goals, aligns with conservation objectives, and provides participants meaningful opportunities to easily access, engage, and learn from the environment.

2.8.1.2 Objectives

Setting objectives in the planning phase involves defining clear and specific goals that guide the initiative. Objectives provide a roadmap for what a destination intends to achieve and serve as a foundation for designing, delivering, and evaluating the experience or programme. For example, the activities, content, and experiences created should directly support and contribute to achieving the objectives. Clear objectives enable a destination to measure the success of an initiative by allowing them to assess whether they have met the intended outcomes and make any necessary adjustments for future improvements.

Murphy (1983) stated that many tourism objectives targeted business interests and economic growth. This was echoed by Getz (1986), who wrote that an examination of tourism models indicated that the primary focus of tourism planning was predominately project and development-oriented. However, with the rise of ecotourism, these objectives shifted away from an emphasis on economic considerations to include community concerns (Gunn, 1988; McIntosh & Goeldner, 1990), environmental aspects such as the protection of resources (Gunn, 1988) and the reduction of adverse impacts (Mill & Morrison, 1985). In an environmental education programme, these objectives may include increasing visitors’ knowledge of local

ecosystems, raising awareness about conservation efforts, or fostering a sense of environmental responsibility. According to Spring (2017), in protected areas like wildlife sanctuaries, managers typically craft educational objectives to underscore the stewardship responsibilities of both staff and visitors, both onsite and offsite, concerning the experiences with natural resources. Therefore, the objectives of an ecotourism destination will inevitably define its role in safeguarding or sustaining the environment (Dowling & Fennell, 2003). This phase involves local communities, conservation organisations, and experts to ensure that the educational ecotourism activities align with local needs and goals, setting educational goals to raise awareness about the environment and conservation among visitors, and developing sustainable strategies to ensure that the educational ecotourism activities contribute positively to the local environment and communities. Drumm and Moore (2005) recognised that for ecotourism to realise its full potential and generate sustainable benefits, protected areas must implement a planning framework that offers guidance and effective management of such educational activities through stakeholder engagement. Similarly, Inskeep (1987) argued that ecotourism planning must be closely coordinated and integrated with national, regional, and local conservation planning concerning both geographic distribution and the degree of tourism development. While experts' roles are essential in choosing appropriate methods for securing people's participation and action, "the final decision and the ultimate authority is a question for the common man" (Schnack, 2000, p. 116). Chang et al. (2018) observed that successful ecotourism development must consider the perception of the indigenous community to build a mutual relationship grounded on respect and feasibility without negatively impacting other local communities and ecosystems of which they are a part. As these objectives and stakeholder relationships are established, they provide a basis for identifying the appropriate target audience for the initiative.

2.8.1.3 Target Audience

Defining the target audience in the planning stage involves identifying and understanding the specific group of individuals or entities that the ecotourism initiative or environmental education programme aims to engage and cater to. This step is crucial because it allows the destination to tailor the experience or programme to meet the intended participants' needs, preferences, interests, and characteristics. Therefore, by defining its target audience, a destination can ensure that efforts are focused and relevant, increasing the likelihood of achieving the objectives and creating a more impactful and meaningful experience. This can include children, school students, adults, or a combination of these groups.

Since the 1980s, a distinct approach to environmental education has surfaced, primarily focusing on involving and emancipating children. This approach planned to go beyond mere knowledge transmission to incorporate elements of ownership and empowerment (Hungerford

et al., 1980; Hungerford et al., 1983; Hungerford & Volk, 1990). Identifying children as the target audience is essential because children must be included in the environmental education process as they have the power as future citizens. Hart (1995) argued that a more revolutionary form of social science research is required with children, in which children themselves learn to reflect upon their conditions to gradually begin to take greater responsibility in shaping communities different from the ones they have inherited. This was supported by Howe and Covell (2009), who argued that engaging children in these processes helps them become more aware of their rights, which leads them to build a strong foundation of active citizenship. Stables (2003) also noted that children should be encouraged to take more responsibility for the environment in their hometown and extend this to global ecological stewardship. Children's participation in environmental matters is essential, as climate change is an issue of intergenerational equity that will affect future generations (Howe and Covell, 2009). Accordingly, Davis and Cooke (1998) argued that one of the most significant tasks for society is to equip children with the knowledge, attitudes, values, and skills through environmental education to rethink and change current patterns of action and to secure healthy, fair, and sustainable futures for all. According to these perspectives, environmental education should focus on children's empowerment and action rather than transferring scientific knowledge about the ecological crisis. This view is evident in the New Zealand context, as the Department of Conservation (2017) aims to better equip New Zealanders, especially children and young people, with the knowledge, skills, and motivation to tackle environmental issues.

Numerous studies focus on environmental education for school children within the curriculum through place-based learning. In the context of ecotourism, school trips play a vital role in shaping children's early tourism experiences, influencing their future adult travel and leisure choices, and fostering support for the future protection of natural landscapes (Cripps, 2022). Environmental education programs within school curricula, especially those that emphasise place-based learning at ecotourism destinations, have the potential to shape students into sustainability thinkers, influencing pro-environmental attitudes and behaviours, ultimately leading to them becoming eco-literate visitors (Cripps, 2022); this is because the curriculum should be designed to "heal, connect, liberate, empower, create, and celebrate" (Orr, 1992, p. 10). Therefore, efforts to engage children in environmental education must extend beyond the classroom to include experiential learning opportunities, such as ecotourism activities, that allow children to connect with nature first-hand and develop a deeper appreciation for environmental conservation. By instilling values of environmental stewardship and responsibility in children, these programmes aim to create a generation of informed and environmentally conscious travellers who actively support ecotourism initiatives. However, while essential in addressing global issues (Moscardo, 2015), formal education and place-based programmes contribute only a small part of the public's understanding of environmental issues

(Falk & Dierking, 2002; Falk & Storksdieck, 2005). Johns and Pontes (2019) observed that it is essential to concentrate the effort of environmental education to reach a larger population of adults with inadequate environmental knowledge and awareness.

According to the United Nations Educational, Scientific and Cultural Organization (1999), engaging adults in learning experiences, usually non-formally, is a central tool for raising environmental awareness and promoting environmentally supportive actions. However, environmental education was less developed in adult and non-formal sectors than in schools, and practical solutions are seldom promoted in environmental education for adults (United Nations Educational, Scientific and Cultural Organization, 1999). Therefore, adult environmental education has experimented with different ways to bring about change and initiate actions through non-formal education (United Nations Educational, Scientific and Cultural Organization, 1999). Haugen (2010) viewed non-formal educational opportunities, many of which take place outdoors, as needing better development and investigation. Non-formal education is driven by the learners' objectives, who often participate voluntarily (Heimlich, 1993). This is problematic, as a destination may appeal to those interested in or involved in environmental matters, limiting the potential to spread conservation messages. Moreover, targeting adults can be an issue; Madruga and da Silveira (2003) argued that some resist behaviour change, including behaviours that lead to environmental protection. Therefore, environmental education must be designed to engage a diverse range of participants beyond those already inclined toward environmental matters while achieving conservational goals.

2.8.2 Design

The design phase involves creating a detailed blueprint that outlines how the experience or programme will be conceptualised and structured. Design involves making visual, functional, and experiential decisions to develop engaging and seamless experiences that align with a destination's objectives and visitors' preferences while having minimal environmental impacts. Designing ecotourism experiences involves creating immersive and educational activities that foster a deeper connection to nature, culture, and conservation efforts (Dowling & Fennell, 2003). This is because the fundamental goal of ecotourism is to enable visitors to gain a genuine understanding of and admiration for a location's distinct natural and cultural aspects by bringing them closer to it (Mirsanjari, 2012). Bunruamkaew and Murayama (2012) argued that ecotourism must be designed to encourage educational progress and create awareness about the shared responsibility of preserving the ecosystem of an area; it is essential to implement and uphold regulations focused on environmental considerations related to visitor activities and provide education for visitors so they can comprehend and respect the environment (Inskeep, 1987). Therefore, ecotourism destinations must design interactive and engaging activities that offer direct interactions with wildlife and encourage participants to actively learn, ask questions,

and explore their surroundings while ensuring the safeguarding of animals and their habitats (Ballantyne et al., 2009).

2.8.2.1 Guided Tours

Many academics have identified guided tours as critically important in the educational experience (Mason & Christie, 2003; Randall & Rollins, 2009; Weiler & Black, 2014; Weiler & Walker, 2014). According to Rabotić (2010), a guided tour experience unfolds when the guide, visitor, and environment intersect in the same temporal and spatial context. Moreover, Spring (2017) suggested that guided tours offer visitors a direct, mediated experience where they explore a location accompanied by knowledgeable guides who share relevant information about the site, or targeted phenomena being visited. The guide links visitors and a destination by "ensuring a positive experience for the visitors, a sustainable experience for the environment, as well as a rewarding experience for themselves" (Pastorelli, 2003, p. 3).

Guided tours are carefully crafted during the design phase to align with the initiative's objectives. The content, route, and activities of a guided tour are strategically designed to ensure that participants receive valuable insights into the natural and cultural aspects of the destination. This could include topics such as local flora and fauna, ecosystem dynamics, conservation efforts, cultural history, safety protocols, and responsible tourism practices. Educators and tour guides also decide on the key messages, themes, and educational goals the tour aims to convey.

According to Weiler and Ham (2001), tour guides can significantly enhance the quality of visitors' experiences. They play a collaborative role in designing ecotourism experiences by facilitating interactions across four distinct dimensions: (1) enabling physical access, (2) promoting comprehension (intellectual access), (3) facilitating meaningful encounters (interactions), and (4) fostering empathy (emotional access) (Weiler & Black, 2015). This categorisation is aligned with Cohen's (1985) categorisation of tour guides into four distinct types: originals, animators, tour leaders, and professionals. The "Originals" are pathfinders who perform primarily an instrumental function; their primary duty is to ensure visitors' safe arrival and return to their destination. Therefore, they are often called "pathbreakers" because they select the route and attractions, making them accessible to visitors. However, they point out objects of interest without offering elaborate explanations. "Animators" take on a social function by interacting and socialising with visitors, exhibiting friendliness, attentive listening and respecting their preferences, and "Tour Leaders" perform the interaction function by facilitating interaction with visitors and with the environment. "Professionals" focus on the communicative process, which involves conveying detailed information, such as telling and explaining to visitors where, when, and why to look and how to behave, and interpreting attractions, sites, and experiences. European Federation of Tour Guides Associations (1998) defined a tour guide as an individual who presents the natural and cultural heritage and

environment to visitors in an inspiring and entertaining manner, using the language preferred by the visitors. According to the Professional Tour Guide Association of San Antonio (1997), a tour guide leads groups while providing interpretation and commentary. This corresponds with the view that a tour guide can be regarded as a leader, an individual capable of taking charge and imparting information, acting as a foundation of knowledge (Çetinkaya & Öter, 2016; Sandaruwani & Gnanapala, 2016). Furthermore, Rabotić (2010) viewed the task of guides as helping visitors to locate, perceive, and understand different features of a destination. Similarly, Seyitoğlu (2020) stated that tour guides provide visitors with information about various aspects of a destination, which necessitates a thorough understanding. Visitors learn to understand different elements of a destination, such as its heritage, history and culture, which helps enhance the visitor experience, especially as many travel to learn about the destination they visit (Constantin et al., 2021). Moreover, Moscardo et al. (2004) stressed that clear, simple explanations must bridge the gap between new information and visitors' current knowledge. In addition, humour, analogies, and metaphors can build links between the interpretive content and the everyday experience of the visitors (Moscardo et al., 2004). Therefore, verbal interpretation by tour guides is critical in influencing the visitor experience (de Rojas & Camarero, 2008; Zeppel & Muloin, 2008).

Guided tours should not be a one-way communication or informative presentation by tour guides, but rather, guides should encourage input and questions from visitors (Ballantyne et al., 2000) and interactive processes that require visitor participation (Poria et al., 2009). This view is supported by various authors, who consider that guided tours should be designed to go beyond imparting knowledge by encouraging visitors to adopt positive attitudes and behaviours towards the environment (Armstrong & Weiler, 2002; Cheung & Fok, 2014). Sangpikul (2011) argued that guides should provide sightseeing and natural and environmental learning opportunities while encouraging visitors to foster emotional connections and participate in conservation. Similarly, Black and Crabtree (2007) and Hu and Wall (2013) explained that guides should aim to encourage visitors' learning to increase their knowledge about the visited sites and stimulate the development of empathy towards local environments and cultures, modifying any inappropriate conduct at the destination, and fostering responsible behaviours post-visit. Furthermore, Spring (2017) found that the interaction between guides and visitors within wildlife tours serves as a platform for guides to provide information that educates and inspires visitors to contemplate potential actions they can undertake to aid the well-being of the encountered animal species. This view was supported by Kong (2014), who wrote that tour guides should encourage and motivate visitors to protect natural areas. According to this view, modern tour guides are no longer expected to play a traditional role, which was to lead, inform, and entertain visitors at a destination (Christie & Mason, 2003). Instead, they should assist visitors in finding the destination's meaning through interaction (Poria et al., 2006; Reisinger &

Steiner, 2006; Spring, 2017; Stewart et al., 1998). Reisinger and Steiner (2006) argued that tour guides do not need to be able to answer all visitors' questions but instead encourage visitors to explore the meaning and personal value of a site by themselves to enhance their experience with the site. As Screven (1995) argued, educational content will count for very little if visitors cannot make meaningful connections to their previous knowledge and experience. Moscardo (1999) also found that finding or making a personal link significantly influences visitor satisfaction and how much they feel they learn. Therefore, the significance of designing experiences with meaning and personal value for visitors cannot be emphasised enough. In addition, tour guides should set a good example to encourage visitors to adopt environmentally friendly behaviours (Pu et al., 2022). Various authors have argued that tour guides should influence visitors' decisions, monitor their behaviour on-site, and foster environmentally friendly and conservation attitudes and behaviours post-visit (de la Barre, 2013; Randall & Rollins, 2009; Rokenes et al., 2015; Weiler and Kim, 2011; Yamada, 2011). Hence, Weiler and Kim (2011) highlighted that tour guides could contribute to sustainability by: (1) enhancing visitors' understanding and valuing of the site and its natural and cultural resources through interpretive guiding, (2) influencing visitors' decisions about their voluntary on-site behaviour by communicating and modelling sustainable practices, (3) monitoring and managing visitors' on-site behavioural compliance by enforcing regulations and modelling practices associated with protecting ecological and cultural values, and (4) fostering post-visit pro-environment and pro-conservation attitudes and behaviours through persuasive communication. Tour guides can create opportunities for visitors to contribute to local community initiatives and become involved in environmental protection (Weiler & Black, 2015). Indeed, Yamada (2011) argued that the ultimate goal should be encouraging visitors to demonstrate environmentally conscious behaviours on-site and at home.

Volunteers can gain an ecological understanding of a destination through personal involvement in species management and sustained contribution to restoration projects (Cessford, 1995; Galbraith, 1990; Galbraith & Hayson, 1994; Parker, 2008). This can heighten the visitors' experience, as found in Higham and Carr's (2003) study, which investigated visitors' experiences during wildlife tours in New Zealand and revealed that interpretation focuses on conservation, raising awareness about environmental concerns, and promoting environmentally responsible behaviour was highly valued by visitors. Furthermore, the presence of guides was perceived as instrumental in managing inappropriate visitor behaviour. Peake et al. (2009) examined whale-watching tours in Australia. They determined that guides offering conservation-related information and actions significantly contributed to visitors' comprehension of conservation messages and overall satisfaction. These studies suggest that tour guides are crucial in environmental education and conservation efforts, as they serve as role

models on-site, enhancing visitors' experiences and the overall effectiveness of ecotourism initiatives.

2.8.2.1.1 Role Modelling

Guides are often described as the central role model in most ecotourism experiences, as they are information providers, sources of knowledge, mentors, teachers, pathfinders, leaders, mediators, cultural brokers, and entertainers (Cohen, 1985; de Kadt, 1979; McKean, 1976; Nettekoven, 1979; Schuchat, 1983). Manning (2003) emphasised that role modelling by tour guides is especially valuable when visitors are either unmotivated or incapable of processing a logical argument in a verbal message. Consistent with this, Bandura (1986) found that most visitors learn through observation, including various role modelling forms. By observing the behaviour of others in a given situation, visitors can build cognitive models that can influence their future actions, such as environmentally responsible behaviours. For instance, Spring (2017) discovered that respectful treatment of wildlife and eco-friendly practices modelled by guides enhance visitors' appreciation of the tour's ecological aspects and inspire them to adopt similar behaviours. Indeed, an early study by Miller and Dollard (1941) posited that learners must be provided with examples of behaviour and have the opportunity to demonstrate this example and receive positive reinforcement in return. Role modelling by guides is therefore essential for influencing environmentally responsible behaviour, and as Bandura (1997) argued, individuals cannot be influenced by modelled behaviour if they have no recollection or memory of these behaviours; observation must occur, and there must be a role model to demonstrate the desired behaviour. Bandura (1986) presented two sub-categories of observation: imaginal and verbal. In the context of imaginal observation, individuals observing modelled behaviours initiate stimulus generation through sensory conditioning. This process employs vivid mental images for cognitive rehearsal (Bandura, 1986; Bandura, 2001). For example, a visitor may recollect a mental image associated with a specific activity, location, or object. These imaginative symbols serve as conceptual abstractions of actual occurrences rather than stored mental images of past experiences or observations. Through repeated iterations of this process, observers gradually construct intricate behavioural intentions. According to Bandura (1986), the second sub-category of observation, verbal codes of observed behaviours, can overpower visual processes in certain situations. For example, suppose a visitor observes a composting demonstration. In that case, the details of the step-by-step process demonstrated by the role model can be learned and replicated later through a verbal code describing the series of steps rather than recalling visual images that often include irrelevant details (Bandura, 1986). Through these conceptual models of observed behaviours, learners are guided in their actions and given opportunities to practise the behaviours they have seen. As outlined by Bandura (1997), learners must practise these modelled behaviours if they are to replicate them at a later time. During an ecotourism experience, observational learning relies heavily on individuals' ability to reconstruct and

perform modelled behaviours they have witnessed. Therefore, tour guides must assess their visitors' nature, motivation, and ability to comprehend and handle management issues and responses. Guides with expertise in situational leadership can select a strategy appropriate to the visitor group to manage and monitor problem behaviours (Hersey & Blanchard, 1982). These actions are then assessed against their conceptual model for accuracy in the form of reinforcements (positive or negative feedback) from the original or other role models. According to Bandura (1986), translating knowledge or skills into action is not always followed through, especially when the behaviour has little relevance to daily life. However, positive reinforcement can significantly propel behaviours initially modelled as actions (Bandura, 1986). Therefore, encouragement plays a vital role in motivating participants to participate actively.

In the New Zealand context, role modelling can be seen in guides abiding by the New Zealand Environmental Care Code, a set of guidelines and principles designed to promote responsible and sustainable behaviour in outdoor and natural environments (Ainge et al., 1991). The code is aimed at individuals engaging in outdoor activities such as hiking, camping, and exploring natural areas. It encourages people to minimise their environmental impact, preserve the beauty and integrity of natural places, and ensure that these areas are left unspoiled for future generations. These principles include protecting plants and animals, removing rubbish, keeping streams and lakes clean by lessening the risk of contamination and having toilets available, taking care with fire, camping carefully by leaving no trace, keeping to the tracks, considering other visitors, respecting the cultural heritage, and finally, enjoying the visit and taking a last look before leaving the area to ensure that the next visitors will not know that anyone was there. It is essential for individuals engaging in outdoor recreation to abide by these guidelines to ensure that they enjoy nature while minimising their impact on the environment.

Sangpikul (2020) argued that guides must implement and incorporate ecotourism principles into their guided tours. They should provide a trip that educates visitors, promotes natural appreciation, reduces tourism impacts, and generates economic, social, and environmental benefits to the destination and beyond. Various authors support this view, as tour guides can influence visitors' experience, behaviours, and attitudes towards a visited destination (Christie & Mason, 2003; Moscardo, 1996), as well as conservation in general (Munro et al., 2008).

2.8.2.1.2 Training

Beyond merely designing the content and structure of educational guided experiences, guides are trained to ensure they have the knowledge, skills, and communication abilities to deliver informative and engaging experiences to visitors. Accordingly, Ap and Wong (2001) pointed out that tour guides can elevate visitors' visits beyond mere tours into transformative experiences through their knowledge and understanding of a destination's attractions and

culture and using effective communication skills. Furthermore, Spring (2017) underscored the close connection between visitors' perception of the tour's educational value and their assessment of the guides' knowledge and teaching abilities. Training programmes should align with the roles, abilities, skills, and knowledge that guides require for their tours, with essential aspects including the ability to meet visitors' needs and expectations, the ability to guide according to legal, ethical and safety requirements, general knowledge about the destination, the ability to deliver accurate and relevant commentary, sensitivity to cross-cultural needs and differences, the ability to provide enjoyable educational messages, and the ability to manage a group (Black & Weiler, 2005; Weiler & Ham, 2002).

Recognising the significance of guide training dates back to the 1960s (Smith, 1961), when the importance of adequate education for guides was highlighted to enhance guide performance, raise guiding standards, and advance professionalism (Ap & Wong, 2001; Brockelman & Dearden, 1990; Christie & Mason, 2003; de Kadt, 1979; Mason & Christie, 2003; Pond, 1993; Weiler & Davis, 1993; Weiler et al., 1997). However, gaps remain, as some tour companies inadvertently fail to train their guides adequately with up-to-date information (Carmody, 2013). This is because guides often learn from reading basic materials or accompanying another guide for a few hours before guiding independently (Eberts et al., 1997). Carmody (2013) found that there is little transfer of knowledge and skills between staff on how to deliver information and environmental messages best. This is problematic as it can lead to inadequate knowledge transfer and skill development, potentially hindering the quality of the guided experiences and messages they are trying to convey. Moreover, insufficient information is likely to lead visitors to misinterpret a site due to their limited knowledge and previous experience (McIntosh & Prentice, 1999). Tetik (2016) argued that guides must be encouraged to update and upgrade their knowledge and improve their skills through regular education, training, and qualifications. Many academics stress that a knowledgeable guide is critical to any ecotourism business in promoting sustainable development (Chilembwe & Mweiwa, 2014; de Lima, 2016; Seyitoğlu, 2020). Visitors visiting new destinations typically find comfort when accompanied by knowledgeable individuals who understand the destination and its features (Nilsson & Zillinger, 2020).

The importance of tour guides does not just refer to professional guides but also local guides who can contribute to local tourism development due to their rich understanding and lived experience of a destination (McGrath, 2003). People with local knowledge and personal investment in a place they have been involved in make the best interpretive guides (Bryon, 2012). Personal investment is what Hungerford and Volk (1990) considered to be a significant factor in ownership, as invested individuals identify strongly with local issues because of their particular interest in them. Therefore, training and employing local people as guides and interpreters is an essential sustainable development strategy because locals become important

allies in protecting the natural and cultural environments that form the basis of the ecotourism industry (Weiler & Ham, 2002).

Although a knowledgeable guide has always been valued, the evolving landscape of ecotourism and the experience economy requires guides to possess a broader skill set. Christie and Mason (2003) suggested that the training should not only enhance tour guides' knowledge and skills but also facilitate a change in their attitudes and behaviour toward environmentally responsible activities. Furthermore, Cherem (1977) stressed the importance of delivery skills over actual knowledge, asserting that guides are interpreters first and subject specialists second. Similarly, Mason and Christie (2003) suggested that good training should include soft skills such as cultural sensitivity, critical self-assessment, values and attitudes, and the transmission of emotion and proposed transformative learning as a more reflective approach that incorporates these elements rather than simply conveying factual information. The literature confirms that successfully guided excursions and tours depend on the professional competencies of the individuals who lead and conduct them. These professional competencies include aspects such as the professional knowledge of the guides, skills, and attitudes (Lin et al., 2017). Üzülmez et al. (2023) recognised that appropriate guide training is essential for raising awareness among visitors to help achieve sustainable development. Baldigara and Mamula (2012) noted that tour guides' behavioural and cognitive development skills are crucial to achieving high visitor satisfaction. Christie and Mason (2003) suggested that guide training should differ from traditional training models. In the same vein, Kong (2014) proposed that inviting professional experts to introduce knowledge on ecotourism would be useful, and organising workshops and seminars in which tour guides share their working experience and nature-based education methods would be informative; such seminars may provide concrete examples of successful practices that could help guides enhance their interpretation and communication skills.

Guided tours and guide training are integral to the design phase, shaping how participants engage with the environment and learn about its significance. Through careful design, role modelling and training, guides can provide participants with memorable, educational, and transformative experiences that align with the objectives of ecotourism and environmental education initiatives.

2.8.2.2 Signage

While tour guiding is important, interpretation is not just face-to-face communication but includes non-personal or static interpretations such as signage. According to Tourism Nova Scotia (2008), while large exterior panels are the most popular form of signage (as they are capable of being read at a metre or closer), signage can take many other forms, such as interactive kiosks, messages embedded in the ground, and small signs affixed to buildings.

Bright and Pierce (2002) explained that signs of any kind can be located along trails to enhance the self-guided experience, on viewing platforms, or as part of static displays in visitor centres.

Signage is an essential element of the environmental educational experience as it provides a permanent source of information and identification for the flora and fauna seen in situ. A Tourism Nova Scotia (2008) publication pointed out that signage is particularly useful in ecotourism destinations where wildlife is often seen, as visitors always have access to information about the wildlife and warnings about getting too close to, feeding, or interacting with wildlife. Signage panels entice visitors to linger longer and understand their surroundings by creating awareness and appreciation of a destination's diverse natural, historical, and cultural resources while providing a sense of security that they are following the correct path.

During the design phase, educators determine how to effectively convey information to participants in an engaging and informative manner. In this context, signage is carefully designed to enhance the learning experience and help participants understand vital ecological aspects, conservation efforts, and the significance of the environment they are exploring. Tourism Nova Scotia (2008) explained that signage comes in two forms: informational and interpretive. Information signage delivers pure facts such as names, dates, and figures. However, on its own, information is not very memorable for visitors, and Pearce and Moscardo (1998) found that visitors expect not merely raw factual information as part of their experiences. Therefore, interpretive signage turns information into a theme to capture visitors' interests, provoke their curiosity, and get them emotionally and actively involved with a destination's objects, artifacts, and landscape (Tourism Nova Scotia, 2008). Tourism Nova Scotia (2008) also suggested that signage must achieve three objectives: learning, emotion, and behaviour. The Department of Conservation (2005) indicated that while all signage includes information, good signage takes facts and connects them with context. One Department of Conservation publication provides an example for both information and interpretation. Information is provided in the sentence, "Tane Mahuta is the largest and oldest kauri tree in New Zealand, at 51.5 metres tall, 13.77 metres circumference and 1500 years old," and interpretation, in "Tane Mahuta and other Kauri trees had perfect trunks for boat building, masts, carving and housing which help early New Zealand Māori and Europeans survive and thrive" (Department of Conservation, 2005, p. 8). While information provides facts, interpretation offers a story and can make visitors feel as if they are part of the story and understand the site's significance.

While signage can effectively increase visitor knowledge and understanding in a natural area (Cole et al., 1997), there is a threshold relating to the relevance and quantity of information presented on each sign and the total number of signs distributed around a site. Roggenbuck (1992) warned that the frequent use of signs may hinder visitors' sense of exploration and discovery of the natural environment, generating negative impressions of the ecotourism

experience. Tourism Nova Scotia (2008) similarly suggested that an effective sign will be noticed in its environment but will not detract from it, and Baxter (2001) and Bramwell and Lane (1993) asserted that a balance must be achieved between the number of signs provided and the minimisation of distractions and visual pollution by littering the landscape with too many signs. Tourism Nova Scotia (2008) found that visitors typically spend a maximum of 25 seconds reading the text of signs before being distracted or losing interest. The Department of Conservation (2005) also pointed out that a limitation of signage interpreting wildlife is that the sign may not always be in the same location as the animal or may not relate to what the animal is doing when the visitor arrives. Signs cannot provide personalised information to visitors (Knudson et al., 1995; Bright & Pierce, 2002). Therefore, the static nature of interpretive signage and the dynamic nature of wildlife behaviour prove a mismatch and can be an issue for ecotourism settings. Various authors have argued that once these thresholds are breached, the interpretive sign, at best, has no increased impact and, at worst, becomes a negative aspect of the site experience for the visitors through information overload and visual pollution (Bramwell & Lane, 1993; Matre, 1990; Roggenbuck, 1992). Accordingly, Bramwell and Lane (1993) advocated for minimal signs by carefully selecting critical messages expressed through topics and themes to ensure effective communication with visitors.

According to the Department of Conservation (2005), a topic is the subject of communication, while a theme identifies the critical message in interpretation and unique or significant aspects of a place. Themes are regarded as essential aspects of signage, as people remember themes more than facts (Thorndyke, 1977). Moreover, themes help retain interest and link pieces of information and help interpreters reduce, focus, and organise relevant information (Department of Conservation, 2005). Ham and Krumpe (1996) revealed that a theme expresses a belief about something. Therefore, thematic interpretation intends to plant a seed that can become the foundation of a new belief related to a desired behavioural outcome. In this context, Ham and Krumpe (1996) explained that signage should be designed to influence visitors' beliefs about an animal, an animal's habitat, or a concept, such as respecting or protecting that animal or habitat, as it can have profound impacts. In this sense, the sign is considered more strategic and purposeful, aimed at a known desired outcome. This is known as thematic interpretation: communicating beliefs to strategically influence attitudes and ultimate behaviours. By displaying signage with topics and themes, the Department of Conservation (2005) argued that visitors should receive the key message of a panel in the title in three seconds, get two to three points that illustrate the message in 30 seconds, and understand the topic in three minutes. In addition to topics and themes, Lidwell et al. (2010) argued that images should be utilised, as they are remembered more than words and can reinforce the message the words depict through optimal recognition and recall of information. Images presented on signage are essential for interpreting hidden or inactive wildlife, as many animals are nocturnal, and it can be

challenging to locate them during the day when visitor numbers are highest. Accordingly, Moscardo et al. (2004) suggested that using photographs and illustrations on signs that depict the animal or advising visitors of times and locations when the animals are likely to be active may be helpful. Through this interpretation, contextual and extra information can change visitor perception of the animals, as several authors have noted that visitors need to be educated about animal activity (Bitgood et al., 1986; Ford, 1995).

2.8.2.3 Human-Animal Interactions

To create engaging and visual experiences to learn about wildlife, ecotourism experiences are designed to offer visitors guaranteed encounters with wildlife. Some studies have suggested that human-animal interactions are critical to the overall visitor experience (Bertella, 2014; Eide & Mossberg, 2013). According to Orams (2002), visitor-animal interactions occur in one of three main settings: captive conditions (e.g., zoos or aquariums), semi-captive conditions (e.g., wildlife parks and rehabilitation centres) or totally in the wild. Various authors agree that the particular interest lies in visitors' desire to deliberately seek out relatively close encounters with wildlife in settings that range from entirely wild and free through semi-wild to completely contrived, manufactured or constructed settings (Cohen, 2009; Hall et al., 2003; Higginbottom, 2004; Newsome et al., 2005; Shackley, 1996). Animal-visitor interactions are primarily shaped by the actions of the animals themselves, as modifications to the destinations, such as walking tracks and viewing platforms, create opportunities to see animals more easily where they are fed. Therefore, it is at a destination that the intersections between animals and visitors are most frequent, and as Markwell (2015) argued, where animals are manufactured into tourism products for consumption by visitors.

Cohen (2009) held that ecotourism is an ideal context for exploring human-animal relationships because of its ethical opportunities for various forms of interaction. In this sense, the animal is considered the subject rather than the object (Moscardo et al., 2004). The encounter involves the visitors being in the physical presence of the unrestrained animal in its environment so that it can be perceived via one or more of the senses. However, due to the unrestrained nature of animals, the human-animal proximity varies enormously, from actual physical contact at one extreme to a mere glimpse in the distance at the other (Beardsworth & Bryman, 2001). Therefore, the dominant mode of engagement is visual, and visitors gain satisfaction and entertainment from seeing the animals at close range and collecting their images on cameras. In addition to providing entertainment, animal-based attractions can take advantage of the growing appeal of ecotourism by offering educational activities to visitors. Moscardo et al. (2004) claimed that there were greater educational benefits associated with more naturalistic displays, as they provided information about the animal's habitat and allowed more natural animal behaviour to be observed. The literature indicates that visitors respond positively to some

aspects of these encounters, including the presentation of various animals in one place, the ability to see animals moving, and the sense that animals are happier (de White & Jacobson, 1994; Ford, 1995).

2.8.2.4 Variety of Topics

In the design phase of ecotourism educational programmes, educators and programme designers work to create comprehensive and engaging learning journeys for visitors by offering a variety of topics. Considering ecotourism as a multifaceted package, Brouder and Eriksson (2013) emphasised that destinations benefit from an increased variety of educational experiences. Indeed, the Australian Government of Northwest Territories (n.d.) asserted that variety generates added value and choices for visitors, ultimately accommodating a broader spectrum of traveller interests, values, and motivations. This is important in the tourism industry, as it serves a range of traveller segments, including families, children, couples, and solo travellers. Hence, variety enables destinations to provide tailored experiences that resonate with different segments. Jessup et al. (2009) emphasised that variety is favourable, increasing the likelihood of visitors finding their desired options. For destinations aiming to attract repeat visitors, variety is vital because visitors who have experienced a variety of activities and attractions during their initial visit are more likely to return to explore new aspects of the destination. Various authors have explained that variety-seeking has emerged as a pivotal factor in comprehending visitor behaviour, influencing the inclination to revisit (Barroso et al., 2007; Jang & Feng, 2007; Niininen et al., 2004). From a psychological perspective, variety can enhance perceptions of control (Rotter, 1966; Taylor, 1989; Taylor & Brown, 1988) and intrinsic motivation (de Charms, 1968; Deci, 1980; Deci & Ryan, 1985). Variety ensures freedom of choice, which Smith (1994) defined as having a range of options available. The common idea in these studies is that variety is beneficial, as it provides more probability of finding a preferred option and, from a marketing perspective, increases the likelihood of satisfying diverse consumer preferences (Dworkin, 1982). Rodrigues et al. (2010) found that successful destinations must offer variety to cater to unique and specialised interest segments, thus widening the market. Furthermore, this design can enhance value by enriching the experiences of current visitors or appealing to distinct traveller demographics who might have yet to consider the destination otherwise (Moraru, 2011). Therefore, variety can enhance destination competitiveness by providing a greater potential for customised products that meet visitors' individual needs and interests and enhance flexibility in response to changing demand (Benur & Bramwell, 2015). However, recent social psychology studies suggest that excessive options may lead to negative consequences, known as choice overload (Diehl & Poynor, 2010; Iyengar & Lepper, 2000; Mogilner et al., 2008) or the too much choice effect (Scheibehenne et al., 2009). As a result, consumers might refrain from making any choice (Jessup et al., 2009; Scheibehenne et al., 2010) as the increasing options within a specific category can complicate decision-making.

Therefore, considering the potential for choice overload, particularly in the extensive array of options available in the realm of tourism offerings, it appears probable that this condition occurs in tourism experiences.

Silberberg (1995) noted that visitors often seek variety, so incorporating diverse educational topics ensures a comprehensive understanding of a destination's development and attributes. Walton (2005) highlighted the importance of considering various aspects of a destination to understand it, and as Saarinen (2004) observed, destinations are dynamic entities shaped by dominant and alternative narratives. These perspectives demonstrate the need to incorporate every dimension of a destination's evolution into an educational programme, including cultural, societal, economic, and political shifts while preserving historical and cultural legacies. Walton (2005) found that when discussing history and change over time, there is often a tendency to address these simplistically, disregarding how a product has developed, under what circumstances, constraints, and cultural conditions, and how that might affect its present prospects. Therefore, by incorporating a variety of educational topics, the design phase aims to cater to different interests and provide participants with a holistic view of a destination's multifaceted attributes. Moreover, by integrating diverse educational topics into the design phase, ecotourism seeks to provide participants with a well-rounded and immersive experience that prevents monotony by ensuring they can immerse themselves in different aspects of the destination beyond the natural environment. This approach enhances visitors' understanding of the interconnectedness of cultural, historical, and environmental elements, fostering a deep appreciation of the destination's uniqueness and contributing to a broad sense of stewardship. However, Lazzeretti et al. (2015) argued that destinations focused on particular tourism activities experience more substantial growth rates than those lacking this concentrated activity level. Similarly, Benur and Bramwell (2015) claimed that destinations rely on primary visitor offerings as key pull factors motivating visitation. According to Benur and Bramwell (2015), the ecotourism industry often uses environmental attributes as its primary offering in response to established visitor anticipations. However, within this realm, a variety of such attributes exist that can be developed and promoted as other offerings. For example, variety entails developing alternative tourism offerings, which can be provided on a small scale and draw on unique features such as a destination's history, culture, or ecology (Bramwell, 2004). In summary, environmental education and interpretation variety are essential for delivering enriched, engaging, and personalised experiences that cater to a wide range of visitor preferences.

2.8.2.5 Personalised Experiences

In the design phase, educators ensure the structure and content of educational experiences are tailored to participants' preferences, interests, and needs through personalisation. It has been argued that many visitors favour personalised options rather than pre-organised routes, as there

is significant diversity among individual interest profiles (Hyde & Lawson, 2003; Rodríguez et al., 2012). Therefore, destinations must transform staged experience offerings into personalised experiences. Minkiewicz et al. (2014, p. 47) defined personalisation as "individuals tailoring their experiences to meet their needs through self-directed customisation of the experience, interaction with service representatives, and technology." Therefore, the traditional design of creating an experience to satisfy visitors' desires is overtaken by engaging visitors in creating their experiences, such as in personalised tours that are customised travel experiences tailored to individuals' unique preferences and interests (Torres, 2023). These involve offering different routes for guided tours based on physical ability, understanding visitors' social and cultural backgrounds, and accommodating special interests. It is important to provide visitors with tour routes best suited to their particular needs (Wong & McKercher, 2012). For example, the Department of Conservation (2005) pointed out that guides must be mindful of visitors' needs and abilities to adjust the walking pace for slower visitors. Moreover, Spring (2017) recognised the importance of guides being able to identify cues indicating when visitors are open to learning and adjusting their delivery to meet the specific needs of each individual. Designers must also consider factors such as age groups, cultural backgrounds, and prior visitor experiences when tailoring an experience; the Department of Conservation (2005) suggested that guides learn the names and backgrounds of visitors, as it not only makes them feel included but helps target the environmental education and interpretation. This aligns with Dewey's (1973) assertion that without establishing connections between the life experiences of the visitor and education, genuine learning and growth are impossible. Similarly, Spring (2017) emphasised that guides influence the visitor experience by encouraging them to reflect on what they observe and hear during tours and linking it with their prior knowledge and personal experiences. King and Ritchie (2012) contended that visitors will be more engaged and personally satisfied when education is relevant. Guides must find out if any visitors have particular interests or something they particularly want to discover. By effectively aligning their actual or perceived interests with the information delivered by guides, educational experiences become meaningful and applicable (Schreiner & Sjøberg, 2004). Therefore, it is widely held in the tourism literature that visitor experiences should be interactive and personal phenomena strongly influenced by individual consumers seeking to create meaning (McIntosh & Siggs, 2005; Uriely, 2005). Similarly, Räikkönen (2014, p. 95) wrote, "Tour guides should be seen as experience enablers whose task is not to impose ready-made experiences but to concentrate on the consumers and empower them to experience whatever it is that they came to experience." This reflects Prahalad and Ramaswamy's (2000) shift from customising to personalising an experience and allowing visitors to co-create the context in which they develop the essence of the experience.

Scholars have observed and advocated that visitors be empowered to take a more active role as creative, interactive agents (Richards & Wilson, 2006) and co-creators of visitor spaces (Ek et al., 2008; Mossberg, 2007). Prahalad and Ramaswamy (2004) considered that co-creation results from the interaction between consumers and companies. According to various authors, co-creation signifies that consumers play a central role in the production process (Binkhorst & Den Dekker, 2009; Campos et al., 2018; Prahalad & Ramaswamy, 2004; Prebensen et al., 2013). This view was reinforced by Mathis et al. (2016, p. 63), who pointed out that "value is created by the user, who is also the one to experience the added value; therefore, the user determines what and how much value is created." This perspective is also related to the experience economy, as it is crucial for customers to feel involved and participate actively in their interaction with the environment to improve the quality of their experience (Pine & Gilmore, 1998). The co-creation of guided tour experiences requires flexibility, commitment to transparency, openness to dialogue, and investment of time on the part of a tour guide (Weiler & Black, 2015). Initially, the guide must encourage visitors to actively shape the experience and offer opportunities to engage in this process. This requires establishing individual and group communication before, during, and after the tour. Spring (2017) argued that guides should develop the communication skills of listening and facilitating rather than presenting and entertaining. This shift necessitates adaptability, creativity, and innovation capacity to respond to visitor interests. In this view, visitors become active participants, with a guide orchestrating or choreographing their experience (Edensor, 1998); such visitors have the capacity and expectation to actively contribute to the design and production of their own experiences (Binkhorst & Den Dekker, 2009; Richards & Wilson, 2006). According to findings from Spring (2017), visitors often actively participate in their experiences by offering comments on the information presented by guides, sharing their own observations, and participating in question-and-answer sessions. The result is an enjoyable and memorable experience for visitors, but also meaningful, as they can channel the guides' communication towards their own needs and interests (Kim et al., 2012). Co-creation is, therefore, important because destinations usually contain numerous interconnected points of interest (Leiper, 1990), and it is often impossible for visitors to learn about all of the points of interest during the limited time of their day tours (Tsai & Chung, 2012). Therefore, they must be encouraged to select which points of interest they feel are the most valuable to them (Souffriau et al., 2008). In doing so, Antón et al. (2018) explained that their active participation can expand their knowledge and skills, providing them with an educational experience. However, a limitation is that to obtain a personalised experience, visitors need to collect large volumes of information and evaluate the numerous possible alternatives. This is problematic, as visitors may struggle to determine the best choices amid various conflicting options or objectives (Rodríguez et al., 2012). In addition, overly personalised tours may leave less room for spontaneous interactions or unexpected discoveries, which are often highlights of guided experiences. Furthermore, in group tours, personalisation

may lead to conflicts of interest and the preferences of different participants. Despite these limitations, personalised educational experiences can enhance engagement, create meaningful connections with the environment, and foster a sense of individual ownership over the learning process.

2.8.3 Delivery

The delivery phase is when educational experiences are executed and brought to life and involves translating the plans and design into tangible outcomes that end-users can experience. In this context, environmental education and interpretation can be delivered by immersing visitors in nature, providing multi-sensory experiences and telling stories.

2.8.3.1 Immersion in Nature

During the delivery phase, participants engage directly with educational experiences and activities. Immersion in nature involves participants physically experiencing and connecting with the natural environment. Pine and Gilmore (1999, p. 31) included immersion as one of four elements in their experience realm figure and defined immersion as "becoming physically a part of the experience itself." As Waitt et al. (2009, p. 44) explained, by walking in the natural environment, the boundaries between "people, plants, animals and places [are not thought of as] static, but instead relational, active, dynamic, ongoing and fluid." Being immersed in nature relates to the motivations of ecotourism packages, which include a love for nature, wanting to be immersed in nature and taking a slower pace of life (Perkins & Grace, 2009). According to Weinstein et al. (2009), the impact of encounters with nature may be powerful when individuals are deeply engaged in these surroundings, experiencing a sense of complete presence rather than being distracted by thoughts and external influences unrelated to the natural environment. Hence, Jennett et al. (2008, p. 657) argued that "immersion involves a lack of awareness of time, a loss of awareness of the real world, involvement and a sense of being in the task environment." Furthermore, Walter (2016) found that during a wildlife encounter, individuals enter a transitional and experiential space where the hurried pace of modern societal time fades away, making room for the tranquillity of nature's rhythm. In this state, all thought and action are concentrated on the moment as participants are absorbed in the spectacle. This provokes a deep sense of well-being that extends beyond the immediate encounter, resulting in spiritual fulfilment and positive psychological effects (Curtin, 2009, p. 251). Bystrom et al. (1999) suggested that when immersed, individuals pay greater attention to the attributes of their surroundings, leading to an enhanced ability to perceive and engage with a broader range of environmental elements. Therefore, it is likely that when people are in contact with natural scenes or living objects, they will demonstrate a more intrinsic value set, positioning them to a greater focus and connection (Weinstein et al., 2009). Immersing visitors in nature is a central

objective of many ecotourism programmes, where participants can explore natural landscapes, observe wildlife, and interact directly with their surroundings. For instance, in Spring's (2017) study, visitors frequently mentioned how guides utilised visual cues during interactions to enhance understanding. This relates to Fennell's (2020) argument that many protected areas rely on their natural features to allow visitors to appreciate their natural surroundings and develop a better understanding of how natural features function. Ye and Shih (2020) similarly noted that immersion in nature will enhance learning outcomes, as visiting ecologically damaged areas can help visitors recognise the importance of protecting the environment. Davis (1998) also argued that children's learning and development are greatly enhanced through direct experiences with nature and natural materials. This underpinning belief that contact with nature is important provides a strong basis for delivering environmental education and interpretation programmes within the natural environment to build sustainable relationships between people and nature. These help participants experience first-hand the environment's beauty, complexity, and fragility, which can ignite intense emotions by being deeply involved (Fredrickson, 2000; Tung & Ritchie, 2011). Pleasant feelings were reported by Jepson and Sharpley (2015, p. 1167) when visitors talked about being immersed in a natural environment, stating that "it refreshed my soul" or "I get a much nicer and more contended feeling from just being outside." Similarly, Walter (2016) explained that visitor encounters with wild animals and other forms of immersion in nature can provoke strong feelings of awe, wonderment, or transcendence. This is because nature's design, performance and immense biodiversity can initiate an emotional response that unlocks eco-centric and anthropomorphic connections to wild animals, as there is time to observe and contemplate (Walter, 2016). Ballantyne et al. (2011) also highlighted that on-site experiences provide vivid impressions for visitors that encourage them to develop reflective responses. For example, Curtin (2009, p. 461) found that visitors experience a "sensual awakening" in which "engagement with nature can be an epiphany of self-realisation. They feel very much in touch with both themselves and with the world around them, which provokes an intense feeling of delight." This is important because such visitors will likely avoid inappropriate behaviours at ecotourism destinations due to positive emotions and reflective responses. Several studies support environmental education programmes delivered in natural settings to encourage environmentally responsible behaviour as visitors interact with the local environmental features (Ballantyne et al., 2011; Coghlan & Kim, 2012; Jacobs & Harms, 2014; Orams, 1997; Pegas et al., 2012). For instance, Spring (2017) found that the greater the visitors' immersion in the experience, the more chances there are for learning and potentially translating this learning into a sense of ownership over conservation goals.

Through this immersion in nature, such experiences may also engage the five senses, which can be emotionally and physically restorative (Grill, 2003; Louv, 2012; Poudel & Nyaupane, 2017). Martínez (2012, p. 168) argued that when an individual is in contact with a specific

environment, "interactions that entail exchanges of energy" and inferences from the stimuli begin to emerge.

2.8.3.2 Sensory Experiences

Integrating sensory experiences into the delivery of environmental education and interpretation introduces a dynamic and immersive approach. According to Kastenholz et al. (2020), the sensory experience dimension results from the appeals of the environmental stimuli to the five senses: sight, smell, touch, hearing, and taste. Predominantly, tourism studies have been centred on the visual or aesthetic component of the visitor experience (Hosany & Witham, 2010; Pan & Ryan, 2009; Xu et al., 2013) as they focus on the Western-based concept of the tourist (visitor) gaze proposed by Urry (1990). This observational component is crucial because when visitors perceive that the natural environment is degraded or witness wildlife on a small island becoming endangered, they may want to protect the natural environment, wildlife, habitat, or species (Poudel & Nyaupane, 2017). Although the visual aspect is integral to many tourism pursuits, many authors have argued that ecotourism encounters should involve multi-sensory experiences (Degen, 2008; Gretzel & Fesenmaier, 2003; Rahman et al., 2016; Rodaway, 1994; Tuan, 1977), because natural environments comprise not only visual impressions, but also the associated sounds, smells, tastes, and touchable objects (Ackerman, 1991; Bitner, 1992; Casey, 1996; Heide & GrØnhaug, 2006; Howes, 1991; Macnaghten & Urry, 1999; Porteous, 1985; Rodaway, 1994; Tuan, 1977; Urry, 1990). Pine and Gilmore (1998) and Schmitt (1999) pointed out that stimulating all the human senses is crucial, as this can lead to personal engagement and memorable experiences. Therefore, Urry (2002) pointed to the role of all the bodily senses in delivery experiences, highlighting the need for a holistic approach to sense-scape, which emphasises the importance of involving not only the view and landscapes but also the other sensory modalities such as sound-scapes, taste-scapes, haptic-scapes and smell-scapes (Govers et al., 2007; Gretzel & Fesenmaier, 2010; Kastenholz et al., 2012; Pan & Ryan, 2009; Veijola & Jokinen, 1994) to fully perceive the environment (Agapito et al., 2012; Agapito et al., 2013; Ellis & Rossman, 2008; Govers et al., 2007; Gretzel & Fesenmaier, 2003; Kastenholz et al., 2012; Urry, 2002). This shift is also reflected in Larsen and Urry's (2011) idea that the quest for the extraordinary or unfamiliar in the visitor gaze has shifted from seeing to multisensory gazes.

In the ecotourism context, sound can include birdsong, rivers, and wind in the trees that can be difficult to hear in urbanised environments, so visitors' sensory experience and appreciation are enhanced (Agapito et al., 2014; Carneiro et al., 2015; Kastenholz et al., 2012). In terms of haptic sensation from the environment, visitors can feel the heat and wind, which tend to be the dominant touch experiences identified in tourism (Agapito et al., 2014; Dias et al., 2017; Son & Pearce, 2005), while physical contact with sand or waves has been reported in coastal tourism (Dias et al., 2017). Kastenholz et al. (2012) suggested that crushing grapes with one's bare feet

is a memorable haptic experience, and Son and Pearce (2005) mentioned that the touch of animals such as kangaroos or koalas was the most impacting tactile experience of international students in Australia. Furthermore, Agapito et al. (2014) and Carneiro et al. (2015) explained that the smell of typical rural odours, such as wet earth and the fragrance of plants or local products can create memorable experiences for rural visitors, and the taste of traditional local foods can contribute to holistic sensory engagement. Ultimately, the more senses aroused, the more engaging the educational content is. This leads visitors to develop a deeper emotional connection to the natural world and fosters a stronger sense of environmental stewardship. Krishna (2012, p. 344) explained that "our bodily states, situated actions, and mental simulations are used to generate our cognitive activity", such as memory, attitude, and behaviour. Sensory experiences were also described as necessary by Aristotle (2001), who claimed that knowledge begins with the sense perception through the apprehension of the external world. Merleau-Ponty (2002) saw the body as a form of consciousness with interactions with the world constituting mental states and activities. Various authors have argued that when all the senses are stimulated, visitors can establish a relationship with the external environment and give meaning to the destination where the experience occurs (Lindstrom, 2006; Markwell, 2001; Mateiro et al., 2017). From this viewpoint, ecotourism destinations must stimulate the senses through their delivery of environmental education and interpretation to reach the minds and hearts of visitors to produce behavioural outcomes (Mossberg, 2007; Pine & Gilmore, 1998; Schmitt, 1999; Walls et al., 2011).

2.8.3.3 Storytelling

Incorporating storytelling into the delivery of environmental education and interpretation introduces an impactful approach to learning. Stories are an effective communication tool containing information that people identify with, such as systems, common sense, norms, values, and often acceptable moral behaviour (Haigh & Hardy, 2011; Kent, 2015). There is also considerable evidence that people find it easier to understand and retain information presented as a story (Escalas, 2007; Jones & Song, 2014). Bury (2020) defined a story as a sequence of real or imaginary decisions or actions in the past, present, or future that involves characters addressing a challenge or opportunity. Storytelling was defined by the Organisation for Economic Co-operation and Development (2014) as the development of unique narratives that can: (1) create a sense of community and belonging, (2) engage and interact with the audience, (3) transform followers into promoters, and (4) inspire, show the creative process and ideas, and invite the audience to be creative. Storytelling is fundamental to our everyday lives (Schank & Abelson, 1995) as a crucial method for sharing knowledge (Remenyi, 2005), developing visual imagery (Mello, 2001), enabling people to make sense of their experiences (Squire, 2013) and connect with themselves as human beings (McDrury & Alterio, 2003).

Due to changing visitor desires and the rise of the experience economy, the demand for stories has dramatically increased in tourism, and particularly in tour guiding (Löfgren, 2003), because guides can paint "mental pictures" (Pond, 1993. p. 93) through storytelling. As contemporary visitors are inclined towards experiencing, learning, and participating, they are not only interested in buying a tourism product but also the authentic stories behind the product (Mossberg, 2007). Therefore, Chronis (2005) suggested that destinations can be viewed as story-scapes, where physical surroundings are shaped and transformed through a developed story. Storytelling is used to communicate and sell a destination's narratives and local characteristics (Korez-Vide, 2017). It is a fundamental component of human communication in ecotourism because it links a destination's history, culture, and environment to the visitor experience (Moscardo, 2015). Storytelling can convey information about local ecology, conservation initiatives, and the importance of sustainable practices. When used strategically, stories are used not only to inform, share, or learn but also to articulate what is wrong, how it can be resolved, and persuade (van Dijk, 2011). According to Moriarty et al. (2009), persuasion means to change a viewer's attitude and behaviour as well as to develop their faith; it involves framing a situation deliberately and selectively to prepare for the future (Dormans, 2008; Throgmorton, 2003; van Hulst, 2012). For example, van Dijk (2011, p. 124) explained that stories can "persuade one another about what the future should and can bring, as well as convince others to agree on and engage in a trajectory of actions." Hence, storytelling can effectively persuade others to adopt a different or new perspective and alter their ways of doing and acting (Throgmorton, 2003; Van den Brink, 2009). This view was supported by Li and Liu (2020), who argued that persuasion developed by story plots affects visitors' attitudes and willingness to act. Furthermore, it has been argued that a story cannot influence visitors' consciousness and convert into action changes unless persuasion is used. Individuals tend to assess a message by judging the persuasion argument in their motivation for message processing (Lin et al., 2011). To be persuasive, storytelling must provoke different emotional reactions: positive, such as joy, gratitude, or affection, and negative, such as homesickness, sadness, or regret (Holak & Havlena, 1998). Hughes (2013) found that visitors were more likely to intend to modify their behaviour if they had been emotionally invested in an experience, whether negatively or positively. Furthermore, Kensinger and Corkin (2003) observed that individuals are more likely to vividly remember emotional information, as they found that both positive and negative emotional events were more often associated with field memories, in which the individual saw the event from their perspective rather than simply observing. According to Marchegiani and Phau (2013), stories tend to elicit positive emotional reactions rather than negative ones. Kim and Youn (2017) suggested that positive emotion brought about by a destination story leads to better memory and stronger intentions to visit the place described in the story. Therefore, stories should be developed to include positive experiential cues. According to Li and Liu (2020), storytelling also aims to provoke empathy, as visitors integrate

themselves into the scenario of characters and unwittingly respond to scenarios. Park and Lee (2014) revealed that persuasion could be developed when individuals imagine themselves as the leading character in a story and experience the character's behaviours through empathy. Similarly, Watson (2003) wrote that stories about people acting ethically and responsibly can encourage visitors to behave admirably. Overall, storytelling is a powerful vehicle for communication as it can educate, inform, motivate, and provoke a response, whether emotional or action-orientated.

The planning, design, and delivery phases in environmental education and interpretation within ecotourism collectively ensure the creation of immersive, educational, engaging, emotional, memorable, and responsible experiences. These phases work harmoniously to engage visitors, instil knowledge and awareness, foster a connection to nature, and inspire environmentally responsible behaviour by offering diverse experiences. This structured approach helps ensure that the final outcome aligns with the initial goals, meets visitor needs, and achieves the desired results. Therefore, these phases ensure that ecotourism activities contribute positively to the environment and local communities while providing visitors with enriching and sustainable encounters.

2.9 Overview of New Zealand Ecotourism, Ecosanctuaries, and Urban Ecology

New Zealand provides an appropriate context for exploring ecotourism and the processes contributing to environmental awareness and visitors' pro-environmental behaviour. New Zealand has emerged as a leading ecotourism destination, as the country's environment is ideal for consuming nature and indigenous Māori culture (Morrow & Mowatt, 2015). Biodiversity and nature conservation have a significant role in the prosperity of New Zealand's ecotourism industry (Zhang et al., 2018). According to Ecotourism New Zealand (2009), ecotourism operations in New Zealand are nature or heritage-based attractions that aim to minimise their environmental impact, provide benefits to the indigenous community, and influence pro-environmental behaviour through education and interpretation, as well as their commitment to the Tiaki Promise, that includes assurances to care for the environment, and for visitors to travel safely and respect the indigenous Māori culture (Tiaki Promise, 2018). The government agency charged with conserving New Zealand's natural and historical heritage, the Department of Conservation, aims to equip New Zealanders, especially children and young people, with the knowledge, skills, and motivation to tackle environmental issues (Department of Conservation, 2017). Therefore, New Zealand's ecotourism destinations offer critical opportunities for planning, designing, and delivering environmental education and interpretation, which works to change visitors' conservation attitudes and behaviours (Zhang et al., 2018).

Ecosanctuaries are a type of protected area that has become increasingly common in New Zealand (Innes et al., 2019) because the country's endemic fauna are vulnerable to predation by introduced mammal species, and the endemic flora is being consumed by possums (Brown et al., 2015). Therefore, these small-scale protected areas are being developed and aim to function as mainland islands for endangered species (Campbell-Hunt & Campbell-Hunt, 2013). In the New Zealand context, an ecosanctuary is "a project larger than twenty-five hectares implementing multi-species, pest mammal control for ecosystem recovery objectives, and with substantial community involvement" (Innes et al., 2019, p. 370). According to Innes et al. (2019), most current New Zealand ecosanctuaries aim to limit or prevent the reinvasion of invasive pest mammals while reducing their population. Ecological restoration, the process of aiding an ecosystem that has been degraded, damaged, or destroyed, is the primary intention of most ecosanctuary practitioners in New Zealand (Hunt & Campbell-Hunt, 2013; Innes et al., 2019). Ecosanctuaries are the most effective practical attempt to implement conservation initiatives in New Zealand, as they function according to the aspirational principles of personal engagement, connection, and the generation and transfer of knowledge and wisdom (Innes et al., 2019). However, little attention has been given to soft visitor management in ecosanctuaries (Zhang et al., 2018).

Whereas offshore islands are essential to safeguard a substantial portion of New Zealand's unique biodiversity (Galbraith, 2013), it is also crucial to direct attention to more accessible inshore islands, many of which have suffered considerable environmental degradation and continue to be at risk from ongoing anthropogenic impacts. This is because the ease of access to certain inshore islands presents an opportunity to generate various benefits aimed at conserving biodiversity; this was reflected in the principal theme of the New Zealand Ecological Society (2008) Conference, "Ecology on our Doorstep." This theme highlights the fact that New Zealand's iconic ecological systems can be close to the doorsteps of New Zealand's urban centres. Therefore, these easily reachable ecosystems will have the most significant impact on conservation education moving forward, which, in this context, includes inshore islands.

2.10 Environmental Education in the New Zealand Context

New Zealand's natural environment is unique, characterised by a mild climate, strong participation in outdoor activities, extensive marine resources, relatively clean air and water, a variety of national parks, and distinctive plants and animals that collectively contribute to the unique nature of the environment. Not surprisingly, New Zealanders value their environment for recreational, aesthetic, economic, cultural, and spiritual reasons. According to the Ministry of Education (1999a), a heightened comprehension of the environment and environmental decisions is essential for New Zealand to ensure a sustainable future in maintaining a quality environment. Moreover, understanding the many factors influencing the environment is critical

for preserving and enhancing environmental quality. This involves understanding and responding to the impacts of human activities, as people have modified the land, introduced plants and animals, and utilised renewable and finite resources. Therefore, environmental education has been a subject of significant attention in New Zealand schools, with initial support from community organisations and teacher enthusiasts.

Hungerford and Volk (1990) found that opportunities to change learner behaviour in the environmental dimension can be maximised if educational agencies teach environmentally significant ecological concepts and the environmental interrelationships that exist within and between these concepts. They should also ensure that learners are presented with carefully designed and in-depth opportunities to achieve environmental sensitivity that will promote a desire to behave appropriately (Hungerford & Volk, 1990). In addition, educational agencies should provide a curriculum that covers relevant environmental topics, highlight the unique ecological features of the destination, and address any conservation challenges the area might face (Hungerford & Volk, 1990). Inskeep (1987) argued that the curriculum of the local school system and the community education programme should encompass education about the environment and conservation for residents. Therefore, the curriculum should include an in-depth knowledge of environmental issues, equip learners with the abilities for issue analysis and investigation, and allocate sufficient time to apply these skills. It should also encompass the teaching of citizenship skills necessary for addressing issues effectively, along with the provision of time for the practical application of these skills (Inskeep, 1987). Lastly, Inskeep (1987) also argued that educational settings should be established to enhance learners' anticipation of rewards for engaging in responsible actions.

While there is no mandatory requirement for New Zealand schools to teach environmental education, the country developed policies during the 1990s that acknowledged a place for environmental education across all sectors. For example, the Ministry for the Environment developed "Learning to Care," a national strategy for environmental education (Ministry for the Environment, 1998). Under this strategy, environmental education is "a multi-disciplinary approach to learning that develops the knowledge, awareness, attitudes, values, and skills that will enable individuals and the community to contribute towards maintaining and improving the quality of the environment." In addition, the Ministry of Education (1999a) published its "Guidelines for Environmental Education in New Zealand Schools." These guidelines help teachers and schools integrate environmental education seamlessly into the seven compulsory learning domains of The New Zealand Curriculum Framework to provide education about, for, and within the environment (Ministry of Education, 1993). The New Zealand Curriculum details the essential learning areas, skills, attitudes, and values that will enable students to develop the qualities required to successfully create, contribute to, and participate in a sustainable future. For example, in social studies, "students will understand people's

interactions with places and the environment…and people's allocation and management of resources" (Ministry of Education, 1997, p. 8). Similarly, in health and physical education, "students will understand the interdependence between people and their surroundings and use this understanding to help create healthy environments" (Ministry of Education, 1999b, p. 9) and in science, "students will…investigate how people's decisions and activities change planet Earth's physical environment, and develop a responsibility for the guardianship of planet Earth and its resources" (Ministry of Education, 1993, p. 106). Environmental education encompasses several fundamental objectives developed by the Guidelines to foster comprehensive student growth. Firstly, it seeks to cultivate heightened awareness and sensitivity toward the environment and related issues. Secondly, it aspires to promote substantial knowledge and comprehension about the environment, including the intricate interactions between people and their natural surroundings. Thirdly, it endeavours to shape attitudes and values within individuals that mirror genuine concern for the environment. Environmental education aims to equip students with the requisite skills to identify, investigate, and engage in problem-solving procedures associated with environmental issues. This approach emphasises the development of a profound sense of responsibility through participation and action as individuals, groups, *whanau* [family], or *iwi* [tribe] in addressing environmental challenges.

2.10.1 Key Concepts Underlying New Zealand Environmental Education

The Guidelines also indicate that environmental education must encompass the concepts of biodiversity and interdependence as they build a knowledge base and draw relationships between the human and environmental spheres (Ministry of Education, 1999a).

2.10.1.1 Biodiversity

Biodiversity encompasses the entire array of life on Earth, including plants, animals, microorganisms, their genetic makeup, and the ecosystems they create (United Nations Environment Programme, 1994). A focus on biodiversity recognises the interrelatedness of all parts of the biological world and people's impacts on living systems. People have reduced the diversity of life by modifying natural environments, exploiting many plants and animals, and introducing destructive pests. In New Zealand, maintaining biodiversity is particularly important because of the unique nature of its island environment; it has many endemic plants and animals, and many of these are vulnerable in an environment modified by people and introduced species. Therefore, an awareness of historical events related to biodiversity conservation can inform contemporary and prospective conservation efforts through environmental education. Delivering fundamental knowledge about biodiversity, local ecosystems, ecological processes, and the interactions between living organisms and their environment can provide visitors with an ecological foundation. Such topics could include

ecosystem structure, the roles of different species, nutrient cycles and the interdependence of flora and fauna. By incorporating an ecological foundation into environmental education programmes, visitors can have a solid understanding of the natural world they are about to explore. Hungerford and Volk (1990) suggested that knowledge of biodiversity is almost always a prerequisite to sound decisions. This foundational knowledge enhances participants' ability to interpret and appreciate the environment, understand conservation efforts, and make meaningful connections between the ecological concepts they learn and their experiences during the ecotourism journey.

2.10.1.2 Interdependence

The environmental principle of interdependence highlights the relationships between all living things, including humans and their surrounding physical environment. A constructive perspective on the environment involves considering it a collection of interlinked systems, biophysical, societal, economic, and political (Fien & Greenall Gough, 1996). According to the Ministry of Education (1999a), interdependence emphasises the links between cultural, social, economic, and biophysical aspects, contributing to a multifaceted framework. This encompasses a viable natural environment that possesses the capacity to support life both in the present and the future, a satisfactory economy that delivers sustainable livelihoods for all, supportive communities affording chances to address social, cultural, and spiritual needs, and a just and equitable system of governance that guarantees every citizen access to income and political influence for all citizens, enabling their full engagement as societal members (Ministry of Education, 1999a). Environmental education offers a setting where individuals can learn about these interdependent relationships and the impact humans have on them. Understanding the intricate relationships between different components of ecosystems, including the interdependence of flora and fauna, as well as the role of humans in these systems, is a fundamental aspect of creating a comprehensive and holistic educational programme because environmental education concerns the inter-relationship and interconnectedness between human and natural systems (Tbilisi Intergovernmental Conference on Environmental Education, 1978). Kopnina (2012) viewed the human place in the natural system as interdependent, with the human and environmental domains intimately intertwined. Similarly, Liefländer et al. (2013) suggested that a positive human-nature relationship is essential for countering today's environmental problems because current environmental problems are interwoven with the personal relationship to nature. Schultz (2002) also argued that people must believe they are part of nature to achieve sustainability through environmentally friendly behaviour. Therefore, before individuals engage in responsible behaviour, they must understand the interconnections between ecological factors and human actions, as well as the potential consequences of their actions (Hungerford & Volk, 1990). This understanding is pivotal as it serves as a foundation for addressing various challenges, including biodiversity protection.

2.11 Protecting New Zealand's Biodiversity: Battling Invasive Pests while Sustaining Tourism

In destinations worldwide, invasive pests pose a significant threat to biodiversity and the health of ecosystems. These non-native species often outcompete indigenous plants and animals, disrupt the ecological balance, and result in the decline or extinction of native species (Bellard et al., 2016). Therefore, it is essential to have strategies to manage and mitigate invasive species. In New Zealand, pest control is paramount due to the country's unique evolutionary isolation and the vulnerability of its unique native flora and fauna. The introduction of invasive pests, such as rats, stoats, and possums, pushes many species to the brink of extinction or confined to offshore islands (Goldson et al., 2015), and many endemic bird species are now extinct; the proportion of New Zealand birds classified as threatened is the highest in the world (Eason et al., 2017). This is problematic because the country's unique and diverse ecosystems are a significant drawcard for visitors seeking to experience its pristine natural beauty and unique wildlife (McClure, 2004). It is also essential to recognise that visitors have the potential to undermine the efforts of pest control, affecting the very environment they intend to experience. For example, visitors can unknowingly transport invasive species from one region to another, introducing new invasive species to an area, disrupting local ecosystems by trampling vegetation, disturbing wildlife, altering habitats, and unintentionally attracting pests through improper waste disposal. These behaviours are commonly due to visitors' ignorance of local conservation efforts. To effectively address these challenges, comprehensive visitor management strategies must be implemented to promote visitors' awareness, responsibility, and commitment to safeguard the environment and maintain the integrity and health of ecosystems.

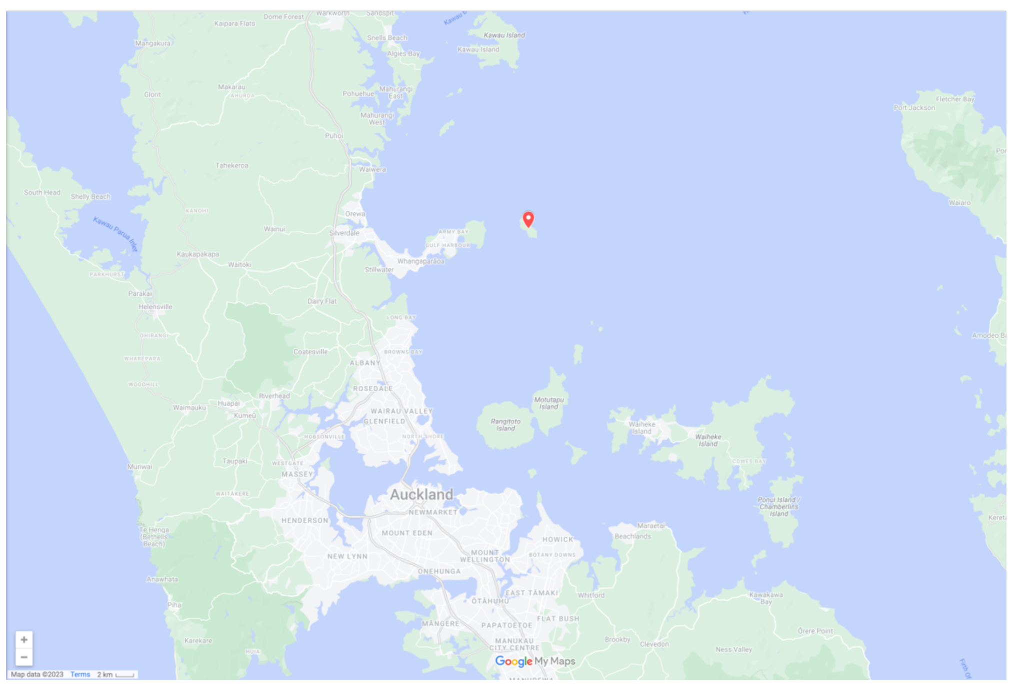
2.12 Tiritiri Matangi Island

An exemplary example of the successful integration of conservation efforts, visitor management, and environmental education and interpretation initiatives in New Zealand is Tiritiri Matangi Island. Tiritiri Matangi Island is a 220-hectare scientific reserve (see Figure 1), situated three kilometres from the mainland of the Whangaparāoa Peninsula in the Hauraki Gulf north of Auckland City, New Zealand (see Figure 2).

Figure 1. Map of Tiritiri Matangi Island

Note. From *Tiritiri Matangi Map,* by Department of Conservation, 2021, Department of Conservation (https://www.doc.govt.nz/globalassets/documents/parks-and-recreation/places-to-visit/auckland/tiritiri-matangi-map.pdf). Copyright 2021 by Department of Conservation.

Figure 2. Location of Tiritiri Matangi Island



Note. Google Maps. (n.d.). [Location of Tiritiri Matangi Island, Auckland, New Zealand]. Retrieved September 11, 2023, from https://www.google.com/maps/d/edit?mid=1Ig5LZvTXYBvZkPCKaZc54R_3243IXIw&usp=sharing

This island sanctuary is a captivating blend of natural beauty and ecological significance, showcasing lush forests, pristine coastlines, and diverse native flora and fauna. Tiritiri Matangi Island is distinguished by its remarkable conservation journey, transitioning from a once degraded landscape to a flourishing ecosystem. The island has emerged as a shining example of successful ecological restoration and sustainable ecotourism practices through intensive pest eradication efforts, habitat restoration projects, and innovative visitor management strategies. A comprehensive overview of Tiritiri Matangi Island is provided in Chapter 4 (Section 4.2), highlighting the island's unique journey as a model of sustainability and ecological conservation. This remarkable island is at the heart of this study, as the researcher was able to delve into how the island's management, educators and guides strategically plan, thoughtfully design, and effectively deliver environmental education and interpretation in the context of ecotourism, ensuring the sustainability of both natural ecosystems and visitor experiences. The island's location in the Hauraki Gulf, 30 kilometres north of Auckland city, also makes this a suitable setting for this study, as Tiritiri Matangi Island is an integral component of urban ecology. Its proximity to Auckland, a major urban centre, not only facilitates easy access for students, visitors, and nature enthusiasts but also allows them to realise that there is no divide between cities and nature (Tidd, 2015). In addition, the island's location offers the chance to develop environmental education and interpretation in a setting that domestic visitors are

familiar with, thus bridging the gap between their daily lives and the importance of ecological awareness, making it a powerful tool for fostering a deeper connection to nature and a greater commitment to conservation efforts within their communities (Tidd, 2015). This resonates with the principal theme of the New Zealand Ecological Society (2008) conference, "Ecology on our Doorstep," as it asserts the conference's central message that ecological understanding and conservation efforts should extend to places at urban boundaries such as Tiritiri Matangi Island, to build a sustainable and harmonious coexistence between human communities and the natural world. Therefore, Tiritiri Matangi Island is suitable for this study because it embodies the essence of the research's objectives and core themes explored in this literature review.

2.13 Conclusion

This literature review recognised ecotourism as a sector demonstrating soft visitor management through environmental education and interpretation, as they act as critical tools to counter environmental problems by fostering an understanding of ecological matters, provoking emotional connections to nature, and cultivating pro-environmental behaviours. The literature revealed that shifting the visitor experience within the context of the experience economy by encouraging environmentally responsible behaviour through knowledge and emotions can lead to a more sustainable and mindful approach to tourism. This was further reflected in the literature that described the process of planning, designing, and delivering environmental education and interpretation and explained their various attributes. It also showed that soft tourism visitor management is essential to protecting New Zealand's unique biodiversity. Several noteworthy research gaps emerged from the review. Firstly, while there is growing recognition of ecotourism's impacts on economic, biophysical, and social environments, there remains a notable gap in discussions regarding the processes and techniques used to provide environmental education to visitors (Cousins et al., 2009; Xu et al., 2018). Secondly, Mason (2005) and various other tourism scholars advocate for further investigations into soft visitor management strategies with a focus on education and interpretation to inform responsible visitor behaviour and ensure the long-term sustainability of protected areas (Albrecht & Raymond, 202; Boyd, 2000; Boyd & Butler, 1996; Mason, 2005; Orams, 1995; Welford et al., 1999). Thirdly, many textbooks fail to outline what such learning should encompass despite the consensus on the importance of visitor learning in ecotourism experiences, as Falk et al. (2012) observed. Therefore, a policy gap, as highlighted by Das and Chatterjee (2015), pertains to inadequate planning, unethical management, and the lack of educational initiatives targeting visitors and local communities in ecotourism destinations. These research gaps collectively emphasise the need for research to address the specific planning, design, and delivery elements involved in visitor learning experiences to boost support for sustainability and conservation. The next chapter discusses the aim of this current study and the methodology employed to contribute valuable insights to this critical field.

Chapter 3: Methodology and Methods

3.1 Introduction

This chapter outlines the methodological framework that supported the research design and the techniques utilised to gather and analyse the data. The first section re-examines the research aim, objectives, and questions and then explores the research philosophy. It commences by introducing the fundamental aspects of research and providing a rationale for selecting an interpretive paradigm, relativist ontology, and an intersubjective epistemology as appropriate for this study. In the subsequent section, the focus shifts to the research implementation. It begins with an overview of the characteristics of qualitative and exploratory research and concludes that a case study approach was the most fitting methodology for conducting an in-depth investigation into the planning, design, and delivery of environmental education and interpretation in the ecotourism context, particularly within the distinctive setting of Tiritiri Matangi Island. The chapter outlines and justifies the two research methods for the study, document analysis and semi-structured interviews, before delving into ethical considerations. The chapter then explores sampling by introducing the inclusion criteria, sampling methods, and sample size. A comprehensive outline of the data collection process and researcher positionality and reflexivity follows before the discussion of the data analysis approach, thematic analysis.

3.2 Research Aims, Objectives and Questions Revisited

The primary aim of this study was to understand how environmental education and interpretation is planned, designed, and delivered on Tiritiri Matangi Island. The specific research objectives and questions were as follows:

Objective 1: Develop a comprehensive overview of Tiritiri Matangi Island's background and strategic framework in a broader context and with a specific focus on its environmental education and interpretation components.

Objective 2: Understand how environmental education and interpretation were designed on Tiritiri Matangi Island and the rationale behind their design choices.

Objective 3: Investigate the different methods used to deliver environmental education and interpretation to visitors on Tiritiri Matangi Island.

Question 1: What is the general background and strategic plan of Tiritiri Matangi Island, and what are the objectives behind its environmental education and interpretation efforts?

Question 2: How is environmental education and interpretation designed on Tiritiri Matangi Island, and what are the reasons driving its design approaches?

Question 3: What methods are employed to deliver environmental education and interpretation to visitors on Tiritiri Matangi Island?

These objectives and questions are the essential pillars of this research. They provided a structured and systematic approach to uncovering the planning, design, and delivery of environmental education on Tiritiri Matangi Island. Firstly, understanding the island's background, strategic framework, and the objectives behind its environmental education and interpretation efforts (Objective 1 and Question 1) was pivotal, as such knowledge can serve as a foundation for aligning educational programmes with the overarching conservation goals of Tiritiri Matangi Island. Secondly, investigating the design and rationale of environmental education and interpretation on the island (Objective 2 and Question 2) can uncover best practices and the underlying principles that guide decision-making, leading to more effective and engaging educational and interpretive experiences. Lastly, exploring the methods used to deliver environmental education and interpretations (Objective 3 and Question 3) can reveal practical insights for programme delivery.

It was important to delve into the philosophical assumptions underpinning the research to adequately meet these research objectives and answer the research questions. These philosophical underpinnings provided the framework through which the researcher interpreted the data, made sense of the findings, and constructed a comprehensive understanding of the planning, design and delivery of environmental education and interpretation on Tiritiri Matangi Island.

3.3 Research Philosophy

A research philosophy provides a framework for understanding how research is conducted. According to Bajpai (2011), a research philosophy deals with the source, nature, and progression of knowledge. It is a set of guiding beliefs regarding how data about a phenomenon should be gathered, from where, and how it will be interpreted (Gray, 2018). Accordingly, Crotty (1998) suggested a connection exists between the researcher's theoretical and epistemological stance and the methodology and methods used. This aligns with Gray's (2018) view that the chosen research methodology will impact the method selection, which will be influenced by the researcher's paradigm and the theoretical stances of ontology and epistemology.

3.3.1 Research Paradigm

A research paradigm is an approach to acquiring knowledge, as it represents a set of shared assumptions, research strategies, and criteria about how problems should be understood and addressed (Davies & Fisher, 2018; Fossey et al., 2002). Research paradigms can be considered as the research traditions of a discipline (Grant & Giddings, 2002) or the researcher's net that holds interrelated ontological, epistemological, and methodological beliefs (Denzin & Lincoln, 2005; Scotland, 2012). The paradigm should be determined before delving into the specificities of ontology, epistemology, and methodology, as it serves as the foundational framework that guides and aligns these components, ensuring coherence and consistency throughout the research process. Another approach to describing a research paradigm is to consider it a cluster of beliefs that directs the selection of the research topic and how it should be carried out and reported (Gray, 2018). Bailey (1982, p. 24) suggested that research paradigms represent the "mental window through which the researcher views the world." While a paradigm investigates how knowledge is interpreted, it also clearly defines a study's purpose, motivation, and desired outcomes, as it provides ways of looking for explanations (Mackenzie & Knipe, 2006). According to Kuhn (1996), the value of a given paradigm is found in researchers' recognition of its capacity to handle a given issue or solve a given problem. Babbie (2020) argued that while paradigms do not explain anything, they provide logical frameworks for creating theories. Therefore, researchers must select a study paradigm consistent with their views about the nature of reality to enable direction to investigate a phenomenon of interest through a solid research design and methodology (Easterby-Smith et al., 2012; Mills et al., 2006).

Several paradigms exist, each offering a distinct perspective on generating and understanding knowledge. Positivism, for example, relies on scientific methods and empirical observation to acquire objective, quantifiable knowledge about the world, including the social realm (Lincoln et al., 2011). Conversely, critical theory focuses on power dynamics and social structures, aiming to challenge dominant ideologies and injustices (Guba & Lincoln, 1994). Pragmatism emphasises practical problem-solving and the flexible use of various methods to address specific research questions and achieve practical outcomes (Johnson & Onwuegbuzie, 2004), and constructivism asserts that knowledge is actively constructed by individuals through their experiences, interactions, and interpretations of the world, highlighting the subjectivity inherent in understanding reality (Blumer, 1969). This study embraced the interpretive paradigm, which asserts that the social world is complex and should be understood through the meanings and interpretations individuals assign to their experiences within their specific contexts (Saunders et al., 2012). As explained by Decrop (1999), interpretivists believe that the nature of multiple realities is socially constructed. This paradigm is "an epistemological position that requires the social scientist to grasp the subjective meaning of social action" (Bryman, 2016, p. 692). Thus, interpretivists accept multiple meanings and ways of knowing (Denzin & Lincoln, 2005) by

recognising and narrating the meaning of specific and unique human experiences and actions (Fossey et al., 2002). In other words, interpretivism prioritises understanding as the research goal rather than emancipation and deconstruction, which are the purposes of the other paradigms (Decrop, 1999; Merriam, 2002). Interpretivism strives to describe, explore and understand the background of events to produce knowledge resulting from human activity (Kraus & Allen, 1996). According to Cronje (2013), as interpretivists are concerned with understanding the world as it is and hold the subjective nature of human experience to be true, their goal is to describe situations. Creswell (2007) affirmed that interpretivists construct meaning through social interactions, experiences, or viewpoints, most of which are subjective and can produce multiple meanings in a study. For this reason, knowledge generated involves meaning relative to time, context, culture and values (Decrop, 1999). Therefore, interpretive researchers frequently depend heavily on participant perspectives by engaging in meaningful participation to comprehend the social reality of the studied subject (Brink et al., 2012; Creswell, 2003; Howe, 2004). According to Decrop (2006), participants in interpretive research are regarded as subjects of the investigation, as they engage in interactive discussions with the researcher. For example, Goldkuhl (2012) argued that the relationship between the researcher and the participants influences the success of interpretive research as participants are co-producers of meaningful data. This is because the subject and researcher relationship is interactive, cooperative, and participative (Decrop, 1999). An interpretive researcher relates and interacts with participants through inclusion and dialogue to understand their first-hand experiences and the meanings they ascribe to them while interpreting the significance in ways the participants may not have been able to see (Creswell, 2011). Therefore, the interpretive paradigm was the most appropriate for this study because it focuses on understanding and exploring individuals' perceptions, experiences, and meanings to planning, designing, and delivering environmental education and interpretation on Tiritiri Matangi Island.

3.3.2 Ontology

Ontology is the study of being (Crotty, 1998) as it embodies the researcher's fundamental beliefs and raises questions about the nature of reality and human existence (Denzin & Lincoln, 2005; Killam, 2013). Two perspectives illustrate the modern debate among scholars regarding reality: that of a single reality, known as realism, or multiple realities, known as relativism (Levers, 2013). According to Bergin et al. (2010), the realist ontological perspective assumes that reality exists independently of the human intellect, regardless of whether it is understandable or immediately experienceable. Therefore, the one true reality or absolute truth is unchanging and factual as knowledge is stable and "being" (Bilgrami, 2002; Gray, 2018). A study with a realist perspective aims to identify phenomena and reach a consensus on the description of the whole from snapshots or partial segments (Bergin et al., 2010). On the other hand, a relativist ontology believes that local and specific constructed realities exist (Lincoln et

al., 2011). Therefore, there are multiple realities, each one as relevant as any other, that may change within and between people and time, so knowledge is constantly changing and becoming. According to Levers (2013), the purpose of research underpinned by a relativist ontology is to understand the subjective experience of reality and plural understandings. A relativist ontology was considered suitable for the current study, as reality can be experienced in and interpreted in different ways. In this regard, the participants were essential in facilitating specific understandings and perspectives vital for conducting a thorough investigation. In the context of planning environmental education and interpretation, the perspective of Knobloch et al. (2017) underscores the importance of considering individual differences in perception and experience. Stakeholders can construct their own realities of the environment and goals associated with environmental education and interpretation, driven by personal motivations such as seeking enjoyment or finding more profound meaning. Moreover, individuals can demonstrate different approaches to designing and delivering environmental education and interpretation by reflecting their distinct personalities, expertise, and roles (Cohen, 1985). This view is supported by Baghramian and Carter (2022) and Moreira et al. (2020), who argued that a traditional way of defining relativism starts with asserting that a phenomenon is somehow reliant on and co-varies with some underlying independent variable. Therefore, the researcher needs to understand the multiple realities of participants through this relativist ontological viewpoint.

3.3.3 Epistemology

Epistemology, or the study of knowledge, is a way of understanding and explaining what it means to know (Crotty, 1998). Denzin and Lincoln (2005) wrote that an epistemological inquiry looks at the relationship between the knower and knowledge, as it is about how the researcher makes meaningful sense of the world. Epistemology urges researchers to separate true and false data and distinguish trustworthy knowledge from opinion, as they can decide what knowledge is legitimate and adequate for their study (Gray, 2018). According to Crotty (1998), there are three main epistemological viewpoints: objectivism, constructivism, and subjectivism.

Objectivism, as defined by Crotty (1998), is the belief that truth and meaning are inherent in the world or objects themselves and are not shaped by individuals' personal beliefs or viewpoints. It emphasises that an objective reality exists independently of human subjectivity and can be known and understood objectively without being influenced by personal biases or interpretations (Crotty, 1998). Research involves discovering an objective truth, as researchers act as neutral observers, maintaining an independent stance on the subject under investigation without including their feelings and values, and removing all contextual factors to observe and understand the phenomena, as they exist independent of the human mind (Clegg, 2022). Grant and Giddings (2002) argued that the purpose of knowledge from this epistemological viewpoint

is frequently used to explain, predict and control. In contrast, constructivism rejects this view, as meaning is created through the interaction between the research and the object being investigated (Gray, 2018). Constructivism contends that truth and meaning are formed by a subject's interactions with the outside world rather than existing in an objective universe. Therefore, meaning is constructed instead of discovered, as subjects construct their meaning in various ways, even regarding the same phenomenon. As a result, multiple contradictory but equally valid accounts of the world are possible, especially as knowledge constantly shifts. Another epistemological viewpoint is subjectivism, in which meaning is imposed on the object by the subject rather than emerging from the interaction between the subject and the outside world (Crotty, 1998). This viewpoint insists that individuals impose their interpretations and understanding of phenomena based on their backgrounds, beliefs, and experiences. Saunders et al. (2009, p. 111) supported this by characterising subjectivism as a "social phenomena created from the perceptions and consequent actions of social actors." Denzin and Lincoln (2005, p. 21) suggested that knowledge is "always filtered through the lenses of language, gender, social class, race, and ethnicity." Conversely, intersubjectivism offers an alternative perspective that challenges the notion of subjectivism. Intersubjectivism, as posited by Zlatev et al. (2008), places significant emphasis on shared or collective understanding and agreement among individuals or within a community. Therefore, it contends that knowledge, meaning, and reality do not rely solely on individual subjectivity but emerge through interactions and consensus among people. Within this epistemology, individuals actively construct meaning, and each experience is considered unique. Pine and Gilmore (1998) argued that this perspective allows for the development of understanding, heightened awareness of ethical and moral considerations, and personal growth and individual realities are sought through interactions between the research and the subjects to form a collective consensus. Therefore, this study adopted intersubjectivism, as this played a pivotal role in shaping the interpretation and facilitation of meaning and experiences regarding how environmental education and interpretation are planned, designed, and delivered on Tiritiri Matangi Island, where various stakeholders were actively engaged in a multifaceted process; their collective perspectives contributed to a richer understanding of this complex domain.

3.4 Research Methodology

Methodology refers to "the way by which knowledge and understanding are established through the research" (Veal, 2018, p. 19). A research methodology is the systematic and structured approaches and techniques researchers use to conduct their research, collect and analyse data, and draw conclusions to address research questions and objectives (Grant & Giddings, 2002).

3.4.1 Qualitative Research

When gathering information on people's experiences and beliefs, qualitative methodologies are applied to understand how individuals act, solve problems and go about their daily lives in their social context (Phillimore & Goodson, 2004). Qualitative research is perceived as distinct from quantitative research because it does not generate quantifiable results or include measurement and hypothesis testing as essential components of the research process (Phillimore & Goodson, 2004). Simply put, qualitative research is "concerned with words rather than numbers" (Bryman, 2016, p. 375). Barnham (2015) suggested that qualitative research can provide a deeper understanding than is possible with quantitative research, as it emphasises intersubjectivity and is more personal through words. Similarly, Geertz (1973) argued that qualitative research aims to collect data that may become subject to interpretation, discover meaning or develop an understanding through empirical studies to generate thick descriptions. This view was extended by Merriam (2002), who presented three characteristics of qualitative research. First, the researcher must strive to understand the meaning people have constructed about their world and experiences. For example, Patton (1985, p. 1) explained that qualitative research is "an effort to understand situations in their uniqueness as part of a particular context and the interaction there." This understanding is described as an end in itself, so that "it is not attempting to predict what may happen in the future necessarily, but to understand the nature of that setting, what it means for participants to be in that setting, what their lives are like, what's going on for them, and what their meanings are" (Patton, 1985, p. 1). Therefore, qualitative research seeks to avoid generalisations and grand claims, as it is often characterised by high reflectivity and sensitivity (Merriam, 2002). This leads to Merriam's (2002) second characteristic, that the researcher is the primary instrument for data collection and analysis in qualitative research because understanding is the main objective of this kind of study, allowing the human instrument to be instantly responsive and adaptable (Patton, 2015). The researcher can employ nonverbal and verbal cues to deepen their comprehension, digest information quickly, explain and synthesise information, confirm their interpretation with participants, and investigate uncommon or unexpected responses (Merriam, 2002). Therefore, primary research is undertaken, as the researchers conduct the research themselves and data are obtained first-hand. Through this, researchers can learn something new from participants and eliminate their own biases in the process. Pre-existing documents relevant to the research questions can also be analysed to validate the interview findings and offer deeper insights. Finally, the product of qualitative research is richly descriptive, as words and photographs convey what the researcher has learned about a phenomenon (Merriam, 2002). In summary, qualitative research attempts to understand and make sense of phenomena from the participant's perspective in an in-depth, individualised, and contextually sensitive manner (Patton, 2015).

In the tourism context, qualitative research has become accepted as an essential and valid strategy (Beedie, 2017). This is because qualitative approaches offer a great deal of potential for understanding the human components of society, which in tourism include its social and cultural implications, as subjects are studied in their natural settings (Phillimore & Goodson, 2004). Rather than seeking immediate results or closure, qualitative researchers attend to stakeholder realities and sensibilities in a context-specific process to relate to and create the world that can shape the industry and global society to hold future development promises (Phillimore & Goodson, 2004). Therefore, a qualitative methodology was applied in this study because the aim was to capture participants' perceptions and meanings they ascribed to the planning, design, and delivery of environmental education and interpretation rather than facts, statistics, or the testing of theory. Bryant (2006) argued that qualitative approaches to data collection and analysis can provide the flexibility necessary for gaining an in-depth understanding of individual experiences; in this study, these reflected the study's aim to understand how environmental education and interpretation is planned, designed, and delivered by the individuals involved in this process on Tiritiri Matangi Island. Qualitative approaches are also relevant to studies such as this, as they enable researchers to generate thick descriptions of a scenario or setting and explore the richness derived from the "detail, context, emotion and the web of relationships" (Denzin, 1989, p. 83). While uncovering these interpretations through qualitative research may be a time-intensive process (Gherardi & Turner, 1999), the time taken to collect and analyse data qualitatively is essential if the unexplored finer details and unique features of ecotourism such as environmental education and interpretation, are to be understood.

3.4.2 Exploratory Research

Exploratory research is a qualitative practice utilised in this study, which sought to explore questions that had not been previously studied (Bryman, 2016). According to Gray (2018), exploratory studies are instrumental when not enough is known about a phenomenon, as they can help researchers increase their understanding of a given topic, ascertain how or why a particular phenomenon is occurring, and predict future occurrences. This can be achieved by reviewing relevant literature and conducting interviews with experts in the field (Saunders et al., 2019). This relates to this study because an extensive literature review was conducted (see Chapter 2) to deliver a fundamental understanding of relevant concepts, and the experts in the study were those involved in the planning, design, and delivery of environmental education and interpretation on Tiritiri Matangi Island, and who helped answer the research questions.

3.4.3 Case Study

Case study research is an intensive description and analysis of a contemporary phenomenon or social unit, such as an individual, group, institution, or community bounded by time and/or

space (Merriam, 2002; Yin, 2009). Similarly, Stake (1995) explained that case studies are utilised to understand a particular circumstance at a specific point in time and why the scenario has occurred. Case studies can be used by scholars studying particularly unknown or understudied subjects for which there is little empirical evidence (Çakar & Aykol, 2021). According to Bryman (2016), an emphasis on an inductive approach is present in the relationship between theory and research, as case studies typically involve the generation of theory rather than its testing (Bryman, 2016). This view was supported by Sigala et al. (2021), who noted that case study-based research has long been acknowledged as a robust and effective research methodology for understanding and critically analysing industry realities and practises and theorising and building new knowledge.

In contrast to large-scale quantitative surveys, case studies necessitate an intense contextual examination of an individual object or a small number of objects (Brunt et al., 2017) because the approach provides researchers with deep and hidden meanings of phenomena by studying single sites (Hollinshead, 2004). Moreover, investigators can retain the holistic and significant characteristics of real-life events, such as small group behaviour and organisational and managerial processes (Yin, 2009). In line with the increasing trajectory of tourism research in the last few decades (Mulet-Forteza et al., 2019), case study research has also increased. For example, Priya (2021) observed that a case study is one of the most extensively used qualitative research strategies. Indeed, the most employed approach to research sustainable tourism has been the single-destination case study and abundant qualitative interviews (Bramwell et al., 2017). As Çakar and Aykol (2021) explained, the case study approach is mainly used while studying subjects with limited samples, such as public and private representatives, policymakers, destination marketers, managers, nongovernmental organisations, local residents, and visitors.

A frequent criticism associated with case studies is their validity and reliability (Decrop, 2004; Riege, 2003; Street & Ward, 2012). Quintão et al. (2020) highlighted the potential bias in data collection and interpretation due to the researcher's involvement in the field. Therefore, they emphasised the necessity of using multiple sources of evidence, implementing data triangulation, and establishing a logical sequence of events within a case study (Quintão et al., 2020). The first two aspects directly influence data quality, while the last factor provides readers with insights into the case's developmental processes. In the triangulation process, Fusch et al. (2018) stressed the importance of utilising diverse data sources, including interviews with multiple participants and various sources. Hoorani et al. (2019, p. 286-287) similarly suggested that multiple research methods be employed "to develop a contextualised understanding of the phenomenon with the intention of confronting theory by comparing it with empirical data." This data triangulation helps validate the findings by cross-referencing information with different perspectives on a phenomenon and ensures that the investigator's perception is comprehensive,

thereby enhancing the credibility and trustworthiness of a single case study (McGloin, 2008; Yin, 2009).

This study adopted a case study approach on Tiritiri Matangi Island by investigating how environmental education and interpretation were planned, designed, and delivered on the island. Tiritiri Matangi Island was a suitable case study because not only is the island a conservation success, but it also serves as an environmental education hub (Tiritiri Matangi, 2021a) because guided tours, interpretive signage, and educational programmes are offered to visitors. This provided a chance to explore how environmental education and interpretation strategies were planned, designed, and delivered while being effectively integrated with conservation efforts. Moreover, conducting this research on Tiritiri Matangi Island was necessary because previous studies on Tiritiri Matangi Island have primarily focussed on the scientific and natural aspects of the island such as monitoring bird populations (Graham et al., 2013), reviewing reptile research and conservation management (Baling et al., 2013), investigating bird reintroductions (Armstrong et al., 2022) and assessing the role of revegetation in achieving restoration goals (Forbes & Craig, 2013). Furthermore, while some studies have looked at the public and ecology through the role of volunteers (Galbraith, 2013) and collaborative partnerships (Galbraith & Cooper, 2022), research on environmental education and interpretation that are planned, designed, and delivered on Tiritiri Matangi Island is scarce.

3.5 Research Methods

A range of qualitative research methods must be applied to explore, analyse, and understand a specific topic or case study under investigation (Ren, 2016). According to Crotty (1998), research methods are techniques and procedures applied to collect and analyse data. Similarly, Bryman (2012) revealed that research methods are simply tools for collecting and analysing data, which in qualitative research are primarily non-quantitative in form, consisting of existing data in the form of documentation, images, audio recordings, observations, and physical artifacts (Çakar & Aykol, 2021; Saldaña, 2011; Yin, 2014). Patton (2015) pointed out that the data for qualitative analysis typically come from fieldwork when the researcher spends time in the environment being studied so that it can be observed, individuals can be interviewed, and documents can be analysed (Patton, 2015). Through these data sources, deep and hidden meanings and controversial stakeholder perspectives of the studied phenomena can arise (Hollinshead, 2004) within a certain period (Creswell, 2014). Unlike the previous components of research philosophy, there is no framework for making methods decisions (Patton, 2015); however, qualitative research offers a wide array of methods that can suit the type of research the researcher is conducting and the meanings they may find; these can include interviews, video observation, document analysis, media analysis, focus groups, and surveys. According to Bowen (2009), a qualitative researcher is expected to explore a variety of sources of evidence to

seek convergence and corroboration by utilising different data sources and methods. The use of various data sources is known as data triangulation and is used to increase the trustworthiness of a study. Data triangulation involves the use of a variety of data sources to provide "a confluence of evidence that breeds credibility" (Eisner, 1991, p. 110) because examining information collected through different methods helps the researcher to reduce the impact of potential biases that can exist in a single study (Angers & Machtmes, 2005; Bowen, 2009; Hoorani et al., 2019). Patton (1990) noted that triangulation enables the researcher to defend against claims that a study's findings are simply the result of a single method, source, or investigator's bias. Denzin (1970, p. 291) explained that document analysis is frequently employed with other qualitative research methods, such as interviews, as a means of triangulation, which is "the combination of methodologies in the study of the same phenomenon." Therefore, two methods were applied in this study to validate and corroborate the data: document analysis and semi-structured interviews.

3.5.1 Document Analysis

Document analysis is a valuable research method; it is a systematic procedure for reviewing or evaluating documents. It has long been a staple approach in qualitative research, as any document containing visual text is a potential source for analysis (Bowen, 2009; Flick, 2018; Patton, 2015). A document was defined by Altheide and Schneider (2013) as any symbolic representation, both printed and electronic, that can be recorded and retrieved for description and analysis. Documents can also be considered social facts because they are produced, shared, and used in socially organised ways (Atkinson & Coffey, 1997). The term document is used to describe a variety of materials such as advertisements, agendas, minutes of meetings, manuals, background papers, books and brochures, diaries and journals, maps and charts, newspapers, reports from organisations or institutions, and various public records (Bowen, 2009; Merriam & Tisdell, 2016). The analysis of documents is crucial as it involves superficial examination through skimming, in-depth examination through reading and ultimately, interpretation (Bowen, 2009). Essentially, document analysis produces data in excerpts, quotations, or entire passages that are then organised into major themes, categories, and case examples (Labuschagne, 2003).

As a research method, document analysis is especially appropriate for qualitative case studies that involve in-depth investigations that yield detailed descriptions of a single phenomenon, event, organisation, or programme (Stake, 1995; Yin, 1994). This is because, as Merriam (1988, p. 118) pointed out, "documents of all types can help the researcher uncover meaning, develop understanding, and discover insights relevant to the research problem." Written communications are a rich source of secondary data, as they consist of excerpts captured in a way that records and preserves the context (Patton, 2015). Therefore, documents can serve various purposes for the research project (Bowen, 2009). For example, as indicated, documents can provide

contextual data within which research participants operate (Bowen, 2009). The information in documents can also suggest questions that need to be asked and situations that need to be observed as part of the research (Bowen, 2009). Bowen (2009) also noted that documents provide supplementary research data, with the information and insights being valuable additions to a knowledge base. Finally, documents can be analysed to verify findings or validate evidence from other sources (Bowen, 2009). It is important to note that the strength of documents lies in the fact that they already exist and were recorded without the researcher's intervention, so they do not intrude upon or alter the setting in ways the presence of the researcher might (Merriam, 2002). Therefore, due to their physical nature, documents may be the most efficient way to collect data when occurrences can no longer be viewed, or researchers have forgotten the details (Bowen, 2009). Therefore, document analysis was considered an appropriate method for this research as strategic plans, stakeholder guidelines, and interpretive signage helped gain valuable insights into Tiritiri Matangi Island's conservation strategies, the intentions behind its educational initiatives, and interpretive approaches.

While the pre-existing data involved in document analysis are useful, documents alone are unlikely to include important information other methods may uncover because relying on these texts involves working with limited data. For example, when allowing outsiders to examine its documents, an organisation could restrict access to only those that support the values of its chief executives (Bowen, 2009). Therefore, using documents as the sole source when conducting research raises concerns of biased selectivity (Bowen, 2009). In addition, relying on pre-existing texts involves working with limited data sources, as information on a subject of interest may not exist. Consequently, to effectively investigate the planning, design, and delivery of environmental education and interpretation on Tiritiri Matangi Island, offer stable and specific data, and triangulate the findings, it was also crucial to adopt the interview method.

3.5.2 Interviews

Interviewing is an approach used for gathering valuable data or information from people, where any person-to-person interaction is present that enables the researcher to ask participants questions that are directly relevant to the objectives of the research (Rashidi et al., 2014; Saldaña, 2015). To learn about social life, researchers rely primarily on the verbal account of participants by collecting direct quotations, verifying them, and contemplating their meaning (Taylor et al., 2015). Direct quotations can disclose the participants' level of emotion, how they have organised their reality, thoughts about what is occurring, experiences, and fundamental perceptions (Brinkmann & Kvale, 2014) with sufficient context to be interpretable (Patton, 2015). Kvale and Brinkmann (2009, p. 17) suggested, "If you want to know how people understand their world and their lives, why not talk to them?" Therefore, the researcher's role is to offer a framework so that participants can respond in a way that fully and accurately reflects

their point of view (Patton, 2015). This can be achieved through qualitative interviews, as these are purposeful conversations that "gather descriptive data in the subject's own words so that the research can develop insights on how subjects interpret some piece of the world" (Bogdan & Biklen, 1982, p. 135). Polit and Beck (2006) defined an interview as a method of data collection in which one person, an interviewer, asks questions of another person, a participant. Thus, Rubin and Rubin (2005, p. 7) suggested that qualitative interviews are like night goggles, "permitting us to see that which is not ordinarily on view and examine that which is looked at but seldom seen." This means that when researchers conduct interviews, they participate in the creation of data, as a more active role is played in discovering, collecting, and making decisions about which topics will be analysed and which will be ignored (Rapley, 2018) in comparison to document analysis, in which the data already exists without the intervention of the researchers. Interviews yield the most relevant information (Merriam, 2002) as follow-up questions and non-verbal communication can be used to the researcher's advantage (Driscoll, 2011), unlike open-ended items on questionnaires (Patton, 2015). Six basic types of questions can be asked during interviews: demographic questions regarding the participants' background characteristics, knowledge questions, which are factual information possessed by the participants, and experience questions to elicit descriptions of previous experiences (Rashidi et al., 2014). The researcher can also ask feelings questions directed towards emotional responses and concerns about things and situations, opinion questions relating to the participant's goals and values, and sensory questions focusing on the participant's observations and past exposure (Rashidi et al., 2014). Interviews can be highly structured, where specific questions and their order are predetermined, or unstructured, where the interviewer has a range of topics to explore but neither the questions nor their sequencing is prepared, or semi-structured, containing a mix of more and less structured questions (Merriam, 2002).

3.5.2.1 Semi-structured Interviews

Semi-structured interviews often adhere to a guide that focuses on specific themes and suggested questions that were developed in advance (Brinkmann & Kvale, 2014), but they also leave room for discovery and enable topical trajectories to be followed as the conversation develops (Magaldi & Berler, 2020). Bryman (2012) suggested that many methodological decisions must be made on the spot during an interview, as fluid discussions encourage the researcher to keep an open mind and guide the direction of the research. This allows for the exploration of topics that may not have been considered or expected (Brinkmann & Kvale, 2014). Therefore, a researcher's role involves more than simply obtaining answers; it also entails knowing what questions to ask and how to ask them (Taylor et al., 2015). Benney and Hughes (1984, p. 215) noted that the semi-structured interview is the "favoured digging tool" of social researchers, as quality diversity can be achieved by exploring differences and varieties of a phenomenon rather than ending up with fixed categories (Brinkmann & Kvale, 2014). This is

crucial because it allows participants to tell their stories in the context of their values and experiences, which may be constrained in a more structured interview approach (King, 2004). Therefore, semi-structured interviews were suitable for this study, as the researcher wanted participants to explain how environmental education and interpretation were planned, designed, and delivered according to their experiences and perspectives. By conducting semi-structured interviews with key stakeholders, a comprehensive overview of the thought processes, intentions and practical considerations that shape the planning, design, and delivery of environmental education and interpretation on Tiritiri Matangi Island is offered.

The semi-structured interview questions (see Appendix A) were designed to discover how environmental education and interpretation on Tiritiri Matangi Island is planned, designed, and delivered. The initial questions were formulated to comprehend the participants' position on the island and their viewpoints and experiences related to their roles. Subsequent questions were related to the influence of Tiritiri Matangi Island's key outcomes on environmental education and interpretation and how these soft visitor management approaches enhanced engagement in experiential learning and proactive initiatives. Questions about the planning and design components of education, guiding, signage and human-animal interactions were then presented before questions relevant to the delivery and communication of environmental education and interpretation were provided. The interview questions then went deeper to consider how the human-environment relationship and emotional aspects of environmental education and interpretation were portrayed before allowing participants to add additional thoughts on their viewpoints and experiences that might not have been discussed during the interview. Overall, the question design purposely began with introductory questions, leading to more profound questions to achieve the research aim and objectives. All interview questions were reviewed by the researcher's supervisors.

3.6 Ethical Considerations

As qualitative case studies involve individuals or organisations as subjects, ethical considerations are imperative (Agee, 2009; Mohd Arifin, 2018; Rodríguez et al., 2005; Wiles, 2013). Oswaldo (2021) explained that ethical issues are often very complicated in social sciences, where qualitative research techniques are more frequently used. Researchers are influenced by various factors inherent to the nature of the human phenomena under study, which affects decisions regarding technical and procedural issues, information management, and dissemination (Oswaldo, 2021). Hence, ethics have also been described as a set of responsibilities in human relationships, as the researcher is responsible for participants' dignity, privacy and well-being (Wang & Geale, 2015). This was important for this research, as the knowledge produced depended on the social relationship between the researcher and the subject. Therefore, the researcher had to be aware of the benefits and risks of the research, safeguard the

rights of human subjects, obtain informed consent, and be familiar with the rules and regulations governing the ethical conduct of research. The researcher's priorities throughout the data collection process are to reflect on how the research process and outcomes may influence key stakeholders, take necessary steps to conduct a respectful and rights-based knowledge discovery between researchers and participants and build participant trust (Auckland University of Technology, 2019; Creswell, 2009; Dickert & Sugarman, 2005). It was important for the researcher of this study to create a stage where the subject was free and safe to talk about their knowledge, experiences and intentions. To illustrate this and protect the research subjects, several fundamental principles and actions had to be observed to minimise risk, respect individual autonomy, and preserve privacy. Gray (2018) revealed that the four main ethical principles of research are: (1) to ensure the participants are fully informed about the purpose of the research and have given their consent, (2) the research respects the privacy of the participants, (3) the research does not cause harm to the participants, and (4) the research does not deceive participants. In the same way, the Auckland University of Technology Ethics Committee (n.d.) are guided by the principles of informed and voluntary consent, respect for rights of privacy and confidentiality, the minimisation of risk, truthfulness by limiting deception, and social and cultural sensitivity including the commitment to the principles of the Treaty of Waitangi. To uphold the ethical principles of research, the researcher must ensure that before data collection, stakeholders and potential participants are adequately informed about the research and their role and understand their right to decide whether to participate through informed and voluntary consent (Hogan, 2008). Following this, confidentiality must be ensured to protect the privacy of human subjects while collecting, analysing, and reporting data (Allen, 2017). Confidentiality requires keeping any identifying information collected confidential so only the researcher and supervisor can access it, and the personal data are not included in reports or published documents (Trochim, 2006). This is important, as participants engaging in research studies may want to preserve their identities (Njogu, 2019).

The researcher considered these requirements and sought ethical approval from the Auckland University of Technology Ethics Committee. Ethical approval for this research application (22/375) was granted on 23rd February 2023 (see Appendix B).

3.7 Sampling

Although the cases must be selected relevant to the research, the subjects of a case study must also be sampled according to specific criteria (Bryman, 2012). Sampling is the procedure used to select a small portion of the population, known as a sample, to be present or participate in a study (Driscoll, 2011; Taherdoost, 2016). Bhardwaj (2019) described a sample as a group of people, objects, or items taken from a large population for the study's purpose. This process

starts with determining the inclusion criteria before discussing the sampling technique and sample size.

3.7.1 Inclusion Criteria

Inclusion criteria are predetermined characteristics or attributes that documents or participants must possess to be eligible for inclusion in a study. When deciding which documents to include, Flick (2018) mentioned four factors: (1) authenticity, (2) credibility, (3) representativeness, and (4) meaning. Dunne et al. (2016) noted that authenticity involves the extent to which a document is genuine. Mogalakwe (2009) suggested that the authenticity of the documents to be analysed is a foundational element of any research. Researchers must, therefore, ensure that the documents they select are not forged (Mogalakwe, 2009). One way to decide the extent to which a document is authentic is by determining whether it is a primary source. Kridel (2015) suggested that confirming the authorship, date, and location of publication can be a way to address authenticity issues. Secondly, credibility relates to the extent to which the source is free from error and distortion (Dunne et al., 2016). Flick (2018) argued that researchers need to check whether the document producers are reliable sources before deciding whether they are credible. Thirdly, representativeness relates to how typical a document is. Payne and Payne (2004) stressed that assessing the representativeness of an organisation's internal documents can be difficult for researchers from the outside because its executives can allow access only to those they want a researcher to investigate. Therefore, it becomes crucial for researchers to collect external sources to complement the research. Lastly, meaning involves the significance of a document's content and whether the evidence is clear and understandable. According to Morgan (2022), a document can have a literal meaning, which pertains to a document's face value, and an interpretive meaning. Hence, Mogalakwe (2009) argued that to assess the meaning of a text, a researcher needs to connect the literal meaning to the context in which the document was created. Based on these four considerations, for this study, the inclusion criteria for the document analysis were strategic reports and stakeholder guidelines published within the last ten years to ensure that the strategies and information were relatively recent and current. Interpretive signage was also included, and it had to be physically located on Tiritiri Matangi Island and accessible to visitors because the study focused on how environmental education and interpretation were delivered or presented to visitors. All types of documents had to have been published by the Supporters of Tiritiri Matangi Island, the non-profit conservation volunteer group that furthers the aims of the conservation project, and/or the Department of Conservation, as publications by these organisations offer an accurate and comprehensive view of the island's operations, goals, and practices. In addition, internal physical documentation had to have been provided directly by Tiritiri Matangi Island management with their permission, as they may contain proprietary or confidential information that the organisation would prefer not to be publicly disclosed. Finally, all documentation had to have been written in English to allow the

researcher to fully understand and interpret the content and provide information relevant to the planning, design, and delivery of environmental education and interpretation, such as goals, objectives, expectations, or factual information. Table 1 outlines the inclusion criteria utilised for document analysis.

Table 1. Inclusion Criteria for Document Analysis

Document Title	Relevance to Study	Inclusion Criteria
Tiritiri Matangi Website	Provides information on tourism experiences, products, history, and values of Tiritiri Matangi Island.	- Published within the last ten years (2021) - Published by Supporters of Tiritiri Matangi - Written in English
Supporters of Tiritiri Matangi Strategic Plan 2017-2027	Outlines corporate strategies, social responsibility, vision, mission, and values of Tiritiri Matangi Island.	- Published within the last ten years (August 2017; Updated February 2022) - Published by Supporters of Tiritiri Matangi - Written in English
Supporters of Tiritiri Matangi Guiding Manual	Provides guidance for registered Tiritiri Matangi guides, outlining basics, obligations, responsibilities, and practical training for guiding.	- Published within the last ten years (2018) - Published by Supporters of Tiritiri Matangi - Written in English
Guiding Notes	Outlines walking routes, suitable visitor types, flora, fauna, track features, and key discussion points for guides.	- Published within the last ten years (2018) - Published by Supporters of Tiritiri Matangi - Written in English

Interpretive Signage	Provides information and interpretation to visitors about the natural and cultural features of Tiritiri Matangi Island.	- Physically located on Tiritiri Matangi Island and accessible to visitors - Content related to interpretation of natural and cultural features on Tiritiri Matangi Island - Published by Department of Conservation and Supporters of Tiritiri Matangi - Written in English

Regarding the inclusion criteria for participants, this decision was guided by the ethical principles of obtaining informed and voluntary consent and the researcher's ability to understand the data. Participants needed to be over 16 years old to avoid the complexities associated with obtaining consent from minors (Spriggs & Gillam, 2019) and be able to speak English. This language requirement ensured participants' understanding of the Information Sheet and facilitated accurate transcription of verbal interview data by the researcher. Furthermore, to ensure the relevance of data for the study, participants also had to be involved in the planning, design, and delivery of environmental education and interpretation on Tiritiri Matangi Island, so those involved primarily in conservation work on the island were excluded. Table 2 outlines the inclusion criteria utilised for participants.

Table 2. Inclusion Criteria for Participants

Participant	Relevance to Study	Inclusion Criteria
Supporters of Tiritiri Matangi Management	Responsible for planning, implementing, and managing processes and stakeholders to meet operational and strategic plans.	- Over 16 years old - Fluent in English - Involved in the planning and design phases of

	Manages the education team, training of guides, and development of informative material. Collaborates with the Department of Conservation on interpretation.	environmental education and interpretation on Tiritiri Matangi Island
Educators	Have in-depth understanding of science curriculum and use it to develop education programs and resources on Tiritiri Matangi Island. Facilitate school visits, organise learning materials, and deliver presentations. Can also act as guides.	- Over 16 years old - Fluent in English - Involved in the planning, design and delivery phases of environmental education and interpretation on Tiritiri Matangi Island
Guides	Act as channels through which visitors experience Tiritiri Matangi Island. Provide information on flora, fauna, archaeological sites, and history of Tiritiri Matangi Island. Contribute to designing and refining guiding materials.	- Over 16 years old - Fluent in English - Involved in the design and delivery phases of environmental education and interpretation on Tiritiri Matangi Island

3.7.2 Sampling Techniques

During the selection process, researchers must go beyond simply establishing an inclusion criterion, as Morgan (2022) argued that researchers must also decide on a sampling technique to construct the collection that will allow them to achieve the goals of the research study. According to Sharma (2017), sampling techniques are systematic methods to select a subset of individuals, items, or data points from a larger population for research or analysis. These techniques are employed when it is impractical or impossible to study the entire population, making it more feasible to study a smaller, representative sample. Therefore, sampling

techniques aim to ensure that the selected sample accurately reflects the characteristics and diversity of the larger population, allowing researchers to make meaningful generalisations and conclusions. The sampling techniques used in this study were purposive sampling with the subsets of expert and snowball sampling and convenience sampling to initiate recruitment.

3.7.2.1 Purposive Sampling

The purposive sampling technique, also called judgement sampling, is the deliberate choice of a participant due to the qualities the participant possesses (Etikan et al., 2016). According to Mason (2010), this technique requires a careful selection of subjects and can target those who hold the required data. It is a non-random technique that does not need underlying theories or a set number of participants; the researcher decides what needs to be known and sets out to find documents and participants who can and are willing to provide the information by knowledge or experience (Ames et al., 2019; Mason, 2017; Panacek & Thompson, 2007).

Flick (2018) highlighted that a researcher may use purposive sampling for document analysis. Kyngäs et al. (2011) claimed that purposive sampling is the most commonly used method in document analysis studies. Purposive sampling aims at selecting all textual units that contribute to answering given research questions (Krippendorff, 2004). As Drisko and Maschi (2016) noted, sampling in document analysis is frequently purposive, as the researcher makes sampling decisions to obtain the most informative and appropriate sample for the study's purposes. Therefore, this sampling method is not probabilistic, as choices are typically shaped by the research question in combination with prior research and theory on the topic (Drisko & Maschi, 2016). Hence, sampling in document analysis is often determined and fixed at the start of the research project (Drisko & Maschi, 2016). The researcher then proceeds by following a conceptual hierarchy, systemically lowering the number of units that need to be considered for analysis. According to Krippendorff (2004), the researcher's first step would be to consider where they might find relevant documents and what those documents are likely to contain. For this study, the researcher selected direct resources from the Tiritiri Matangi Website and enlisted help from a member of the Supporters of Tiritiri Matangi management to select relevant documents. This process is discussed further in the data collection section (Section 3.8). Ultimately, the resulting units of text are not meant to be representative of a population of texts but, rather, the population of relevant texts, excluding the textual units that do not possess relevant information (Krippendorff, 2004).

Purposive sampling is also used in qualitative research to identify and select the information-rich subjects for interviews (Patton, 2002). This involves the identification and selection of individuals or groups of individuals who are proficient and well-informed about the phenomenon of interest (Creswell & Plano Clark, 2011). The idea behind purposive sampling is

to concentrate on people with particular characteristics who can better assist with the research. This is known as expert sampling, which, as indicated by the name, calls for experts in a particular field to be the subjects of purposive sampling (Etikan et al., 2016). According to Etikan (2017), the researcher in expert sampling seeks the consent of known experts on the topic and begins collecting their information directly from the participant. While the inclusion criteria explained that the individuals involved in the planning, design, and delivery of environmental education and interpretation on Tiritiri Matangi Island were to be eligible for the study, expert sampling identifies those with specialised knowledge, experience, and insights that could contribute valuable information to the study. Based on this, three types of candidates were selected for this study. Firstly, a member of the Supporters of Tiritiri Matangi management was selected, as their role involved planning, implementing, and managing processes and stakeholders to ensure that the operational goals were met in alignment with the Supporters of Tiritiri Matangi Island's Strategic Plan and short and long-term goals. Moreover, in terms of environmental education and interpretation, their role involved managing the education team and, with the support of the Educator, keeping up to date with the educational sector developments and changing needs. Additionally, they were responsible for registering, training, and supporting the guides on Tiritiri Matangi Island. This member of the Supporters of Tiritiri Matangi management reviewed and developed the training process and understood the guides' availability and areas of expertise. In addition, they developed and distributed appropriate informative material for the guides, provided useful material for guiding, encouraged guides to continue to learn through training sessions, listened to the needs and suggestions of guides and incorporated this into the Supporters of Tiritiri Matangi Guiding Manual. They also worked closely with the advocacy sub-committee, which collaborated with the Department of Conservation on the interpretation on the island. Therefore, this member of the Supporters of Tiritiri Matangi management was considered an expert and relevant to this study's planning and design phases. Additionally, the educators were included in the sample as they had an in-depth understanding of the science curriculum. They used this knowledge to develop and enhance the education programmes and resources on Tiritiri Matangi Island. The educators offered a range of educational experiences for schools and educational groups on the island that were closely tied to the syllabus, facilitated school visits, organised worksheets and learning materials for students, and delivered presentations that aligned with the group's expectations. While these were the educators' primary tasks, educators can also act as guides. Therefore, educators were relevant to the planning, designing, and delivering environmental education and interpretation on Tiritiri Matangi Island. The final candidates for this study were the guides because they were a channel through which visitors experience Tiritiri Matangi Island. The guides present Tiritiri Matangi Island to visitors and open their eyes and minds to the island. They can point out and tell visitors about the island's flora and fauna, identify archaeological sites, and inform visitors about the early settlement of the island and its recent history as a sanctuary. Therefore, the

guides predominantly delivered environmental education and interpretation on Tiritiri Matangi Island. However, they could also be included in the design phase as they could further their guiding skills and provide suggestions for the Supporters of Tiritiri Matangi Guiding Manual. Overall, the member of the Supporters of Tiritiri Matangi management team, educators and guides were relevant subjects for this study as they were in one way or another involved in the process of planning, designing, and delivering environmental education and interpretation on Tiritiri Matangi Island. While the experts identified as the member of the Supporters of Tiritiri Matangi management and educators were always present at the data collection locations, the volunteer status of the guides meant that different guides were present each time the researcher collected data on-site. Therefore, a combination of convenience and snowball sampling techniques was used to recruit participants.

3.7.2.2 Convenience Sampling and Snowball Sampling

When the researcher initially arrived at the data collection location on the ferry or at the Visitor Centre on Tiritiri Matangi Island, convenience sampling was used. In contrast to purposive sampling, convenience sampling involves selecting participants who are readily available and accessible to the researcher (Given, 2008); it serves as a step to invite the first participant. Members of the target population who meet practical criteria such as easy accessibility, geographical proximity, availability at a given time, or willingness to participate were included in the study (Dörnyei, 2007). Therefore, to initiate the recruitment for the day, the researcher approached the first potential participant located close to them and ensured that they met the inclusion criteria for the study. This initial convenience sampling shifted to snowball sampling, in which each participant identified other potential participants (Bhardwaj, 2019). Linear snowball sampling was used by collecting data from one individual who then referred or introduced additional participants to the study. Therefore, a chain or sequence was formed and continued until the researcher had collected sufficient data for the day (Bhardwaj, 2019).

3.7.3 Sample Size

Upon listing potential sources and candidates, the sample size was also considered. While a sample needs to be of adequate size to avoid sampling errors and biases (Taherdoost, 2016), qualitative researchers tend to acquire small numbers of participants because they are more focused on the depth rather than the breadth of research (de Ruyter & Scholl, 1998; Slevitch, 2011). A sample is considered large enough when it reaches a point of redundancy. This is known as data saturation, which is the point at which no new information or themes are observed in the data (Guest et al., 2006). At this point, participants do not provide substantially different insights or information (Taylor et al., 2015); Merriam and Tisdell (2016) explained that this point of the study occurs when researchers cease to gain insights after collecting new

data. This relates to Brinkmann and Kvale's (2014, p. 48) argument that the researcher must "interview as many subjects as necessary to find out what you need to know." Given these considerations, no predetermined sample size was established, and instead, the researcher opted to employ a flexible sampling approach that the principle of data saturation would guide.

3.8 Data Collection Process

To initiate the data collection process, the researcher first became acquainted with the organisation's relevant documents that were accessible online, as they provided a reliable basis for the critical analysis of Tiritiri Matangi Island's planning, design, and delivery approach in the context of environmental education and interpretation. Initiating this action as the first step was significant because, as Willis (2007) argued, understanding the background of a research case study is essential to interpreting the data collected. In addition, secondary data from documents were investigated before interviewing participants to help the researcher focus on the questions that may be asked in interviews and know what to look out for when interviewing participants. In this study, the first source of document analysis was the Tiritiri Matangi Website; as Benckendorff et al. (2014) and Trevino and Nelson (2016) pointed out, in addition to describing products and services, a company's website is a significant public display platform for introduction, values, and strategies. The Tiritiri Matangi Website not only showed its tourism experiences and products but also exhibited its history and values. The Supporters of Tiritiri Matangi Strategic Plan 2017-2027, updated in 2022, was then sought out on their website, as it stated their corporate strategies and social responsibility. This document provided direction and focus for the Supporters by setting out the vision, mission and values of Tiritiri Matangi Island and acted as a guide for effective decision-making by outlining five key outcomes of the project. Therefore, these documents were able to help answer the first research question: What is the general background and strategic plan for Tiritiri Matangi Island, and what are the objectives behind its environmental education and interpretation efforts? Once the documents that were publicly accessible had been collected, the member of the Supporters of Tiritiri Matangi management team and researcher met on-site at Tiritiri Matangi for the researcher to request the relevant internal documents and artifacts of the site. Receiving documents directly from a member of the management expedited the research process, eliminating the need to navigate further channels or wait for document requests to be processed. Furthermore, this individual had selected documents more relevant to the research objectives, thus streamlining the document collection process and focusing on materials likely to provide valuable insights. The documents provided were the Supporters of Tiritiri Matangi Guiding Manual and guiding notes. These documents were relevant because the Supporters of Tiritiri Matangi Guiding Manual, updated in February 2018, intended for use by registered Tiritiri Matangi guides, prepared guides to start their practical training by outlining the basics of guiding, the obligations and responsibilities of guiding, how guiding was organised, and advice

on how to conduct their guided walk. Similarly, the guiding notes provided guides with an outline of each walking route by suggesting the type of visitor it would be appropriate for, outlining the flora, fauna and features of the track, and key points to discuss with visitors. Therefore, these documents were relevant because of their internal nature and were useful in helping the researcher understand the planning, design, and delivery of the guided walks, which are crucial to environmental education and interpretation. In addition to providing relevant documents, the management team member provided context, explanations and clarifications about the documents, ensuring the researcher fully understood the content, context and implications, which led to more accurate interpretation. However, it was essential to consider the potential limitations and biases inherent in receiving documents directly from the management team member. Bowen (2009) suggested that using documents as the sole source when conducting research raises concerns of biased selectivity because when allowing outsiders to examine its documents, an organisation could restrict access to only those that support the values of its chief executives. Therefore, the researcher sought other document sources on-site to ensure a well-rounded and comprehensive understanding of the research topic. The researcher also took photographs of the interpretive signage along the walking tracks and at the Visitor Centre so these public displays of interpretation and environmental education could be analysed. While the pre-existing data derived from document analysis had been useful, the four documents and signage alone did not contain crucial information that alternative methods might have revealed as they entailed working with a restricted dataset. Consequently, the interview method was also adopted to effectively investigate the planning, design, and delivery of environmental education and interpretation on Tiritiri Matangi Island, offer stable and specific data, and triangulate the findings.

To initiate the recruitment of potential participants, the member of the Supporters of Tiritiri Matangi management informed potential participants about the research via email and in person, ensuring that they were aware of the researcher's presence and purpose on Tiritiri Matangi Island. This established a strong communication channel about the research, which led to higher participant awareness, trust, and engagement. Potential participants were approached by the researcher initially on-site on Tiritiri Matangi Island at the Visitor Centre. According to Bardon and Harding (1981), the most useful attribute of on-site data collection is the ability of researchers to collect immediate perceptions, attitudes, preferences, and behaviours. For example, participants provide answers based on their knowledge and reaction to the activity they have consumed as experiences (Morgan et al., 2010), or in this case, delivered. Furthermore, the interviews were primarily conducted on-site as people are subject to forgetfulness and may recall details inaccurately (Roulston & Choi, 2018). Therefore, data from the guides were initially collected on-site right after the guided walks to ensure immediate and real-time reflective answers, and the data from the member of the management team and

educators were collected during their breaks from duties to avoid disruptions. However, due to time constraints on the island, interviews were also held on the arriving and departing ferry to optimise data collection opportunities. Potential participants were approached by the researcher, who formally introduced herself and the research and explained the research purpose and data collection process via a Participant Information Sheet (see Appendix C). Potential participants then had the opportunity to ask questions before participating to confirm that they deeply understood their participation and advise of a convenient time and location where they would like to be interviewed. Decrop (1999) noted that the location of data collection could impact data generation, with familiar locations offering advantages such as comfort, authentic responses, increased cooperation and better recollection of specific details, experiences, and emotions related to the research topic. Therefore, conducting interviews at familiar locations such as the Visitor Centre and ferry during convenient hours was crucial to offer these benefits. Those willing to participate signed a Consent Form (see Appendix D) to ensure their privacy in the subsequent analysis and publications. They were also informed that they reserved the right to answer or decline any questions and withdraw their participation at any time without negatively impacting their involvement in future studies or the current relationship with the researcher and research bodies involved. Before asking formal interview questions, there was some informal chatter between the researcher and the participant to relax the participant and build rapport (Fontana & Frey, 2000). The researcher then conducted the interview using the Interview Guide to direct the conservation and follow-up questions to probe for further information considering previous responses. Interviews were held in April and May 2023, each lasting approximately 15-20 minutes. The research included 18 participants, comprising one member of Supporters of Tiritiri Matangi management, two educators, and 15 guides because data saturation was achieved at this stage, as additional participants did not provide any new and unique insights. Participants' names were disassociated from the data, as each participant was assigned a descriptor according to their role and a numerical identifier based on the sequence of their interviews as shown in Table 3. For instance, participants designated as guides were denoted as "Participant G1" through to "Participant G15," educators as "Participant E1" and "Participant E2," and the member of Supporters of Tiritiri Matangi management as "Participant M1." These descriptors were utilised to maintain anonymity while enabling readers to easily understand the roles and perspectives of each participant within the research context. The interviews were voice-recorded and later transcribed for analysis.

Table 3. Participant Overview: Roles and Descriptors

Participant Number	Position	Descriptor
1	Guide	G1
2	Guide	G2
3	Guide	G3
4	Guide	G4
5	Guide	G5
6	Guide	G6
7	Guide	G7
8	Guide	G8
9	Educator	E1
10	Guide	G9
11	Educator	E2
12	Management	M1
13	Guide	G10
14	Guide	G11
15	Guide	G12
16	Guide	G13
17	Guide	G14
18	Guide	G15

3.9 Researcher Positionality and Reflexivity

Positionality in qualitative research refers to the subjective stance of the researcher, acknowledging their personal and social identities, experiences, and biases that shape their perspective and approach to the research process (Maher & Tetreault, 1994; Rowe, 2014; Savin-Baden & Major, 2013; St. Louis & Barton, 2002). More specifically, it involves acknowledging factors such as race, gender, class, ethnicity, and cultural background that influence study design, interactions with participants, interpretation of data, and research outcomes (Alvesson & Sköldberg, 2000; Dean, 2017; Reich, 2021). It also encompasses where the researcher stands in relation to their participants and reflects the position chosen within the study (Savin-Baden & Major, 2013). Huberman and Miles (2002) and Ozano and Kharti (2018) further discuss how researchers perceive themselves and are perceived by others, considering factors such as insider or outsider status, power dynamics, and privilege or disadvantage. Insiders, integrated into the community being studied, may have advantages in accessing information and building rapport, while outsiders may offer fresh perspectives and deeper exploration of overlooked topics (Brannick & Coghlan, 2007; Chew-Graham et al., 2002; Hayfield & Huxley, 2015).

According to various authors, positionality has been translated through reflexivity, which is the critical self-awareness and ongoing reflection of the researcher on their role, assumptions, and subjectivity throughout the research journey (Berger, 2015; Charmaz, 2014; Corlett & Marvin, 2018; Creswell & Creswell, 2018; Patton, 2002; Sochacka et al., 2009). It involves examining how the researcher's positionality influences every aspect of the research process, from the formulation of research questions to data collection, analysis, and interpretation (Rapley, 2012). By practising reflexivity, researchers can strive for transparency, mitigate biases, and enhance the rigour and validity of their qualitative investigations. Thus, while positionality sets the stage by defining the researcher's subjective stance and relationship to the research context, reflexivity guides the researcher in critically reflecting on and navigating their positionality throughout the research journey.

The researcher's positionality, defined by their personal background, characteristics, and status, significantly influenced their reception and the responses they received in the field. Initially, their youthfulness and femininity may have sparked curiosity among participants, potentially affecting perceptions of their experience and authority. To address this, the researcher carefully tailored their presentation to convey professionalism while maintaining approachability. For example, they employed university-labelled attire to subtly communicate their academic affiliation and seriousness about the research, while maintaining a poised yet warm demeanour to strike a balance between professionalism and relatability.

Moreover, as a Master's student, the researcher may have been perceived as theoretically knowledgeable but could have faced scepticism due to their limited practical experience in ecotourism. This impression potentially affected the level of respect and cooperation extended to the researcher, especially in a field like ecotourism where established researchers and industry professionals are prevalent. To counteract any doubts stemming from their student status, the researcher actively pursued hands-on learning opportunities, immersed themself in field experiences, and engaged with experts to enhance their understanding and proficiency. Throughout their fieldwork, the researcher consciously navigated their positionality, initially adopting the role of a visitor to grasp the educational experience before seamlessly transitioning into the researcher's role. This gradual evolution facilitated genuine connections with stakeholders, ultimately fostering trust and collaboration in the research process. By demonstrating a genuine interest in learning and engaging with others' perspectives, the researcher alleviated any scepticism or reluctance stemming from their student status, thereby earning the community's acceptance of their presence.

Furthermore, the researcher's reflexivity guided their approach to participant recruitment, emphasising the need to clarify the research's relevance to participants' experiences and assertively engage them. This involved a delicate balancing act in gaining access to certain

participants. While some were enthusiastic contributors, feeling they possessed the expertise necessary, others required reassurance about the relevance, importance and confidentiality of their knowledge. Thus, it became imperative to clarify the research's nature, tailor it to the participant's specific roles and underscore their importance to the study. The researcher aimed to present themself as knowledgeable yet approachable, conveying the significance of the research without posing a threat to the participants' positions.

Interactions with the Supporters of Tiritiri Matangi Management and Supporters of Tiritiri Matangi Island further facilitated the researcher's evolution from outsider to respected researcher. Initially perceived as an outsider, the researcher's purpose and background were unfamiliar to participants, leading to hesitancy or unwillingness to participate. However, effective communication from the Supporters of Tiritiri Matangi management sparked widespread curiosity and eventual acceptance of the researcher's presence, positioning them as a welcomed outsider engaged in valuable research. Additionally, to overcome initial hesitancy and foster a deeper connection with the community, the researcher interacted with the Supporters of Tiritiri Matangi Island outside of the research context. This proactive approach influenced previous participants to become more receptive to the researcher's presence and prompted them to introduce the research to new individuals. As a result, the researcher's network expanded, rapport was built, and access to additional research participants was facilitated through snowballing. These actions align with Petkov and Kaoullas' (2016) recommendation that employing an intermediary can foster trust and facilitate smoother access to participants, thereby aiding in the researcher's integration into the community and enhancing the research process.

Encounters with participants unveiled dynamics of power and agency, notably through their refusal to participate in the research. However, the researcher saw this refusal as an opportunity to reflect on power dynamics, respecting participants' autonomy to choose their level of engagement. To address potential power imbalances and foster openness from participants, the researcher adopted a grateful and respectful interviewer position, prioritising listening and collaborative dialogue, and valuing participants' perspectives and knowledge. Additionally, interview questions were carefully crafted around their specific roles and expertise, gradually delving into research specifics. This approach built a gentle rapport, inadvertently positioning the researcher as an unthreatening interviewer who acknowledged participants' unique perspectives and empowered them to share openly.

Overall, the researcher navigated the challenges they faced through careful reflexivity, consistently acknowledging and adapting to their evolving positionality throughout the research process. By recognising the significance of their status, background, and perceptions of others, the researcher facilitated more authentic engagement with participants, gained valuable insights

that enriched their understanding of the research context, and paved the way for a comprehensive and insightful data analysis.

3.10 Data Analysis

Data analysis examines, cleans, and interprets raw data to extract meaningful insights, identify patterns, make informed decisions, and draw conclusions. In qualitative research, Saldaña (2015) suggested that data analysis consists primarily of techniques and strategies for formatting, condensing, arranging, and constructing data, codes, categories, themes, assertions, and narratives. As Bernard (2011, p. 338) wrote, analysis is "the search for patterns in data and for ideas that help explain why those patterns are there in the first place." This aligns with Wolcott's (1994, p. 12) analysis definition: "the identification of essential features and the systematic description of interrelationships among them-in short, how things work." Data analysis in qualitative research strives for depth of understanding and thick descriptions of participants' words as they persuade the reader of the trustworthiness of the findings (Patton, 1985). Merriam (2002) wrote that data analysis coincides with data collection, enabling the researcher to make changes along the way and test emerging concepts and themes against accumulated data. Therefore, data analysis started with the first document accessed and the first interview conducted in the study because waiting until data were obtained would mean losing the opportunity to gather more reliable and valid data. Based on these perspectives, it is suggested that finding patterns in data and articulating their relationship are essential elements of qualitative data analysis. Therefore, the data analysis approach employed in this study was thematic analysis.

3.10.1 Thematic Analysis

Thematic analysis is an interpretive approach to qualitative research (Lehmann et al., 2019) as the method recognises patterns within the data, with emerging themes serving as the categories for analysis (Fereday & Muir-Cochrane, 2006). According to Braun and Clarke (2006), this approach minimally organises and presents some level of descriptive patterned response and clear logical meaning. Through this, thematic analysis seeks to discover the reality of data by using interpretations (Alhojailan, 2012). Walters (2016) suggested that this kind of analysis is useful where textual and visual content interpretation is required. The strengths of thematic analysis lie in its capacity to handle such data in a manner that preserves the richness and nuances of the context, as well as in its diagrammatic portrayal of the findings, which provides a valuable framework through which to structure the discussion (Walters, 2016). Therefore, in conjunction with qualitative data, thematic analysis aims to demonstrate the understanding of theory and practice through meaning-making (Lehmann et al., 2019). In tourism research, thematic analysis is valuable as it can unpack inherent cultural and social meanings in a body of

a rich, descriptive written text (Hannam & Knox, 2005). Thematic analysis has been applied to the interpretation of written materials like documents and interview transcripts most frequently in visitor research (Albrecht & Raymond, 2021; Berbekova et al., 2021; Braun et al., 2016; Esfehani & Walters, 2018).

Thematic analysis was the most appropriate analysis method for the document and interview data as the method is flexible in reducing data and allowing theoretical freedom. Mortensen (2021) argued that thematic analysis is a versatile method for explorative studies in which researchers do not have a clear idea of the themes they are searching for. This was relevant to this study, which relied upon documents and the participants' responses, as their statements contributed to answering the research questions about their thoughts and interpretations. Walters (2016) suggested that the case study methodology has shown thematic analysis to be a precise and valid means of analysing tourism text incorporating written and visual elements. As this study used an inductive interpretive approach, the thematic analysis allowed enough flexibility to go back and forth in each phase when a new finding arose, or an adjustment was needed. With thematic analysis, the researcher can constantly move back and forth between the data set, the coded extracts of data that are being analysed, and the analysis of data that are produced through themes to provide a rich and detailed, yet complex, account of the data (Braun & Clarke, 2006; Lehmann et al., 2019). The choice of a thematic analysis approach for this study was driven by its ability to handle the extensive data within the transcribed interviews effectively. This abundance of data directly resulted from the qualitative nature of the interviews, where participants were encouraged to provide detailed responses to open-ended questions. Consequently, some data were not directly related to the main research questions. However, thematic analysis overcame this issue by producing themes from the diverse data that capture essential elements of participants' thoughts and experiences driven by the research questions (Castleberry & Nolen, 2018; Crawford et al., 2008). This is achieved through Braun and Clarke's (2006) six phases of data familiarisation, data coding, theme development and revision, which the researcher for this study followed.

Phase 1: Data Familiarisation

The analysis process was initiated by digitising physical internal documents, extracting text from online sources and photographs of signs, and transcribing recorded interview data. While this process was time-consuming, Riessman (1993) revealed that it can be an excellent way for the researcher to start familiarising themselves with the data and inform the early stages of analysis. This was supported by Bird (2005, p. 227), who argued that it should be seen as "a key phase of data analysis within interpretative qualitative methodology." In addition, transcription is recognised as an interpretive act where meanings are created rather than simply a mechanical act of putting spoken sounds on paper (Lapadat & Lindsay, 1999). The researcher then uploaded

the materials into NVivo, the programme selected to facilitate the analysis, and the first phase of thematic analysis began. This involved the researcher immersing herself in the data by reading and re-reading the documents and interview transcripts, actively searching for initial ideas, and identifying interesting or significant concepts that related to the research questions to the point where she became well-acquainted with the depth and breadth of the content and could verify its suitability for the research.

Phase 2: Initial Code Generation

Once initial ideas had been gained from attentive reading, codes were generated systematically by identifying frequent and essential words relevant to the research questions. Saldaña (2014, p. 3) defined a code as "a word or short phrase that symbolically assigns a summative, salient, essence-capturing, and evocative attribute to a portion of language-based or visual data." Coding is a procedure for dissecting qualitative data that appears interesting to the analyst and can be assessed meaningfully into its component pieces and assigning labels to each element (Braun & Clarke, 2006; Tuckett, 2005). Codes were referred to by Boyatzis (1998, p. 63) as "the most basic segment, or element, of the raw data or information that can be assessed in a meaningful way regarding the phenomenon." According to Braun and Clarke (2006), pre-defined codes may also be used, particularly if document analysis supplements other research methods used in the study. Moreover, the initial codes defined by the data in this step can be eliminated later when confirming significant codes valid for the research objectives and questions (Vaismoradi et al., 2016). During this phase, the researcher actively sought out recurring examples of these coded text segments while exploring connections among different codes to establish the basis for identifying consistent patterns or themes throughout the dataset.

Phase 3: Searching for Themes

In the third step, the analysis was re-focused at the broader level as codes and relevant data collated into different potential overarching themes (Price & Richardson, 2015). A theme, according to Braun and Clarke (2006), captures an essential aspect of the data in relation to the research question and denotes a certain degree of patterned response or meaning within the data set. Auerbach and Silverstein (2003, p. 38) stated that a theme is an extended-phrase or sentence that identifies and functions as a way to categorise a set of data into "an implicit topic that organises a group of repeating ideas." This phase commenced with identifying four overarching, predetermined themes: background, planning, design, and delivery. These themes served as the foundational framework for organising and analysing the data. As the analysis progressed, it became evident that these primary themes encompassed a multitude of sub-themes. Consequently, a series of sub-themes were systematically developed under each primary theme. These sub-themes enriched the depth of analysis and facilitated a more comprehensive

understanding of the data, allowing for a deeper exploration of the factors, processes, and intricacies embedded within the broader domains of background, planning, design, and delivery. This phase ended with a collection of overarching themes and sub-themes, with all data extracts having been coded, and the researcher began to think about the relationship between codes, themes and different levels of themes.

Phase 4: Reviewing Themes

This phase involved reviewing whether the themes and the data set matched by checking if the theme worked with the coded extracts and the entire data set (Vaismoradi et al., 2016). Phase four involved two levels of reviewing and refining themes. For example, during level one, the researcher reviewed the level of coded data extracts for each theme and considered whether they appeared to form a coherent pattern. According to Braun and Clarke (2006), if the candidate themes seem to build a cohesive pattern, the researcher can move on to the second level of this phase. However, if the themes are problematic in the way they do not fit, there needs to be more data to support them, they are too diverse, or if other themes collapse, the researcher must refine them. A similar process is present in level two of phase four but in relation to the entire data set. At this level, the researcher considered the relevance of specific themes to the data set and whether the potential thematic map accurately captured the significance and meanings of the data set as a whole.

Phase 5: Defining and Naming Themes

During this phase, each theme was defined and named, resulting in a clear understanding of the core concept encapsulated by each theme and how it should be effectively conveyed. Braun and Clarke (2006) stated that at this point, defining and refining involves identifying the essence of each theme and determining the aspect of the data the theme best captures. Clarke et al. (2015) suggested that as the thematic coding process was developed to answer the research question, the specific themes should correspond to the research questions. Therefore, to guarantee enough overlap between themes, a detailed analysis of each theme is necessary to determine each theme’s story and demonstrate how it fits into the larger overall story of the data (Braun & Clarke, 2006). These themes encompassed essential elements that played a role in the planning, design, and delivery of environmental education and interpretation on Tiritiri Matangi Island, which is explained further in the Findings and Discussion Chapter (Chapter 4).

Phase 6: Producing the Report

The final phase of the thematic analysis involved writing the report and conducting the final analysis to convey the complex data story to the reader and persuade them of the study’s value and validity. An evidence-based storytelling approach was employed to craft a compelling and

coherent narrative that covered the identified themes and sub-themes. Braun and Clarke (2006) state that the write-up must do more than merely present data. Instead, it must offer sufficient evidence of the themes within the data by including compelling examples through data extracts to demonstrate the prevalence of the theme. This study embraced a hybrid approach for presenting findings, encompassing document analysis and semi-structured interviews. This comprehensive approach allowed for the seamless integration of insights from both data sources to offer a well-rounded and holistic perspective. Bryman (2012) explained that extracts need to be embedded within the analytic narrative and make an argument in relation to the research question and literature relating to the theoretical ideas. Therefore, in line with this guidance, this research incorporated discussions immediately following the presentation of findings as they emerge. This approach ensured that readers could readily grasp the significance and implications of the findings within the context of existing research, fostering a more coherent and insightful understanding of the study's contributions to the field.

3.11 Conclusion

This chapter has underscored the significance of adopting a research framework grounded in the interpretive paradigm, relativist ontology, and intersubjective epistemology. By synergising these philosophical underpinnings with the case study methodology, document analysis and semi-structured interview methods, and thematic analysis, the researcher was equipped with a robust toolkit for exploring the intricate nuances of how environmental education and interpretation was planned, designed, and delivered on Tiritiri Matangi Island. The combination of data collected from documents and the rich accounts of participants allowed the researcher to consider multiple perspectives and interpretations, yielding a diverse array of information that laid the foundation for significant findings, which are presented in the next chapter.

Chapter 4: Findings and Discussion

4.1 Introduction

This chapter presents and explains the findings of the analysis of the relevant documents as well as the perspectives and experiences of the individuals involved in the planning, design, and delivery of environmental education and interpretation on Tiritiri Matangi Island. The chapter unfolds as a structured, evidence-based narrative organised around distinct overarching themes, sub-themes and sub-sub-sub themes. These elements are reinforced with direct participant quotations and document excerpts supporting each thematic exploration. Throughout the chapter, discussion is also provided to accompany the emerging findings, providing a comprehensive interpretation and contextualisation of the results within the backdrop of the existing body of knowledge presented in Chapter 2.

This chapter begins by delving into the overarching theme, "Tiritiri Matangi Island Background," unravelling the island's historical transformation and multifaceted character, public participation and responsibility, ecosanctuary creation and biodiversity restoration, and visitor management and education initiatives. This sets the foundation for the subsequent overarching theme of "Planning," which includes strategic visions and outcomes. Within this sub-theme, a thorough examination of nature conservation, cultural and historic conservation, insight, inspiration, and participation is presented. The planning theme then directs its focus to environmental education and interpretation objectives, featuring an awareness of New Zealand flora and fauna, an understanding of ecological interdependence, inspiring conservation consciousness, and empowering ordinary people in conservation. Finally, the section on planning extends its scope to encompass the target audience considering international visitors, domestic visitors, and children. The chapter then moves into the third overarching theme of "Design," exploring the intricate details of guided tours, including the personal identification and expertise of guides and guide training, alongside the essential concepts of relevance and personalisation, which considers group size, getting to know the group, and being led by the group. Further elements within this overarching design theme encompass school education programmes, signage in various forms such as directional signage, identification signage, and interpretive signage, and interactive displays, ranging from bird feeders and the wētā motel to the tracking tunnel and hihi nesting box. The final overarching theme of "Delivery" is then presented, emphasising immersion in nature and sensory experiences, spanning sight, hearing, touch, and smell. In this final phase, the focus on delivery turns towards storytelling, which includes negative stories and positive stories, role modelling, and encouragement, encompassing book recommendations, digital recommendations, and environmental action beyond the site.

Ultimately, this chapter navigates through a range of overarching themes and sub-themes, as outlined in Table 4, to provide a clear and structured path for understanding the intricate background of Tiritiri Matangi Island and its planning, design, and delivery of environmental education and interpretation.

Table 4. Overarching Themes, Sub-Themes and Exemplary Quotes

Overarching Theme	Sub-Theme	Exemplary Quotes
Tiritiri Matangi Island Background	Historical Transformation and Multifaceted Character	*Tiritiri's got five histories. So, one of them is iwi, then you've got farming, and you've got military, maritime and then conservation.* – Participant G11
	Public Participation and Responsibility	*The fact that we as people have led to the demise, we've kind of got a responsibility to help them get re-established.* – Participant G7
	Ecosanctuary Creation and Biodiversity Restoration	*In the early 80s, a lot of school groups came out, community groups got involved with the planting, and it was a massive job, but you know, 30 years later, you can see the results.* – Participant G6
	Visitor Management and Education Initiatives	*The future challenge for the island's guardians will be managing visitor numbers and safeguarding the magic of wandering amidst birdsong on quiet forest paths.* – Tiritiri Matangi Website
Planning of Environmental Education and Interpretation on Tiritiri Matangi Island	Strategic Vision and Key Outcomes	*We want the island to be a complex, healthy ecosystem, a haven for New Zealand's native species, a place that engages and inspires volunteers and visitors to understand our unique cultural, natural, and historic heritage and to make a difference in their own environment.* – Supporters of Tiritiri Matangi Strategic Plan 2017-2027 *Tiritiri Matangi has a healthy functioning ecosystem serving the needs of advocacy, species protection, species management and education, and as a model nature conservation project.* – Supporters of Tiritiri Matangi Strategic Plan 2017-2027

		Tiritiri Matangi utilises its unique cultural and historic status to be a model project for heritage conservation. – Supporters of Tiritiri Matangi Strategic Plan 2017-2027 *Tiritiri Matangi is a key centre for research, generating knowledge that serves the needs of conservation.* – Supporters of Tiritiri Matangi Strategic Plan 2017-2027 *People are inspired to become advocates for natural, cultural and historic heritage, and seek to make a difference in their communities and environments.* – Supporters of Tiritiri Matangi Strategic Plan 2017-2027 *The Tiritiri Matangi project provides a range of opportunities for people with diverse abilities and personal interests to become involved.* – Supporters of Tiritiri Matangi Strategic Plan 2017-2027
	The Objectives of Environmental Education and Interpretation on Tiritiri Matangi Island	*A lot of them aren't aware of it. They just see what's on the mainland and assume that that's what has always been there. And, of course, it isn't. And that is very important.* – Participant G1 *The birds need the trees, and the trees need the birds and the insects and the lichens and everything else are in there somewhere. And the importance of behaving in a way to not inadvertently change the balance of those things.* – Participant G5 *It's mainly getting people to be concerned and the advantages of preserving it and then the need to preserve it.* – Participant G1 *I want people to realise that as an ordinary person, just as somebody with no particular knowledge of any of this, we can make a difference.* – Participant G3

	Target Audience	*If there are people that are from another part of the world, they have very little background about New Zealand's ecological background and history…If you've got someone from overseas, it's completely different because you've got to start at a different base level.* – Participant G8 *We got a lot of New Zealanders, and I found that really fabulous because they had a base knowledge. And then you could work on that and build on that.* – Participant G8 *I feel that it's important to inspire, particularly the younger ones, to get them to understand the importance of preserving what we've got and also restricting the use of a lot of things such as plastics.* – Participant G1
Design of Environmental Education and Interpretation on Tiritiri Matangi Island	Guided Tours	*I get allocated a number of people and a route to take the people on, which starts at the Wharf and ends at the Visitor Centre on top of the Island next to the Lighthouse.* – Participant G3 *Some people like to explore the island by themselves, and that's fine, but they sometimes miss out if they don't have a guide, so having that one-on-one, you know, is really good for people.* – Participant G6 *I'm just a guide, but there are a lot of people with the Tiri story that have been in that mindset for such a long time, and it's like, I'm picking that up and carrying it forward.* – Participant G8 *Guides never stop learning about the Island, about themselves and their abilities, about their visitors and how best to engage them. Our training is designed, not only to give you initial training as a guide, but also to provide ongoing opportunities to develop your skills and learn.* – Supporters of Tiritiri Matangi Guiding Manual

		I also relate it to their own lives because I sometimes find kids that have come from rural areas or farming areas; they actually do understand pest control and things like that. So, I like to make them feel like they know this stuff as well and how we can use those tools, those skills, to actually preserve what we've got. – Participant G8 *I think we all owe it to the people that we're guiding to keep current, to be up to play with what's going on with the intentions of the organisation and to weave that, it's woven into the stories about what's going on.* – Participant G2 *DOC specify that there should be no more than 120 guided visitors (our clients) per day…that group size should be no more than 12.* – Supporters of Tiritiri Matangi Guiding Manual *I think that it's finding out what it is that they know, who they are, what they want, what they are interested in and responsiveness.* – Participant G2 *We try and be led by the people. So, we sort of go with what they're interested in.* – Participant M1
	School Education Programmes	*My part of the guided walk is only part of the educational programme. Very often, the educators will add on to that after we've finished. So, we're like the introduction, and then they will go into more depth.* – Participant G8 *You've got those two different branches of it: you've got conservation work, but you also have the whole sustainability branch. Yeah, like with older kids, you can talk a lot about sustainability and the impact of humans living in an environment and things like that.* – Participant G13
	Signage	*There's the directional signs which DOC put in to tell*

		you where to go, so you're not going to get lost. – Participant G14 *A lot of the trees are identified along the tracks, particularly the Wattle Track.* – Participant G5 *In the Visitor Centre, there's quite a lot of interpretation which gives the history of the island, as well as quite in-depth information about each of the different birds.* – Participant G14
	Interactive Displays	*The feeders are fantastic to get the children engaged and understanding the difference between a hihi and a korimako and, the way in which they behave and why they're calling as they are. It's a terrific behavioural interaction and observation.* – Participant G15 *The 'weta house' on the Wattle Track provides an opportunity to talk about the tree weta and sometimes giant centipede.* – Supporters of Tiritiri Matangi Guiding Manual *We call them teaching points, you know, you'll get the tracking tunnels that have some sample cards in, and you say, well, 'These pest cards were from over the water at Shakespeare, and they did have pests; they don't now.'* – Participant E2 *It's a very easy way of showing how the hihi nest, where we've got the demonstration nest, and that always gets interest from the children in particular. And they learn about, you know, eggs and all sorts of things like that.* – Participant G12
Delivery of Environmental Education and Interpretation on Tiritiri Matangi Island	Immersed in Nature	*You're actually in the environment…, you're experiencing the environment. It's not a screen; you're in it* – Participant M1 *…Enlarging people's understanding of environmental things and to be walking in the bush with the trees and*

		the birds around you, I think it's the ideal situation to be pointing all the things out. And the different types of trees and berries and everything else. – Participant G12
	Sensory	*I just want people just to observe, you know; I try not to talk too much.* – Participant G6 *I've got a book that's got a lot of the pictures of the flowers and things that they could see at the time that they're flowering or the berries and the different trees, but also the birds, all the birds that we are likely to see, I have got photos of all of them and can display them as required.* – Participant G12 *I've got little models in my kit like a little mini tuatara or a wētā, so if we don't see it in them in the bush, you know, I've got something to show them.* – Participant G6 *On my guides, I like to have at least one time where everybody is just quiet for a couple of minutes. And with kids, it's great if you can get them to close their eyes and count the number of bird songs. But always, in one of my guides, we'll have a period where we will all just simply sit down and not say anything and just listen. Yeah, that's one thing I always do.* – Participant G10 *They say, "I forget. Tell me something, and I'll forget it." You know, and "If you involve me and touch things, then I'll remember." And so, it encourages memory.* – Participant G14 *I've got a little cup in my bigger backpack, which I call the smelly cup. And, you know, sometimes we put a whole lot of different leaves, like kawakawa leaves, that are lying on the ground and stir it around, and everybody smells it to smell what it's like.* – Participant G2 *Well, you don't just talk. You touch things, you smell*

		things, you listen to things, you look at things at a distance, and you know, the views. So, it's not just what you're saying; it's the whole experience of being there, if you like, you know if you're trying to stimulate all of the senses rather than just listening. – Participant G14 *Use all your senses…because all those sorts of cues that you can use.* – Participant G8
	Storytelling	*I want to emphasise that we don't need to be too much fact. We have to really build stories and engagement.* – Participant G15 *I think there's a lot in the way I do my stories, which gets them to feel really caring towards the birds and the bush, and then in that process, they start to feel, "Oh, we need to do that."* – Participant G15 *I don't want to depress them; It's such a fine balance between telling them... Yeah, I think it's talking more about success stories…* – Participant G11
	Role Modelling	*I believe that if people see rubbish, that gives them permission to drop rubbish and if there's no rubbish around, there's just that little, tiny thing that goes off in the brain that "Maybe I shouldn't drop rubbish here," but if they see rubbish, then they, "Oh well someone else has dropped rubbish so it's okay for me to drop rubbish."* – Participant G3 *We can't say, "Save all the birds," and got every single item in our lunchbox wrapped up in Glad wrap that's going straight to landfill when they get home.* – Participant G11
	Encouragement	*If I see that they're really interested I will tell them about books that you can read that will tell you all this.* – Participant G3 *There's also things you can look up on the computer, and it'll give you different stories about conservation*

		and YouTube... – Participant G3 *I introduce people to a couple of apps. The iNaturalist app and New Zealand Birds online app to show that they can get far more information on that.* – Participant G5 *It's a model, and you can apply it to a small extent in your own garden, like have a rat trap, check for stoats and things; if you've got cats and dogs, how are you making sure they're not...how you are managing them?* – Participant M1 *I suggest groups that do actively participate, like the Forest and Bird, which are pretty active around Hibiscus Coast.* – Participant G7

4.2 Tiritiri Matangi Island Background

Before delving into a detailed exploration of the planning, design, and delivery of environmental education and interpretation on Tiritiri Matangi Island, it is beneficial to examine the island's background first. This examination provides valuable insights into the island's history, the involvement of the public, the conservation efforts, and the transition towards a more visitor-focused approach. Such a comprehensive overview provides a vital contextual foundation, ensuring that the subsequent discussions are firmly rooted in understanding the island's unique journey and various elements that have shaped it into an ecological conservation and sustainability model.

4.2.1 Historical Transformation and Multifaceted Character

Assessing all the responses, it was evident that Tiritiri Matangi has lived many lives, including a prime fishing site for early Māori inhabitants, a sheep and cattle farm, a military base, and a wildlife sanctuary. Participant G11 acknowledged that Tiritiri Matangi Island has five distinct histories.

> *Tiritiri's got five histories. So, one of them is iwi, then you've got farming, and you've got military, maritime and then conservation.* – Participant G11

These histories allow visitors to experience different aspects of the island's character, providing a multifaceted and enriching journey that spans various time periods, cultural influences, and historical narratives. Whether focusing on indigenous heritage, colonial history, or modern conservation efforts, the varied historical facets provide a robust foundation for crafting versatile and immersive educational and interpretive experiences. By blending ecological narratives with historical contexts, a broad audience, from history enthusiasts to nature lovers, can connect with the island's past and present, fostering greater awareness. This inclusive approach expands knowledge for visitors and contributes to more informed and environmentally conscious communities. This is because the five histories diversify education and interpretation, offering a spectrum of topics to engage visitors based on their interests and preferences. This finding aligns with discussions on the variety provided at destinations, generating added value and choices by accommodating a broader spectrum of visitor interests and motivations (Brouder & Eriksson, 2013; Government of Northwest Territories, n.d.). This multifaceted approach ensured that Tiritiri Matangi Island visitors found their desired options (Jessup et al., 2009) and increased the likelihood of return visits to explore uncharted aspects of the destination (Barroso et al., 2007; Jang & Feng, 2007; Niininen et al., 2004). Ultimately, a long-lasting connection was fostered between visitors and the destination while continuously deepening their appreciation for its rich history and ecological wonders.

4.2.2 Public Participation and Responsibility

From these lives, it was found that Tiritiri Matangi Island had a long history of anthropogenic degradation, from Polynesian deforestation during their colonisation of New Zealand to European pastoral farming practices that continued from the 1850s until 1971 when the farm lease was withdrawn, leading to the island's abandonment. In response to this prolonged degradation, the island was designated a recreation reserve and left to regenerate. However, according to scientists John Craig (zoologist) and Neil Mitchell (botanist) from The University of Auckland, New Zealand, natural regeneration was estimated to take several lifetimes. Therefore, they advocated a proactive strategy involving public participation in community conservation, acknowledging the responsibility of people in restoring the island (Tiritiri Matangi, 2021b). Participant G7 emphasised the importance of enlisting the public in the island's restoration, stating:

> *The fact that we as people have led to the demise, we've kind of got a responsibility to help them get re-established.* – Participant G7

This statement emphasises the ethical dimension of public participation; Participant G7 explained that since human activities were instrumental in causing the decline of the island's ecosystem, people have a moral responsibility to participate actively in its recovery. This aligns with the broad concept of environmental stewardship, which suggests that humans should take

responsibility for safeguarding the environment and repairing the damage they have caused. Therefore, the entire restoration project, grounded in scientific research, centred around the voluntary involvement of the public. In response, John and Neil envisioned an open sanctuary with people at its core. Their goal was to foster a shared sense of responsibility by promoting public access through ferry rides or private boats and by encouraging active participation in the growth and continuous improvement of the sanctuary. This approach led to the meaningful involvement of both scientists and everyday individuals in the project, as highlighted by Participants G3 and G6:

> *This island was the first place where the public were ever allowed to become involved because before this island, it was "Oh no, we're the scientists" or "We're the wildlife service, we'll sort these things out. You just go about your normal daily tasks." And this was the first place where they said, "No. We can get people involved."* – Participant G3

> *It's an island that was generated by volunteers. They weren't all scientists and engineers and farmers and arborists; they were electricians and housewives and students and unemployed people.* – Participant G6

These statements demonstrate that Tiritiri Matangi Island experienced a ground-breaking shift in the involvement of the general public by departing from the traditional approach in which professionals and scientists primarily handled conservation efforts to embracing the idea that people from diverse backgrounds could also become involved. This supports Albrecht et al.'s (2022) comment that community groups are generally the driving force behind establishing protected areas and contradicts Campbell-Hunt and Campbell-Hunt's (2013) argument that government regulation and support primarily propel such initiatives. This shift was also significant, strengthening relationships between the public and scientific communities and expanding ecological knowledge beyond professional and academic spheres.

4.2.3 Ecosanctuary Creation and Biodiversity Restoration

In 1980, John and Neil's vision was realised when the island was designated as an open sanctuary. Following this designation, the World Wildlife Fund provided funding to establish a nursery in 1982, which paved the way for the human-assisted ecological restoration project in 1984. According to the Department of Lands and Survey (1982) and Craig et al. (1995), the initial volunteers wanted to provide a habitat for a range of pre-existing threatened flora and fauna and to allow public access to view such threatened species. The restoration goals focused on extending and enhancing the pre-existing flora through revegetation, fauna through translocations and the control of invasive species, and creating a replacement ecosystem of Tiritiri Matangi (Department of Conservation, 1995; Department of Lands and Survey, 1982; Hawley, 1997). This was echoed by Participant G1, who highlighted the unique idea of Tiritiri Matangi Island's mission to rejuvenate the natural environment.

Tiri was the first place in the world to plant with the idea of restoring nature. – Participant G1

Tiritiri Matangi Island is considered an ecosanctuary, as individuals and groups have strived to safeguard and rehabilitate the island (Campbell-Hunt, 2014). This finding aligns with the principles of ecological restoration as outlined by various scholars (Atkinson, 1988; Hobbs & Norton, 1996; Mitchell & Craig, 2000; Norton & Miller, 2000; Reay & Norton, 1999; Ruiz-Jaen & Aide, 2005; Simberloff, 1990; Society for Ecological Restoration International Science & Policy Working Group, 2004), as the goals involved restoring the biotic community of Tiritiri Matangi Island to its former state. However, this ambitious initiative encountered scepticism and opposition at the outset of the project, as pointed out by Participant G6:

At the beginning, it was quite difficult for the people that wanted to get it going, and people were negative about it, but we had this persistent group of people who just kept saying it can be done, and then lots of the community got on board, and here we have it today. – Participant G6

Although this quote emphasises the project's initial challenges and resistance, it also articulates the crucial role played by a persistent group of dedicated individuals who had maintained their belief in the project's potential and were instrumental in overcoming its initial obstacles. This aligns with Innes et al.'s (2019) argument that ecosanctuaries are viewed as considerably more of a social than a biological network, as ecosanctuary communities discuss shared problems and successes to foster a sense of collective responsibility and deepen their connection to conservation efforts. Subsequently, to expedite the slow natural regeneration of the island, a robust team, affectionally known as the "spade brigade," initiated the restoration programme with replanting in 1984. As the years passed and the level of volunteer involvement grew, there was a growing apprehension regarding potential funding reductions. This led to a significant development in 1988 when the Supporters of Tiritiri Matangi, a sizable volunteer organisation and community group, was established to ensure the continuation of the programme by funding new vehicles and equipment to support planting and assist in the further development of the open sanctuary to inspire new generations of conservationists. Therefore, the Supporters' role was precisely one of support, primarily and formally supplementing the administering authority's input to the island's development and management. The formation of this group is considered necessary, as Peters et al. (2015) argued that resource management agencies are increasing their reliance on community groups to enhance conservation outcomes. This is because, in New Zealand, community organisation groups engaged in restoration initiatives generally consist of volunteers (Hardie-Boys, 2010). Their active involvement and cooperation are fundamental principles underpinning effective group operation (Murphree, 1994). Therefore, this type of organisation contributes to the essential foundation of the predominantly volunteer-driven endeavour to restore biodiversity, safeguard habitats, and promote the well-being of native species. By 1994, a substantial number of 280,000 trees had been successfully

planted due to the collective work of thousands of volunteers, with crucial backing from The Supporters of Tiritiri Matangi and in coordination with the Department of Conservation (Tiritiri Matangi, 2021c). According to Participant G6, the planting efforts by young and old volunteers had a positive outcome.

> *In the early 80s, a lot of school groups came out, community groups got involved with the planting, and it was a massive job, but you know, 30 years later, you can see the results.* – Participant G6

This finding reflects that community-based participation is vital to successful ecosanctuaries (Asia Pacific Economic Cooperation Tourism Working Group, 2010; Murphy, 1985). As a result of these efforts, specimens of New Zealand's rare and threatened native wildlife were gradually reintroduced to Tiritiri Matangi Island, many of which flourish on the island today thanks to its transformation into a pest-free sanctuary achieved through the successful eradication of the Pacific rat in 1993. This aligns with the perspective of Campbell-Hunt and Campbell-Hunt (2013), who posited that small-scaled protected areas are created to function as mainland islands for endangered species. This also resonates with Innes et al.'s (2019) assertion that the primary objective of most contemporary New Zealand ecosanctuaries is to limit or prevent the reinvasion of invasive pest mammals while reducing their population. This was vital since Eason et al. (2017) noted that New Zealand has the world's highest proportion of threatened bird species. Many participants were adamant that many species have been protected and have prospered due to public participation in pest control.

> *You have a beginning of almost hopelessness, and then, by people's participation, you've saved that species.* – Participant G3

> *Like, sometimes you've got people coming back who say they were here in the early planting stages and then just going into the forest being surrounded by all the birds.* – Participant G13

Together, these findings highlight the significance of community-driven conservation in recovering bird species. They demonstrate that people's active participation, whether through planting trees or engaging in pest control, can be instrumental in reversing the decline of bird populations and fostering the revival of healthy bird communities. The positive shift from hopelessness to the joy of being surrounded by birds exemplifies the impact of conservation work on saving and nurturing bird species in their natural habitat.

In doing so, the island cultivated a population mirroring its original inhabitants, providing a sanctuary for precious species like kōkako, tīeke and tuatara, which are rarely found elsewhere in the Auckland region (Tiritiri Matangi, 2021d). This achievement is a testament to the island's successful conservation efforts and creates a distinctive opportunity for visitors to engage with the region's biodiversity. This was highlighted by Participant G3, who emphasised that visitors

are drawn to the island due to the unique chance it provides to observe bush birds that are scarcely seen elsewhere.

> *Most people come to this island because it's one of the few places where you can see bush birds that you will not find anywhere else.* – Participant G3

4.2.4 Visitor Management and Education Initiatives

While the initial objectives of the original plan, which aimed to create a habitat for threatened and endangered species while offering natural recreation opportunities, had been achieved to some extent, the Supporters of Tiritiri Matangi shifted their focus. They transitioned from primarily managing a voluntary labour force to managing the island's biodiversity, visitor experiences, and infrastructure. Due to space limitations on Tiritiri Matangi Island and some species reaching their capacity, the Supporters took on the task of translocating birds to seed populations in newly established ecosanctuaries. This relocation effort served a dual purpose as it provided a safe habitat for at-risk species and an essential tool for advocacy and education. This is because it allowed for a tangible and compelling demonstration of how dedicated efforts can substantially impact preserving endangered species and restoring ecosystems in the broader region. Additionally, the Supporters recognised the potential of tourism in funding ongoing species recovery and habitat programmes. This aligns with arguments made by Albrecht et al. (2021) and Reimer and Walter (2013), emphasising the importance of articulating the financial benefits of entrance fees and voluntary donations at ecotourism destinations as such contributions play a vital role in ensuring the long-term sustainability of conservation efforts and instilling a sense of ownership among visitors.

As the focus shifted towards encouraging visits to Tiritiri Matangi Island and its popularity grew, there was a significant boost in visitor numbers and school visits. In response to this growth, the Supporters initiated efforts to elevate the island's facilities, enrich educational and tourism offerings and amplify public awareness regarding the open sanctuary's role. The Supporters funded, installed, and maintained a range of interpretive signage geared toward educating visitors about the island's diverse flora and fauna and constructed a Visitor Centre that serves as a hub for information and discovery for island visitors, containing engaging displays that provide valuable insights into the island's unique natural features and rich history. The Supporters also organised an extensive programme of guided walks for visitors that involved the active participation of over 200 volunteer guides. To ensure the longevity of their conservation endeavours, the Supporters also established and managed an on-island store while reinvesting all its profits into the project. Building upon these achievements, they formulated a strategic plan to ensure the continued sustainability of their conservation efforts, enhance visitor experiences, and expand educational outreach initiatives.

This transition from a primary focus on ecological restoration and offering natural recreation opportunities to placing a stronger emphasis on visitor management, environmental education, and conservation was a pivotal step. The Supporters recognised conservation's evolving needs and responsibilities, acknowledging the delicate balance between safeguarding fragile ecosystems and involving visitors in meaningful ways while providing environmental education. This aligns with Zhang et al.'s (2018) claim that ecosanctuaries must guarantee the regular operation of ecological restoration programmes while providing visitors with quality experiences and education through visitor management.

In summary, Tiritiri Matangi Island's historical journey showcases a remarkable transformation from a site of degradation marked by diverse historical facets into a thriving sanctuary, highlighting the power of collective efforts and community involvement. The shift towards prioritising visitor management, education, and conservation was a pivotal step in ensuring the island's sustainability, laying the groundwork for a deeper investigation into the planning, design, and delivery of environmental education and interpretation initiatives on the island.

4.3 Planning of Environmental Education and Interpretation on Tiritiri Matangi Island

The findings indicate that the planning of environmental education and interpretation on Tiritiri Matangi Island included considerations related to its overarching strategic goals, environmental education and interpretation objectives, and the target audiences it intended to engage with.

4.3.1 Strategic Vision and Key Outcomes

The Supporters of Tiritiri Matangi Strategic Plan 2017-2027 helped gain in-depth knowledge of their vision for the island and its desired outputs, their mission of developing the island in partnership with other stakeholders, and the five areas of activity that were being undertaken to achieve the key outcomes of the Island by 2027.

It emerged from the data that the Supporters' vision for Tiritiri Matangi was to create an environment on the island that is diverse and sustainable. Moreover, they hoped to preserve New Zealand's native species and cultural heritage while inspiring visitors to learn and take action to protect their own environment.

> *We want the island to be a complex, healthy ecosystem, a haven for New Zealand's native species, a place that engages and inspires volunteers and visitors to understand our unique cultural, natural, and historic heritage and to make a difference in their own environment.* – Supporters of Tiritiri Matangi Strategic Plan 2017-2027

This reflects an understanding that conservation efforts extend beyond protecting native species; they also foster a deep connection between people, the environment, and cultural heritage. The importance of showing respect towards the natural and cultural heritage of Tiritiri Matangi Island was also an apparent vision, as the Supporters valued taking care of the Island as *kaitiaki* (stewards) and inspiring visitors to share the same commitment.

> *As kaitiaki/stewards of Tiritiri Matangi, we share our commitment to respecting the mauri/life force of te taiao/the natural world, and the tikanga/customs and heritage of the people and environment that we serve. We value growth in our abilities to inspire visitors and kaitiaki alike with a collaborative and inclusive culture.* – Supporters of Tiritiri Matangi Strategic Plan 2017-2027

This concept of being kaitiaki of Tiritiri Matangi Island reflects a deep cultural respect for this island and a holistic view that recognises the interconnectedness of nature and culture.

In the same way, Participant M1 expressed the hope that individuals from both current and future generations will be inspired to participate in conservation efforts and to value and respect the unique natural treasures of New Zealand. They also believed that these treasures were of great importance and, therefore, worth protecting for the benefit of all.

> *We're (The Supporters) hoping that the next generation of people, well this generation and the next generation, are really inspired to be involved in conservation and to really treasure and respect our taonga [treasure] in New Zealand and to realise that they are a special treasure.* – Participant M1

It was also found that the Supporters envisioned Tiritiri Matangi as a benchmark for sustainability and management in partnership with the Department of Conservation, iwi, and other stakeholders, encompassing five key activity areas.

> *SOTM's mission is to develop Tiritiri Matangi, in conjunction with DOC [Department of Conservation], iwi and other stakeholders, as a model of sustainability and management by working across five main areas of activity: (1) protecting and conserving New Zealand's wildlife (nature conservation), (2) protecting and conserving New Zealand's cultural and historic nature conservation (cultural and historic conservation, (3) supporting research appropriate to the Island (insight), (4) educating and inspiring visitors and other interested parties (inspiration), and (5) providing opportunities for people to be involved (participation).* – Supporters of Tiritiri Matangi Strategic Plan 2017-2027

This was an encouraging finding, contrary to Murphy's (1983) argument that many tourism objectives are directed towards business interests and economic growth. Instead, these objectives illuminate the Supporters' commitment to achieving the highest conservation and environmental management standards. This reflects the shift demonstrated by various academics from an emphasis on economic considerations to include community perspectives (Gunn, 1988; McIntosh & Goeldner, 1990) and environmental aspects such as the protection of resources (Gunn, 1988) and the reduction of adverse impacts (Mill & Morrison, 1985). Furthermore, the

Supporters prioritised collaboration with various stakeholders, demonstrating a willingness to work collectively for more effective and comprehensive results in conservation. This was reflected in Participant G5's view that the island's successful transformation from a pest-ridden environment to a thriving ecosystem was a testament to the power of collaboration and innovation.

> *The positive relationships that exist between the Supporters and DOC, the university, and, to some degree, local Māori is a model that other people could learn from.* – Participant G5

This reflects Drumm and Moore's (2005) recognition that a destination must offer guidance through stakeholder engagement for ecotourism to realise its full potential and generate sustainable benefits. It also supports Inskeep's (1987) argument that planning must be coordinated at the national, regional and local levels to effectively address the multifaceted challenges and complexities of sustainable development and environmental conservation.

The positive relationships between these groups were instrumental in the project's success and served as a reminder of the importance of cooperation in achieving common goals, especially concerning conserving nature. This also suggests that the Supporters were not solely focused on short-term gains but also dedicated to ensuring the island's ecological health and vitality for future generations through its five key outcomes: (1) Nature Conservation, (2) Cultural and Historic Conservation, (3) Insight, (4) Inspiration, and (5) Participation.

4.3.1.1 Nature Conservation

The data indicated that Tiritiri Matangi Island strongly emphasises nature conservation, aiming to protect and conserve New Zealand's wildlife. Efforts involved nurturing a thriving and diverse ecosystem that serves various purposes for its inhabitants, volunteers, and visitors and serves as an example for others to follow throughout New Zealand and the world.

> *Tiritiri Matangi has a healthy functioning ecosystem serving the needs of advocacy, species protection, species management and education, and as a model nature conservation project.* – Supporters of Tiritiri Matangi Strategic Plan 2017-2027

The first part of this outcome focuses on a healthy functioning ecosystem. According to Lindsay et al. (2009), the Tiritiri Matangi ecosystem broadly represents the Inner Gulf Island Ecological District. It comprises a diverse range of interacting plant and animal species known or believed to have existed on the island or neighbouring islands of the Hauraki Gulf Marine Park before human modification (Waitangi Tribunal, 2001). While this cannot be a pure ecosystem due to the legacy of human modification, these elements were used to fulfil a set of guiding principles for future conservation efforts on the island. This resulted in the subsequent aspect of this objective, centred on serving the needs of advocacy, species protection, species management

and education. For example, while the island's resident avian and plant species would not have been part of a pre-human Inner Gulf Island ecosystem, they are essential as they need sanctuary on a pest-free island, so their presence is part of a wider management programme in which the island participates, and they fulfil an advocacy and education function. The Supporters of Tiritiri Matangi Strategic Plan 2017-2027 revealed that the main principles guiding conservation activities on the Island are sanctuary, species management, protection, advocacy and learning. The Supporters considered it appropriate that the island provides sanctuary for particularly rare or endangered flora and fauna through its pest-free nature, as it plays a role in wider conservation and management programmes that need permanent or temporary safe havens for species or populations under threat elsewhere. Following these guiding principles is necessary if Tiritiri Matangi remains free of destructive pests and diseases by controlling invasive weeds and adhering to biosecurity measures. Consequently, a significant focus of Tiritiri Matangi has been on managing its many visitors to minimise the risk of visitor impact through fires, unwanted introductions, and trampling. This reflects the hard visitor management on the island, as strict protocols are enforced to safeguard its delicate ecosystems (Kuo, 2002). Most participants explained that this involves adequately informing visitors of these measures or rules and encouraging compliance. For example, Participant G4 indicated that upon arrival to the island, visitors were greeted by the Department of Conservation Ranger, who provided important information about the rules and regulations of the island, as well as tips for staying safe and protecting the local wildlife.

> *When we arrive on the island, the ranger gives the talk, giving the rules and regulations of the island and information about how to keep themselves safe and the wildlife safe.* – Participant G4

When asked how visitor management was demonstrated on the island, Participant G12 explained that they received a thorough biosecurity briefing to ensure they did not inadvertently introduce harmful pests or diseases. Visitors were asked to clean their boots and ensure that their belongings were free of any unwanted pests and reminded to stay on the designated tracks to avoid disturbing the natural habitat of the island's flora and fauna. By following these guidelines and taking a pack-in, pack-out approach to their visit, visitors helped protect the island's unique ecosystem for future generations.

> *Visitors get some biosecurity information. So, we make sure that when they come onto the island, they've cleaned their boots, and they've got everything zipped. They also get a biosecurity briefing, so they're asked if anything creeps or crawls out of your bag…and then from there, it's very much a pack in, pack out. So, the only thing we say is they walk on the tracks, and we ask them not to go off the tracks. And so that's kind of the way we manage it so that the homes of the indigenous flora and fauna aren't, I guess, impacted too much.* – Participant G12

The Supporters of Tiritiri Matangi Guiding Manual explained that guides were responsible for reinforcing the Ranger's key messages and should lead by example, setting a standard for others to follow.

> *…it is part of our role as guides to reinforce this message and to ensure that we ourselves abide by it.* – Supporters of Tiritiri Matangi Guiding Manual

These findings closely align with the principles outlined in the New Zealand Environmental Care Code (Ainge et al., 1991) because the biosecurity briefing promotes responsible and sustainable behaviour among visitors on Tiritiri Matangi Island. The biosecurity briefing played a vital role in preventing the introduction of non-native species to the island, which aligns with the Environmental Care Code's emphasis on protecting indigenous flora and fauna by avoiding the spread of invasive plants and animals. Therefore, by educating visitors about the importance of checking their belongings for potential biosecurity risks and adhering to strict measures, the code promotes responsible behaviour that aligns with the island's nature conservation outcome. Additionally, the Environmental Care Code encourages visitors to respect the environmental and indigenous cultural values. The briefing goes beyond prevention to fostering a sense of responsibility and stewardship among visitors. Hence, emphasising the significance of the island's unique ecosystems and cultural heritage in the biosecurity briefing encourages visitors to participate actively in conservation efforts. Overall, integrating the New Zealand Environmental Care Code into Tiritiri Matangi Island's visitor management strategies enhances the island's ecological protection and advances the broader mission of promoting responsible and sustainable outdoor experiences.

It was also found that species are essential to the island, as they fulfil an advocacy and educational function. In this context, advocacy means directing public attention to and instilling respect and concern for general conservation and particular species' plight. It emerged from the data that Tiritiri Matangi performs an advocacy role by enabling visitors to experience some of New Zealand's most endangered wildlife in natural, though managed surroundings, and interactive displays (Section 4.4.4). The presence of particularly rare or nationally endangered species on the island provides the opportunity to draw attention to their plight nationally, as it is difficult for people to see them elsewhere. In such cases, the Supporters considered advocacy sufficient justification for a species' presence on the Island. It was also discovered that Tiritiri Matangi is seen as a centre for learning about New Zealand's native flora, fauna, and ecology through the island's guided tours (Section 4.4.1), school education programmes (Section 4.4.2) and signage (Section 4.4.3).

Therefore, by maintaining a healthy, functioning ecosystem modified to serve the needs of species protection, species management, advocacy and education, Tiritiri Matangi is considered a model for best practice in nature conservation as the project sets the highest possible standards

for others to follow. This aligns with the views of many authors because Tiritiri Matangi Island's ecological restoration has served as a model for several other, more extensive community-based restoration programmes in New Zealand and worldwide (Hartley 1997; Norton 2009; Parker, 2008; Rimmer, 2004; Sutherland 2000; Weihong & Clout 2006). The strategic outcome of nature conservation on Tiritiri Matangi Island involves establishing a thriving and exemplary ecosystem that effectively serves the needs of species protection, species management, advocacy and education, making it a model nature conservation project that inspires and guides similar efforts worldwide.

4.3.1.2 Cultural and Historic Conservation

Leveraging its rich cultural and historic heritage, the second key outcome aimed to establish an exemplary model for heritage conservation by showcasing the island's unique attributes as a guide for future projects.

> *Tiritiri Matangi utilises its unique cultural and historic status to be a model project for heritage conservation.* – Supporters of Tiritiri Matangi Strategic Plan 2017-2027

Tiritiri Matangi's historical and cultural significance attracts international and domestic visitors annually, offering an ideal heritage preservation and display setting. This was crucial because Participant E1 felt many visitors overlook the island's rich cultural and historical significance.

> *Somebody said we haven't got a very long history. I said, you know, "Yes, we have. Just add in the six to eight hundred years of Māori presence." People forget that, and that is all sitting here…We're sitting on a huge amount of cultural heritage here, indigenous.* – Participant E1

According to many participants, to address this issue, they used *te reo* (language) Māori in their communications, especially with international visitors, to showcase New Zealand's unique cultural heritage and promote a deeper understanding and appreciation of Māori language and culture.

> *I also try and incorporate the Māori names for the plants and the birds if I know them.* – Participant G3

> *I'll usually give both the Māori name and the common name for whatever we're talking about.* – Participant G5

This was also reflected by Participant E2, who explained that they incorporated te reo into their communications with visitors to encourage people to reflect on the importance of Māori language and culture.

> *We're using the best of te reo and tikanga [customary practices], all those things can offer us to impart to people who visit, and they'll go away thinking, "Oh, that was a*

> *neat story. I see that, and I can see why Māori did that in that particular way."* – Participant E2

Guides told stories related to Māori practices on the island, but only with the explicit permission of the iwi. For example, Participant G6 commented, "*There's some really cool stories about how the karaka berry was used as a food source by the Māori because they didn't have any carbohydrates, and so they deliberately planted those trees."* However, many participants observed that while iwi and the Māori culture were acknowledged, these were their stories to tell.

> *We acknowledge the iwi, but it actually is their stories to tell. So, we try and use te reo as much as we can, and we acknowledge the different iwi that have been on the island. But at the moment, we feel like we need specific permission from iwi to tell those stories. So, we have permission for some of the stories, and we do tell those* –Participant M1

> *…in the oral stories are with each iwi they will have them, and it's up to them, you know, sharing with us.* – Participant E1

This was also demonstrated in the Supporters of Tiritiri Matangi Guiding Manual, which stated that on cultural matters, guides *"should not provide information or interpretation on matters of concern to iwi without first consulting them."*

These findings recognise Chang et al.'s (2018) argument that successful ecotourism development should prioritise the perception of the indigenous community to establish a respectful and feasible relationship while avoiding adverse effects on other local communities and ecosystems. Additionally, they align with the views of academics who emphasise placing control of ecotourism initiatives in the hands of the local people (Hunt et al., 2015; Skanavis & Giannoulis, 2010). Overall, this outcome harnesses its unique status and collaborates with iwi to emphasise its human history, infuse cultural elements into its educational programmes, and proudly display its historical assets.

4.3.1.3 Insight

The third key outcome of Tiritiri Matangi Island was insight, which occurs when a person suddenly reinterprets a stimulus, situation, or event to generate a fresh and unique perspective (Kounios & Beeman, 2014). In this context, insight is demonstrated at Tiritiri Matangi as a research hub, producing valuable insights that address conservation requirements.

> *Tiritiri Matangi is a key centre for research, generating knowledge that serves the needs of conservation.* – Supporters of Tiritiri Matangi Strategic Plan 2017-2027

Insight through knowledge can be generated to serve the needs of ecological restoration and education. As the Supporters of Tiritiri Matangi were both partners and leaders in research, the

island provided unique opportunities for ecological, cultural, and historical research, including both practical short- and long-term studies. Therefore, by supporting programmes that concentrate on current and future management, monitoring activities and including the participation of stakeholders, management could understand the island's opportunities and threats, tackle issues appropriately, and inform visitors of this activity. When asked what guides were expected to teach visitors on Tiritiri Matangi Island, Participant M1 said, *"Maybe a little bit about the research on the island."* This was also demonstrated by Participant G3, who explained that one of their main aims when taking visitors around was to explain *"how we've researched a lot of these birds for the first time when they've come to this island ever. People have come to the island and done research on it."* Other participants mentioned ongoing research projects to visitors, highlighting the dynamic nature of knowledge and the chance for visitors to interact with researchers for increased understanding.

> *There are people doing things on the island all the time, so that research is ongoing, that knowledge base that we have is ongoing.* – Participant G8

> *You can't just go and interview the bird; you've got to study it and figure out it. So, then, I can bring the connection to the researchers.* – Participant G13

> *Anyone they talk to on the island who's working here it might be a ranger; it might be a researcher. There's all sorts of ways to gain from their visit to understand a bit more.* – Participant E2

These findings reflect the integral role of research and researchers in enhancing the visitor experience and promoting environmental education on Tiritiri Matangi Island. For example, the first quote reveals that the presence of researchers conducting studies on the island consistently contributed to expanding the knowledge base about the island's ecosystems and wildlife, which was crucial for keeping the information provided to visitors up-to-date and accurate. The second quote stresses the importance of in-depth research in establishing a solid connection between visitors and the island's unique biodiversity, which enhances the educational aspect of a visit. Finally, the third quote emphasises that the island offers a range of ways for visitors to learn and appreciate its ecological significance as they can engage with researchers and gain insights during their visit. These findings underscore the symbiotic relationship between research and visitor engagement on Tiritiri Matangi Island. Therefore, acknowledging research on the island is crucial to provide visitors with insight into its ecological significance, fostering a deeper appreciation for its unique biodiversity and essential role in conservation.

4.3.1.4 Inspiration

Inspiration was the fourth key outcome and is a state of motivation that drives a person to transform a newly obtained idea into action (Thrash et al., 2014). Visitor inspiration is a motivational state that drives visitors to realise consumption-related new ideas (Böttger et al.,

2017; Dai et al., 2022). Inspiration in the context of Tiritiri Matangi involved inspiring visitors to become advocates for natural, cultural and historic heritage and driving them to enact positive change within their communities and surroundings.

> *People are inspired to become advocates for natural, cultural and historic heritage, and seek to make a difference in their communities and environments.* – Supporters of Tiritiri Matangi Strategic Plan 2017-2027

Inspiration in tourism typically occurs at the visitor dreaming stage, pre-trip, when visitors are influenced to visit destinations (Dai et al., 2022). In contrast, Tiritiri Matangi Island directs their inspiration to post-trip behaviours in conservation efforts. For example, Participant G2 imparted information to island visitors regarding post-visit activities they could pursue when they returned home.

> *We talk about where to from here. How do you do that in your own home, in your own backyard?* – Participant G2

It was also found that visitors were inspired by their experience of all that the project encompassed. They found inspiration in the importance of strict biosecurity measures and recognising the threats posed by destructive pests, diseases and invasive weeds, and were inspired by well-placed informative materials, high-quality guiding services, and engaging cultural and historical elements. Therefore, education and interpretation are vital in empowering visitors to gain new knowledge and skills, fostering new possibilities and ideas relevant to their experiences (Winterich et al., 2019).

This key outcome was also expressed by Participant E2, who explained that everything the Supporters of Tiritiri Matangi did was inspirational, as their engagements with visitors and the environment could enrich people's lives by giving them a glimpse of what New Zealand has the potential to become.

> *Engage with people, to inspire them and leave them richer for being to the island and knowing what New Zealand could be like. So, it's an inspirational goal.* – Participant E2

This quote emphasises that every action taken is intended to be inspirational, as the Supporters were not just carrying out tasks but doing so in a way that motivated and encouraged others. Participant M1 indicated the importance of sharing the island's conservation journey, viewing this as a testament to what can be accomplished through collaborative efforts, inspiring potential successful conservation initiatives elsewhere.

> *There's always quite a lot of discussion about the conservation journey here, the creation of the sanctuary on this island, how that all came about and how this was done through volunteers and citizens so it can be done anywhere. So that's the inspiration part like it's been done here, we've done it here.* – Participant M1

These findings demonstrate Tiritiri Matangi Island's unwavering dedication to environmental conservation, with a core emphasis on inspiring individuals to actively participate in the cause. The unique focus on post-visit inspiration set Tiritiri Matangi apart, catalysing tangible actions in conservation efforts, reflecting the island's commitment to preserving it's natural and cultural reassures and inspiring others to do the same.

4.3.1.5 Participation

The final key outcome was participation, as the Tiritiri Matangi project offered various chances for individuals with various abilities and personal interests to get involved.

> *The Tiritiri Matangi project provides a range of opportunities for people with diverse abilities and personal interests to become involved.* – Supporters of Tiritiri Matangi Strategic Plan 2017-2027

This inclusivity fostered diversity in the visitor and volunteer base, welcoming individuals from various backgrounds and abilities to contribute to the project. Some prefer passive engagement like guided tours and educational programmes, while others may be eager to actively participate in hands-on activities such as volunteering, research or maintenance work. Therefore, to achieve this outcome, a wide range of opportunities were made available by engaging the Department of Conservation and *mana whenua* [Māori with ancestral claims to a particular area] on key aspects of planning and management for the island, including strategy, biodiversity, and communication. They also involved developing trained, knowledgeable and competent guides backed by appropriate initial and ongoing training and quality control, providing volunteering opportunities in the shop, guiding, maintenance teams, helping with scientific research projects, providing membership opportunities and benefits, offering affordable guided walks for visitors, providing opportunities for visitors to experience the Island at night, and improving the quality of accommodation for overnight visitors on a financially sustainable basis. This aligns with Pine and Gilmore's (1998) experience economy, allowing visitors to influence the quality of their experience through their desired interaction with the environment. Research by Chiu et al. (2014) showed that increasing visitor participation in activities will likely influence their environmentally responsible behaviour. Therefore, participation was a crucial key outcome as it fostered inclusivity, empowered individuals to shape their experience, and encouraged environmental responsibility, all while promoting a diverse and sustainable engagement with Tiritiri Matangi Island.

In conclusion, the background and strategic objectives of Tiritiri Matangi Island indicated a comprehensive commitment to environmental conservation, cultural and historical preservation, research, inspiring positive actions, and providing diverse opportunities for people to participate in the project. These encouraging findings reflect Getz's (1987) and Inskeep's (1987)

perspectives on tourism planning as a process to maximise the potential contribution to human well-being and environmental quality. Therefore, environmental education and interpretation must have specific objectives to preserve biodiversity, foster stewardship, and inspire visitors to become active participants in the ongoing conservation journey.

4.3.2 The Objectives of Environmental Education and Interpretation on Tiritiri Matangi Island

Based on the findings, it became clear that the prevailing objectives of environmental education and interpretation on Tiritiri Matangi Island were to enhance visitors' awareness of New Zealand's flora and fauna and an understanding of the ecological interdependence between humans and the environment, inspire conservation consciousness, and empower ordinary people in conservation.

4.3.2.1 Awareness of New Zealand Flora and Fauna

A recurring theme in the responses highlighted the need to make visitors aware of New Zealand's endemic flora and fauna, as many people were unaware of biodiversity loss and assumed that the mainland was representative of the entire country's ecological diversity.

> *A lot of them aren't aware of it. They just see what's on the mainland and assume that that's what has always been there. And, of course, it isn't. And that is very important.* – Participant G1

> *And seeing examples here of birds that they've never seen in their life before, never have them in their backyard, which used to be prolific on the mainland but aren't any more.* – Participant G7

These findings highlight the importance of environmental awareness in the island's education and interpretation programmes, specifically related to the loss of native species and ecosystems. Participant G1 suggested that many people may not fully grasp the significant changes in natural ecosystems over time. Therefore, they might perceive the current state of the mainland environment as the norm without realising the historical evolution and species decline. This participant magnified the importance of understanding the historical context of the environment because knowing what the environment used to be like helps people appreciate the changes that have taken place and the value of conservation efforts. As Chiu et al. (2014) suggested, recognising nature's intrinsic worth encourages visitors to engage in environmentally responsible behaviour.

Similarly, Participant G7 highlighted that people may lack personal experiences with bird species that were once common on the mainland but have become rare or extinct due to habitat loss or predation. This highlights the disconnection between modern generations and the natural

heritage that has been lost. Participant G7 emphasised the significance of first-hand experiences, as seeing rare or unfamiliar bird species on Tiritiri Matangi Island was often eye-opening for visitors who had never encountered these birds before. Overall, these findings highlight that providing opportunities for visitors to learn about, connect with and appreciate natural heritage was a key objective of Tiritiri Matangi Island's education and interpretation because awareness about the importance of conservation and the need to protect and restore ecosystems can be raised.

Participant G6 also stressed the importance of not only recognising but also sharing the unique and precious qualities of New Zealand's natural environment and the importance of conserving it.

> *Just explaining, you know, how that is and what a unique place New Zealand is because there's not many places in the world where the birds were allowed to be the top dog.* – Participant G6

This quote highlights the uniqueness of New Zealand's natural environment, specifically in the context of its bird species. New Zealand is known for its distinctive avian fauna, including flightless birds and the absence of land mammals, making birds the dominant species. Participant G6 mentioned the importance of explaining this uniqueness to visitors because by sharing knowledge about the ecological dynamic of New Zealand, where birds are dominant, visitors can understand and appreciate the ecological uniqueness of the country.

Similarly, Participant G15 underlined the importance of raising awareness about the unique and precious nature of Tiritiri Matangi Island, suggesting that the island held significant ecological value. They stressed the importance of visitors recognising these birds as *taonga* by instilling a sense of responsibility and encouragement within visitors to consider themselves stewards of the environment and active participants in conservation.

> *It's just making them aware how precious this place is-so, talking about how rare the birds are and how they're coming back gradually and what we're doing to preserve them and ensure that they will survive and how they're translocated from one island to the next. And you know the amount of work that's going to look after these birds. Just making them aware that these are really taonga which they need to look after.* – Participant G15

In the same way, Participant G8 expressed the idea of sharing the joy of New Zealand with visitors, which arises from the country's natural beauty and extraordinary biodiversity.

> *Very much so just sharing with them the joy of the environment and how New Zealand is so extraordinarily unique and how precious it is.* – Participant G8

By sharing this joy, guides inspired a sense of wonder and appreciation in visitors for the beauty and ecological significance of New Zealand's natural environment, encouraging a deeper

connection and commitment to its preservation. Participant G8's statement also emphasises the preciousness of the New Zealand environment, which implies that the environment is unique, fragile, and needs protection. By conveying this message, visitors could be encouraged to take responsibility for its conservation.

It was also found that in New Zealand's unique and fragile natural environment, public awareness through environmental education and interpretation was crucial for achieving conservation goals. For example, Participant E2 explained that while biodiversity preservation was essential, it was also closely linked to the active involvement of communities and the public. Moreover, raising awareness was seen as a means to engage people and inspire them to participate in conservation efforts at the local level.

> *There's the biodiversity that's really important that we keep that going, but to me, right on top is public awareness because, without public involvement and communities, we're not going to achieve our conservation goals. So, this is a way of opening their eyes to what could be in their patch in their community and local reserve.* – Participant E2

This corresponds with Turley's (1999) argument that environmental education and interpretation should aim to raise awareness and appreciation of the fragile state of the environment. It is also evident in this quote that it is important to make people aware of the potential within their own communities and reserves. By making visitors aware, they can be empowered to take ownership of conservation initiatives in their immediate areas, fostering a sense of responsibility and stewardship.

Overall, raising awareness of New Zealand flora and fauna among visitors was a crucial objective of environmental education and interpretation on Tiritiri Matangi Island as it served to foster a deeper appreciation, inspire conservation action, and empower visitors to play an active role in preserving the country's unique and fragile natural heritage. This objective directly relates to the "Awareness" objective of the Tbilisi Intergovernmental Conference on Environmental Education (1978), as Tiritiri Matangi Island strives to help visitors acquire an awareness of the total New Zealand environment and its allied problems.

4.3.2.2 Understanding of Ecological Interdependence

As indicated by participants, another aim of environmental education and interpretation on Tiritiri Matangi Island was to convey to visitors the interdependence of all living beings and the impacts of these relationships. Firstly, Participant G1 emphasised the importance of informing visitors about the human impact on the island and the harmful effects of invasive species and plants on New Zealand's environment. This is because the introduction of pests by humans, such as rats, mice, and stoats, has significantly damaged the ecosystem and native bird species.

> *To make them aware of what's happened to New Zealand with the things that the humans have brought into the country that are a real pest. The rats and mice and stoats, and you name it, and the plants as well.* – Participant G1

> *Also, that we're losing so many of our birds are critically endangered that need to be preserved because if we lose them, we lose the plants that they pollinate and distribute.* – Participant G1

This was reiterated by Participant E2, who described that recounting the story of the invasive rat that made its way to the island with visitors highlighted the significance of understanding how all ecosystem elements are interrelated. This is because pests on the island were problematic because they consumed the seeds, a vital food source for birds; hence, introducing a pest to the forest can considerably impact the entire ecosystem.

> *Telling the story about the invasive rat that reached the island. And they were going, "Oh, so a rat was here." "Yes. And we had other pests here originally, and we needed to get rid of those because they ate the seeds, and the seeds were important bird food." So, it's about showing them that everything's connected. So, if you shift something like putting in a pest, you shift the whole forest.* – Participant E2

Participant G1 also explained that New Zealand's native birds are special and play a critical role in the country's ecosystem because, without them, many trees would be at risk because they depend on the birds to pollinate them and spread their seeds to other areas.

> *The New Zealand birds are unique, and without those birds, we're going to lose a lot of our trees because they rely on those birds to pollinate them and take the seeds elsewhere.* – Participant G1

Participant G5 made it clear that there was an interdependence between everything on Tiritiri Matangi Island and highlighted the importance of visitors acting in a way that did not inadvertently disturb the balance of the ecosystem.

> *The birds need the trees, and the trees need the birds and the insects and the lichens and everything else are in there somewhere. And the importance of behaving in a way to not inadvertently change the balance of those things.* – Participant G5

Participant G5 used the metaphor of the ecosystem on Tiritiri Matangi Island being a chain, wherein removing a link from any part of the chain would hinder its ability to perform its intended function.

> *And if you take a link out of any part of a chain, you reduce the chain to eliminate, eliminate the chain's ability to do what it's supposed to do.* – Participant G5

This participant observed that the primary aim of environmental education and interpretation on Tiritiri Matangi Island in their perspective was ecological, and it related to humans' role in the ecosystem by being mindful and cautious about their actions.

> *I would hope that they go away with that, that things aren't specimens that you look at as discrete objects, but that, in fact, they're part of an ecology.* – Participant G5

> *We are part of an interdependent ecology, and we need to be very thoughtful and careful about what we do. So, I think that's the main message to me. It's ecological and our place in it.* – Participant G5

These quotes support Kopnina's (2012) argument that the human and environmental domains are intimately intertwined and the Tbilisi Intergovernmental Conference on Environmental Education (1978) statement that an inter-relationship exists between the human and natural systems. Participant G5's statements also echo Schultz's (2002) claim that people must believe they are part of nature to achieve sustainability through environmentally friendly behaviour. These findings also reflect Martínez-Rodríguez et al.'s (2018) idea that when we have an ecological understanding of the cycles and interrelationships of the environment and our place in it, we develop a strong sense of appreciation and a sense of belonging. By comprehending our roles within the environment, visitors can foster a deeper connection to the natural world, enhance their commitment to conservation, and promote sustainable behaviours that contribute to the environment's and society's well-being.

While these findings discuss the negative impacts of disrupting the interdependent nature of ecology on Tiritiri Matangi Island, other participants explained that if people initiate positive actions and repair the broken link in the chain, this has a positive cascading impact by restoring the cycle.

> *The birds on this island wouldn't be here had it not been for the fact that volunteer participation planted this island because if we don't have trees, you can't have all these forest birds.* – Participant G3

> *It's a cascade effect down the line. But if you start to do good things, that's also a cascade effect. You get more trees; therefore, you get more food and habitat. Therefore, you get more birds and insects, and the whole cycle starts to be positive again.* – Participant E2

These findings reflect the Ministry of Education's (1999a) claim that interdependence emphasises the links between social and biophysical spheres. By aiming to educate visitors about interdependence, opportunities for visitors to advance their ecological literacy can be enhanced (Ballantyne & Packer, 2005; Braun et al., 2018; Hartono, 2020). The chain metaphor mentioned by Participant G5 helped visitors think critically and systematically about their role in the environment and the root causes of critical challenges. This supports Moscardo et al.'s (2004) observation that the use of metaphors builds links between the interpretive content and the everyday experience of the visitor. In doing so, Niemelä et al.'s (2011) idea that making the connection between natural resources and the human race can redefine our ways of interacting with nature, ecosystems, and biodiversity can be brought to life.

4.3.2.3 Inspiring Conservation Consciousness

By making visitors aware of New Zealand's unique flora and fauna, the interdependence within the ecology on the island and the role of humans, participants clarified that another aim of environmental education and interpretation on Tiritiri Matangi Island was to inspire conservation consciousness. Similarly, Juma and Khademi-Vidra (2022) argued that education about conservation could build an ecological foundation to construct principles that affect future growth components. For example, Participant G6 stated that the goal was to instil a sense of responsibility and commitment in individuals to safeguard the natural environment.

> *To instil people into protecting the environment.* – Participant G6

This correlates with Juma and Khademi-Vidra's (2022) perspective that environmental education and interpretation should not only raise visitors' knowledge and awareness but also foster the commitment necessary to make decisions and act for the sake of the natural environment.

The importance of conservation was emphasised by Participant G15, who implied that taking care of nature ensures the continued existence of unique and precious environments and safeguards the overall quality of our lives and the environment in which we live.

> *If we don't care for nature in our world, we're not going to have a world like this that is so special and precious.* – Participant G15

This conveys a fundamental message that the well-being and conservation of the natural world are closely linked to the well-being of our planet and suggests that if we neglect or fail to care for nature, we risk losing the unique and precious qualities that make our world special. Therefore, it was pointed out by Participant G3 that it is crucial to conserve our environment, including the local ecosystem and the larger global biome.

> *All this matters; we need to preserve all this and the rest of the biome of the world.* – Participant G3

This was also reflected in the primary goal of Participant G1, to raise awareness among visitors about the advantages of preserving the ecosystem and its necessity.

> *It's mainly getting people to be concerned and the advantages of preserving it and then the need to preserve it.* – Participant G1

Participant G1 also explained that one of their most important responsibilities as a guide was to *"tell them about the plants and birds of the island and the importance of keeping them."* When probed further about why visitors should understand the need for conservation, a sustainability message was apparent:

> *Well, one thing with particularly the plants is that we don't know in future what we might need.* – Participant G1

This was echoed by Participant G11, who helped gain more insights into the positive impact that removing pests could have on the conservation of the environment, including the thriving of various species.

> *I think appreciation to realise what can be done if we got rid of all the pests. How much things could thrive, and it's not just birds; It's our trees.* – Participant G11

Overall, these findings serve as a reminder of humans' shared responsibility to conserve the natural world for future generations and emphasise the intrinsic value of nature in shaping the world we live in. Therefore, conservation consciousness was an essential element of environmental education and interpretation that Tiritiri Matangi Island aimed to achieve in their efforts.

4.3.2.4 Empowering Ordinary People in Conservation

The participants' responses revealed that it is essential to show visitors that it is often ordinary people with a certain mix of passion and determination who work to make conservation ideas a reality. For example, Participant G3 wanted visitors to recognise they could make a meaningful difference, even without specialised knowledge or expertise.

> *I want people to realise that as an ordinary person, just as somebody with no particular knowledge of any of this, we can make a difference.* – Participant G3

The discussions with participants also uncovered that while Tiritiri Matangi Island was considered a scientific sanctuary and specialists may look after the environment, it should not be left up to them, as we all have a responsibility to protect the natural world.

> *You're just an ordinary person going to work, living your ordinary little life, and there's these specialist people who look after the environment, look after the trees and the birds, and you know, that's best left to them. I''s not necessarily that way; you can also participate.* – Participant G3
>
> *In regards to what people can take away from this place, you don't always have to wait for an expert group or leave it to other people; you can actually you can do something yourself.* – Participant G13
>
> *Rather than just sitting back and letting other people do it, you can make a difference.* – Participant G8
>
> *We have responsibilities, and I think that is the main thing. Don't think that other people are going to do all the conservation for you. You can do stuff, too.* – Participant G8

These findings collectively convey a compelling message about the power of individual engagement in environmental conservation. Participants G3 and G16 challenged the notion that conservation is solely the responsibility of specialists or experts, emphasising that ordinary people can actively participate. This empowers individuals by highlighting the accessibility of conservation actions and encourages a sense of efficacy in addressing environmental challenges. Additionally, Participant G8 stressed that individuals have a responsibility in conservation, framing it not as an option but a duty for everyone and emphasised the importance of proactive engagement, asserting that waiting for others to lead was not productive. These findings correspond with those of various authors who agreed that while experts' roles are essential in conservation, the general public's actions are equally important (Inskeep, 1987; Schnack, 2000).

When questioned about the necessity of environmental education and interpretation provided to visitors on Tiritiri Matangi Island, Participant M1 explained that their mission was to make conservation efforts accessible to everyone, regardless of background or experience. This is because volunteers created the open nature of the sanctuary through public participation for the people, and they strive to embody that same inclusive ethos.

> *That's what we're about. The ethos of the creation of the sanctuary was all about 'it was done by the people for the people.' And that is our kind of ethos that anybody is welcome here, and anybody can be involved in conservation.* – Participant M1

This notion was also apparent in the discussion with Participant G10 about the main message they tried to convey when engaging with visitors.

> *The main message I try and do is what can be accomplished by just normal everyday people when you focus and pay attention to things because it's an island that was regenerated by volunteers.* – Participant G10

This can make visitors aware of the positive potential of conservation management based on public involvement and inspire them to make a difference in their own environment and communities, reflecting the inspiration and participation goals of the Supporters. Therefore, Orr's (1992) idea that interpreters act as true leaders in ecotourism by empowering a citizenry capable of conservation runs true. Moreover, these findings support the work of various authors that environmental education and interpretation should go beyond mere knowledge transmission to incorporating elements of ownership and empowerment (Hungerford et al., 1980; Hungerford et al., 1983; Hungerford & Volk, 1990).

The objectives of environmental education and interpretation on Tiritiri Matangi Island aimed to raise awareness among visitors about the distinct, delicate and precious conditions of New Zealand's flora and fauna, emphasise the interconnectedness of ecosystems and the duty of humans to protect the natural environment, and empower ordinary individuals to translate conservation ideas into tangible actions.

4.3.3 Target Audience

The conversations with participants revealed that environmental education and interpretation on Tiritiri Matangi Island catered to three distinct groups: international visitors, domestic visitors, and children. The participants had different aims when providing environmental education and interpretation to each group.

4.3.3.1 International Visitors

Participants' insights into the international visitor market revealed that guides aimed to provide them with a background of New Zealand's ecology, culture, and history. For example, Participant G8 acknowledged that international visitors often had limited familiarity with New Zealand's ecological history and background. Hence, educators and interpreters needed to adapt their approaches and begin at a foundational level. This was important to ensure that information was understandable and relevant to those with little prior knowledge.

> *If there are people that are from another part of the world, they have very little background about New Zealand's ecological background and history…If you've got someone from overseas, it's completely different because you've got to start at a different base level*. – Participant G8

This was supported by other participants, who highlighted the importance of explaining contextual and historical information to international visitors, particularly related to the geological and evolutionary aspects of New Zealand's natural history.

> *…Quite a lot of historical information and contextual information. You know, Gondwana or the development of the island.* – Participant G14

> *Sometimes, with international tourists, you talk a little bit more about the Gondwana land and the evolution side of things.* – Participant G4

The mention of Gondwana and evolution in these findings point to a specific focus on geological history and the development of New Zealand as a unique landmass, which helps international visitors appreciate the ancient origins of the country's flora and fauna, as these topics can be novel and of particular interest to visitors from other countries. In addition, providing this historical and contextual information can enhance the visitor experience by connecting them with the deep history of the land. Therefore, understanding the geological processes that shaped New Zealand can foster a sense of wonder and curiosity, making their visit more meaningful. Overall, these findings present educational opportunities for interpreters and educators to explain the beauty of New Zealand's landscapes and biodiversity and the scientific and geological narratives underpinning the country's uniqueness. This enriches the visitor experience by providing a broader perspective on the natural world and its deep-rooted

history, contributing to a more comprehensive understanding and appreciation of New Zealand's ecological and geological heritage.

It was also acknowledged by Participant G4 that international visitors might not be familiar with New Zealand's common birds and wildlife.

> *You've got to realise that. I mean, they don't already know our common birds like tūī and that sort of thing. So, you've got to give them a bit more information because they don't realise how unique they are. And a bit of the background of why our New Zealand wildlife is special and unique compared with other places. You know, we've got a lot of flightless birds and that sort of thing.* – Participant G4

This statement highlights the need for guides and educators to recognise and address the knowledge gap through informative and engaging content. Furthermore, Participant G4 emphasised the significance of conveying the uniqueness of New Zealand's wildlife to international visitors compared to other places to contribute to ecological awareness and provide a cultural context. Guides can enhance the engagement and interest of international visitors, encouraging them to ask questions and seek a deeper understanding of the natural environment they are exploring.

It was also found that international visitors often exhibited a heightened interest in aspects of the Māori cultural story when visiting New Zealand. Being more exposed to the Māori culture and history in their daily lives, New Zealanders already had some familiarity with the Māori story.

> *I think international visitors are sometimes more interested in bits of the Māori story coming here, partly because New Zealanders have heard it in one form or another.* – Participant G5

Environmental education and interpretation for international visitors was directed towards presenting an engaging narrative that showcased New Zealand's unique ecological features and incorporated aspects of Māori culture, history, and traditions to offer a comprehensive and culturally enriching experience. Auckland is often the first city international visitors visit before exploring other parts of the country. Therefore, by establishing a foundation of understanding, visitors were able to appreciate the significance of what they encountered in other parts of the country and gain a deeper understanding of the unique qualities of New Zealand.

> *Hopefully, they'll remember what I've introduced them to because often, this is the first port of call when they come to New Zealand, and then they'll go to other parts of New Zealand. So, it's actually quite nice to establish that background for them so that when they go to other places, they'll have a bit more depth of understanding and why things are as they are here because we're just so unique.* – Participant G8

Another discovery was that although some overseas visitors may not have had an inherent interest in birds because they were generally more interested in New Zealand, it was still

possible to foster their curiosity by piquing their interest and encouraging them to learn more once they had received the background information.

> *They're not necessarily that interested in the birds, but you can start them off because some of them have no idea. So, you don't go over the top about you just basically try and whet their appetite.* – Participant G6

Participants also highlighted the significance of highlighting New Zealand as a country that prioritises environmental awareness by educating visitors about the importance of conservation in this country, as opposed to approaches common in some other nations.

> *With the international visitors, you want to paint New Zealand in a good light that we are a very environmentally aware society... And we can inspire international visitors by "Hey, New Zealand actually does things that make a big difference to things not going extinct."* – Participant G4

> *It's quite different with international visitors, for example. They are more interested in what's going on in New Zealand. I think in that case, it's more of our responsibility to make sure they know what we do and what conservation means in New Zealand rather than what it means in other countries. But in many other countries, it means not touching the environment at all. In New Zealand, it's largely about killing off the predators. So, very different approach to conservation.* – Participant G14

By highlighting the tangible results of conservation actions, such as preventing species from going extinct, guides can instil hope and motivation in visitors. Furthermore, Participant G14 observed that they were responsible for explaining what conservation means in New Zealand. However, they also revealed that guides could compare countries to make the conversation more relatable and engaging.

> *You try to make it more global, more relevant to that particular country and do comparisons between their country and your country.* – Participant G14

Participant E2 expressed that a possum can be viewed as a pest in one country but not another, highlighting the subjective nature of what is considered a pest.

> *It might be an example of the view of how different pests, or our thing that's valued there like a possum, can be totally rejected in a different country. You know, a pest is the thing in the wrong place that's causing trouble.* – Participant E2

Overall, environmental education and interpretation targeted towards international visitors tends to focus on the contextual, historical and cultural background, illuminating New Zealand's unique conservation practices and their positive impact on preventing species extinction.

4.3.3.2 Domestic Visitors

Conversely, the findings indicated that Tiritiri Matangi Island's goal of inspiring visitors was more relevant for domestic visitors because they were more knowledgeable about New Zealand and aware of its native birds due to their daily encounters with them.

> *Kiwis often know the basics; they know about their own country.* – Participant G6

> *The locals are more aware already of many things, such as the fact that our birds will be on the ground.* – Participant G1

> *I'd say domestic it's far more relevant because they've got tūī in their garden.* – Participant E2

> *The international ones love tūīs; they're like, "Oh, there's a tūī!" whereas a lot of New Zealanders are like, "Oh, that tūī wakes me up in the morning, and they're my alarm" and moans about them.* – Participant G11

These findings collectively highlight the varying levels of familiarity and awareness among domestic visitors. For example, Participant G6 suggested that many New Zealanders already have a foundational understanding of their own country, implying that they may possess prior knowledge about the natural environment, including native species and their behaviours. This was elaborated on by Participant G1, who acknowledged that residents were generally more aware of certain aspects, such as the ground-dwelling behaviour of New Zealand's native birds. It was inferred that this local knowledge was likely due to the regular exposure and experiences with the environment. For example, Participant E2 highlighted that the information provided to domestic visitors was often more relevant, mainly because they may have native birds like tūī in their gardens. Accordingly, Participant G11 underscored the contrasting perspectives of international visitors and New Zealanders about encountering native birds like tūī. While international visitors express excitement and fascination, some locals may take these birds for granted or even find them a nuisance. However, Participant G9 revealed that while Tiritiri Matangi Island may represent the New Zealand environment, domestic visitors may not necessarily be familiar with the local wildlife, which means they, too, can gain new insights and learn more about the local ecosystem.

> *Even people from New Zealand who come here have no idea what the native wildlife is all about, so they have learned something.* – Participant G9

It was found that pre-existing knowledge was seen as beneficial in the eyes of Participant G8, as it provided a foundation for deeper engagement and learning.

> *We got a lot of New Zealanders, and I found that really fabulous because they had a base knowledge. And then you could work on that and build on that.* – Participant G8

This is because "working on that and building on that" signifies the potential for guides and educators to expand upon and enrich the knowledge for domestic visitors. This can involve delving deeper into specific topics, offering insights that may not be widely known, or providing updates on conservation initiatives, as mentioned by Participant G13

> *So, with an audience from Auckland, you would talk about something slightly different because they know a tūī and things like that. So, you can point out a lot more about the different projects.* – Participant G13

Through this, a stronger sense of stewardship and pride could be fostered among domestic visitors. It was found that the aim of environmental education and interpretation for domestic visitors was to make them understand their ownership as New Zealand citizens to protect their environment and how they can be involved in local conservation projects.

> *For them to take action if they're New Zealanders. And if they can go back and make a difference in their community, small or big, it doesn't matter; it's people power.* – Participant E2

> *So, you want people to hook into it so that they have ownership as well, like if they're Kiwis, you know, plant more native plants in their garden and attract birds to your gardens that are native. Just to show them that the environment on Tiritiri can be an environment that all of New Zealand can have.* – Participant G6

> *For overseas visitors, it's quite different, of course, so you don't even bother. But for New Zealanders, there's always something they can do.* – Participant G7

Participant E2 commented that New Zealanders can play significant roles in community conservation efforts when informed and inspired. Regardless of the scale of their action, whether small or large, Participant E2 argued that these efforts contribute to a collective people power that can make a positive impact. Similarly, Participant G6 emphasised the importance of fostering a sense of ownership among New Zealanders by encouraging them to engage with their environment in tangible ways, such as planting native plants and creating bird-friendly gardens. This not only benefits the local wildlife but also demonstrates that the principles of environmental stewardship practised on Tiritiri Matangi Island can be applied throughout New Zealand. Participant G7 acknowledged the need for a different approach when interacting with domestic visitors. Rather than raising awareness and fostering appreciation for New Zealand's unique environment and culture, emphasis was placed on encouraging specific actions for domestic visitors. These findings highlight that environmental education and interpretation can catalyse positive change, especially within local communities. By encouraging New Zealanders to take ownership of their environment and make small contributions to conservation, guides and educators on Tiritiri Matangi Island were able to inspire a deeper connection to nature and promote a culture of stewardship through their environmental education and interpretation programmes.

4.3.3.3 Children

Most participants reported that they guided and educated children more than anybody else. This audience is the next generation, with the potential to become sustainability thinkers and sustainability transformers (Cripps, 2022) as they develop their ecological literacy and tackle environmental challenges. For example, Participant G6 expressed a deep appreciation for guiding children, recognising that they represent the future.

> *I really like guiding children because, you know, they're the future.* – Participant G6

This sentiment supports Cripps' (2022) belief that by instilling environmental awareness and values in young individuals, we are shaping the attitudes and behaviours of the next generation. This also reflects the Department of Conservation's (2017) aim to better equip New Zealanders, especially children and young people, with the knowledge, skills, and motivation to tackle environmental issues.

Similarly, Participant G10 referred to children as "*eco-warriors of the future.*"

This term emphasises the potential of children to become advocates and active participants in environmental conservation and sustainability efforts. Participants G6 and G10 acknowledged the pivotal role that environmental education and interpretation can play in nurturing children's environmental consciousness. For example, by providing children with knowledge, experiences, and a sense of responsibility, Tiritiri Matangi Island empowered them to become proactive stewards of the environment. Using the term "future," both participants recognised that environmental education and interpretation for children was a long-term strategy. Hence, the hope was that the awareness and values instilled in children during their formative years by visiting Tiritiri Matangi Island would guide their choices and actions as adults, ultimately contributing to a more environmentally conscious society. These statements convey an optimistic outlook, suggesting that by directing environmental education and interpretation toward children, there is hope for positive change and a brighter future for the planet.

It was also discovered that environmental education and interpretation were targeted toward children because it may be easier to influence their perspectives and behaviours in favour of environmental stewardship than adults. Participant G3 believed it was easier to influence children into a positive mindset about the environment than adults, who are conditioned to believe that the world is meant to be exploited for human benefit.

> *It's easier to sway children into the right course or the light of what we want them to think than adults who have grown up with the idea that the world is there to be used by human beings to their own ends.* – Participant G3

Participants stressed that it was crucial to start acting by planting the seeds of conservation among children, as the earlier they learned something, the more it could impact their lives in the long term. Hence, the goal was to engage this generation in environmentalism and inspire them to care for the environment throughout their lives.

> *The younger you are, the more something you've learned at that younger age can influence the rest of your life...The younger they learn that, hopefully, the better their attitude is if they grow up, "I'm going to be a member of society, not an outsider to society." So, if we can get all these young children out to Tiri and influence them to do the right thing, then it's got to be good. It's got to. It's going to help. It's actually going to help.* – Participant G3

> *Unless we start now, sowing the seed, it's not going to happen later on in, 50 years from now. Those children are getting towards the age where they have time on their hands to volunteer, and we want to capture that audience or at least take them on the journey all through their lives where they're looking after the environment.* – Participant E2

This notion was also mentioned in the Supporters of Tiritiri Matangi Guiding Manual, which stated that when children are exposed to and develop a fondness for the natural world, they are more likely to carry this appreciation into adulthood.

> *To encourage a child in their love of nature is to instil in them a respect for their environment, which will continue for the rest of their lives.* – Supporters of Tiritiri Matangi Guiding Manual

This suggests that instilling a love of nature in children goes hand in hand with teaching them respect for the environment. When children love and value the natural world, they are more inclined to treat it with care and act as responsible stewards. Therefore, building a love for nature can be the foundation for future conservation efforts. Hence, participants revealed that the purpose of environmental education and interpretation for children on Tiritiri Matangi Island was to make children aware of the beauty of New Zealand and the conservation successes and opportunities by sparking initial interest.

> *In particular, with the kids, I find it's all about, well, not all, but the best part about it is sparking that interest. Like with these kids just now, if they go home and they've learned what can be achieved and how beautiful this place is, that's a huge success.* – Participant G13

> *I feel that it's important to inspire, particularly the younger ones, to get them to understand the importance of preserving what we've got and also restricting the use of a lot of things such as plastics.* – Participant G1

The participants also believed it was necessary to inspire children because they could share the message with their peers and lead by example.

> *I know a schoolteacher who brings his children out here, and we try to give them a basic of not throwing away plastic things into the ocean or on the street or anything.*

> *And then also you need to look after the bush and the birds and things. He then gave me feedback that after the first time he brought any children here when they went back to school the next day, the children that had been here were actually going around the playground, telling the other children not to throw their rubbish on the ground.* – Participant G3

This quote highlights the positive influence of environmental education and interpretation experience in shaping the behaviour and attitudes of children. The feedback that Participant G3 received from a teacher showed that the children who visited Tiritiri Matangi Island were actively applying the lessons learned by discouraging peers from littering in the school playground. Therefore, the direct impact of environmental education and interpretation on changing children's behaviour is demonstrated.

This idea of peer influence was also expressed by Participant G9, who advised that children who received a badge as part of their experience on Tiritiri Matangi Island proudly displayed it at school.

> *Any time I have a family walking with me and there are children, they have a badge, Kiwi Ranger it is. They take it. They'll put it on. They go to school, and they have friends. They'll all see. So, it's a message.* – Participant G9

This badge served as a visible symbol of their commitment to environmental stewardship, inspiring others to follow suit. Ultimately, these examples show that not only had the children enjoyed their day on Tiritiri Matangi Island, but they picked up the message taught to them. Furthermore, both statements indicate that the lessons learned during environmental education and interpretation can have a ripple effect; children became promulgators of these lessons, spreading awareness and encouraging positive environmental actions among their peers.

In summary, these findings highlight the significance of engaging children in environmental education and interpretation. Such efforts shape children's behaviour and attitudes and empower them to advocate for environmental stewardship within their communities. Ultimately, these "eco-warriors" play a vital role in promoting a culture of respect for the environment and sustainability for the future.

4.4 Design of Environmental Education and Interpretation on Tiritiri Matangi Island

To achieve its strategic objectives and effectively connect with its target audience, Tiritiri Matangi Island had purposefully designed its environmental education and interpretation efforts. This included implementing guided tours, educational programmes for schools, signage, and interactive displays.

4.4.1 Guided Tours

From comments provided by participants describing their typical day of educating visitors, it became evident that Tiritiri Matangi Island offered guided walks for both the public and school groups to explore the island. These guided walks commenced at the Wharf, offering a choice of three available routes: The Wattle Track, the Kawerau Track, or the Moana Rua Route/Coast to Coast, and concluded at the Visitor Centre.

> *I get allocated a number of people and a route to take the people on, which starts at the Wharf and ends at the Visitor Centre on top of the Island next to the Lighthouse.* – Participant G3

> *We'll be allocated a group, either a school group or a private group, to take for a guided walk. And then we'll take a walk and get up to the Visitor Centre.* – Participant G10

Participants G3 and G10 shed light on the logistical design of guided tours on Tiritiri Matangi Island. Both participants mentioned allocating specific routes and groups to ensure visitors were guided to key points of interest. Furthermore, the strategic design of the tours was evident as tours began at the Wharf, ensuring the tours commenced in an easily accessible location to all arriving visitors and concluded at the Visitor Centre near the Lighthouse, allowing for a seamless transition for visitors to explore its exhibits and educational resources. These findings reflect Cohen's (1985) "Original" categorisation of tour guides and Weiler and Ham's (2001) first step of tour guides to enable physical access because the Tiritiri Matangi guides ensured a structured and organised experience for visitors by ensuring the safe arrival of visitors from the Wharf to the Visitor Centre. It also became clear that the tours on Tiritiri Matangi Island reflected Cohen's (1985) "Professional" categorisation, focusing on the communicative function by conveying detailed information. For example, Participant M1 provided a comprehensive overview of the multifaceted role of the guides on Tiritiri Matangi Island. It highlighted the breadth of knowledge and information they were expected to convey to visitors.

> *The guides are expected to teach them the history of the conservation efforts on the island, a little bit of the history of the island from a maritime historical point of view, acknowledge the iwi on the island, and they're expected to teach them some knowledge and facts about the endemic species on the island, particularly the ones they sight and maybe a little bit about the research on the island.* – Participant M1

This shows that the guides were entrusted with educating visitors about the island's various histories and discussed the conservation efforts undertaken to protect and restore the island's unique ecosystem. For example, it was commonly commented that the historical context of Tiritiri Matangi Island was introduced to visitors as they began their guided tour.

> *I usually start with a bit of the history of the island to give them the big picture of the whole overview of what a wonderful place it is. So, we start with the history, and then*

we start walking through the bush and pointing out the birds and the trees. – Participant G4

I tell them how this whole idea of planting this island out happened. – Participant G3

Participant G4 adopted a structured approach to guiding, starting by providing visitors with a historical background and offering a broader perspective on the island's significance and evolution. Similarly, Participant G3 described how planting and restoring the island's natural environment came to inspire visitors and show the power of community-driven environmental action. In summary, both participants emphasised the importance of historical context in their guided tours. Participant G4 combined history with an immersive exploration of the island's natural beauty, and Participant G3 focused on the inspirational journey behind Tiritiri Matangi Island's transformation. The Supporters of Tiritiri Matangi Guiding Manual also mentioned that given the abundance of fauna and flora on the Island, its human history can be forgotten or left aside for visitors to discover when they reach the Visitor Centre and historic precinct. Therefore, the Supporters of Tiritiri Matangi Guiding Manual explained that guides should know about the five histories and the legacy the Supporters of Tiritiri Matangi had created regarding conservation.

You should know about the main phases in the Island's history: Māori occupation, farming, the restoration of the bush, its current roles as a Scientific Reserve and Open Sanctuary. – Supporters of Tiritiri Matangi Guiding Manual

You should understand how the Supporters of Tiritiri Matangi came about and how this organisation has worked to conserve both the Island's ecosystems and its historic legacy. – Supporters of Tiritiri Matangi Guiding Manual

Such knowledge can enhance the visitor experience by fostering a deeper appreciation for the island's unique journey and the ongoing conservation efforts that make it a remarkable destination.

Following the historical background introduction, the transition shifts to exploring Tiritiri Matangi Island's natural environment. This aligns with Cohen's (1985) "Tour Leader" categorisation as guides facilitated interaction between visitors and the island's environment. Guides played a crucial role in introducing visitors to New Zealand's unique and diverse endemic species by offering real-time information about the flora and fauna, describing their characteristics in detail, behaviours, level of endangerment, and ongoing conservation efforts.

So, you point out when you see something and talk about their little characteristics, all the little features, and what we do to help protect them. – Participant G6

As we're going around, as I hear or see birds, I do talk about those particular birds. I give them some background as to what the birds are as a species and, some background as to how endangered they are and why they're endangered and what's being done at

> *the moment to try and support the birds and basically the rest of New Zealand's biota.* – Participant G3

Both these statements focus on the importance of discussing and educating visitors about the island's unique wildlife. For example, when something of interest was noticed, both participants pointed it out and provided in-depth information about the unique characteristics of the island's bird species. This reflects Rabotić's (2010) argument that guides should help visitors to locate, perceive, and understand different features of a destination. These findings also align with Seyitoğlu's (2020) claim that guides are responsible for providing visitors with information about various aspects of a destination, which necessitates a thorough understanding. The statements also align with expectations outlined in the Supporters of Tiritiri Matangi Guiding Manual, which emphasises the importance of guides knowing about the island's avian inhabitants, such as their identification, gender differences, numbers, status, and arrival.

> *You should be able to identify all the bird species you are likely to see, and be able to point out any differences between males and females.* – Supporters of Tiritiri Matangi Guiding Manual

> *You should know roughly how many birds of each species are currently on the Island.* – Supporters of Tiritiri Matangi Guiding Manual

> *You should know which species are endemic, which are native and which are introduced to New Zealand.* – Supporters of Tiritiri Matangi Guiding Manual

> *You should know which species have found their own way to Tiritiri and which have been deliberately brought to the island for conservation.* – Supporters of Tiritiri Matangi Guiding Manual

It was also noted that both Participants G6 and G3 went a step further by educating visitors about the conservation status of the bird species, emphasising their endangerment and the reasons for it. They also discussed the conservation measures in place, providing a context for visitors about the significance of these species and the actions taken for their preservation. This aligns with the Supporters of Tiritiri Matangi Guiding Manual, which stressed that guides should educate visitors about the conservation of bird species on Tiritiri Matangi Island.

> *You should know something about the conservation history of each species: Whether they are endangered nationally, how they came to be so, what is being done to protect them and whether these measures are proving successful.* – Supporters of Tiritiri Matangi Guiding Manual

Knowing a species' national endangerment status is crucial, as it highlights their importance and vulnerability. Moreover, understanding the reasons behind their endangerment offers a comprehensive perspective, revealing factors like habitat loss or invasive species contributing to population decline. In addition, learning about the protective measures sheds light on the dedication of conservationists and volunteers working to reverse these declines. Ultimately, this integration of conservation into visitor education on Tiritiri Matangi Island is vital as it enriches

the visitor experiences and empowers them to appreciate conservation's significance and become advocates for angered and threatened bird species. These findings reflect the Supporters of Tiritiri Matangi Guiding Manual's claim that guides should convey a message, not just facts.

> *Getting across the conservation message-how important it is to protect our native wildlife, what needs to be done to achieve all this, and how much can be accomplished by a group of dedicated volunteers working in partnership with government-is more important that just providing information.* – Supporters of Tiritiri Matangi Guiding Manual

This shows that the guided tours were designed to offer a holistic understanding of the conservation process rather than just providing isolated information. This involves not only explaining the challenges but also the solutions, the progress that has been made and the significance of collaboration in conservation efforts. Sharing a broader context, guides empowered visitors to appreciate the complexity of conservation and recognise the potential for positive change. Therefore, it was found that guides were considered ambassadors for the environment on Tiritiri Matangi Island.

> *You are an ambassador for the environment.* – Supporters of Tiritiri Matangi Guiding Manual

Ultimately, imparting knowledge about New Zealand's flora and fauna and the conservation efforts on Tiritiri Matangi Island is important because environmental awareness comes from knowledge that can elevate the visitor experience and change perspectives. Hungerford and Volk (1990) observed that knowledge of biodiversity is a prerequisite to sound decisions. Therefore, this foundational knowledge enhanced participants' ability to interpret and appreciate the environment, understand conservation efforts and make meaningful connections between the ecological concepts they learned and the experiences they had during their time on Tiritiri Matangi Island. This was reflected by Participants G15 and G11 when they highlighted the pivotal role of education and understanding in enriching the visitor experience on Tiritiri Matangi Island.

> *Our job is to share more knowledge and understanding, and then that shifts the awareness.* – Participant G15

> *For them to learn more on their visit, potentially it changes it from a day trip and a tramp to more of an experience.* – Participant G11

Participant G15 acknowledged that as visitors acquired more knowledge and understanding, their awareness of the island's significance and the broader environmental issues was likely to shift. The guides saw their role as catalysts for changing visitors' perspectives and attitudes towards nature and conservation. Similarly, Participant G11 emphasised that learning transforms a visit from a mere day drip into a more profound and meaningful experience. This suggests that education adds depth to a visit, making it a physical journey as well as a mental

and emotional one. Furthermore, by emphasising the potential to turn a visit into an experience, Participant G11 argued that education elevated a visitor's interaction with the island. Therefore, it became more than just a recreational outing but also an opportunity for personal growth, enlightenment, and a heightened appreciation for the environment.

Moreover, imparting knowledge was considered crucial for Participant G3, who viewed knowledge as a prerequisite for developing a meaningful connection with nature and conservation efforts.

> *If you don't know about something, then you can't be moved by it.* – Participant G3

These findings correspond with Pooley and O'Connor's (2000) argument that the main focus of environmental education programmes has been to change environmental attitudes through increasing environmental knowledge. The view of many authors that knowledge of environmental issues is an essential prerequisite of the intention to behave environmentally friendly was supported (Kaiser et al., 1999; Kollmuss & Agyeman, 2002). However, while imparting information to visitors is crucial, the Supporters also wanted guides to leave visitors wanting more.

> *A little information presented in an interesting way fosters people's desire to learn and might lead them to investigate further for their own enjoyment and fulfilment.* – Supporters of Tiritiri Matangi Guiding Manual

> *Too much information can leave them feeling over-stuffed, like a heavy meal. A few interesting anecdotes can be more stimulating than a lot of facts. Sparking your group's interest rather than filling them up with facts also leads them to ask questions, which turns the whole guiding experience into a conversation-usually more satisfying for both sides than a lecture.* – Supporters of Tiritiri Matangi Guiding Manual

The first statement highlights the value of balancing information delivery to spark visitors' curiosity, motivating them to explore and learn independently. This is an encouraging finding, as empowering visitors to explore and learn independently promoted a sense of ownership over their learning journey. They ultimately became active rather than passive recipients of information. The second statement suggests that guides should avoid overwhelming visitors with excessive information, which can lead to disengagement. Instead, the Supporters of Tiritiri Matangi Guiding Manual recommended an approach that sparked curiosity and encouraged questions, creating a more interactive learning experience. This aligns with Ballantyne et al.'s (2000), and Poria et al.'s (2009) arguments that guided tours should involve two-way communication through visitors' input, questions, and interactive processes. These findings also relate to Tilden's (2008) insistence that guides should aim to provoke curiosity rather than simply providing instruction, enabling visitors to relate information to their own knowledge and experiences.

In summary, Tiritiri Matangi Island's guided tours offered structured, informative experiences, as they were designed to impart knowledge about the island's natural and human history, provide visitors with a comprehensive understanding of conservation challenges in New Zealand, and foster a sense of appreciation, curiosity and responsibility among visitors.

4.4.1.1 Enhancing Island Exploration and Ecological Understanding Through Guided Tours

Guided tours on Tiritiri Matangi Island were also designed to allow visitors to explore more of the hidden beauties and understand the island's ecology than if they had quickly walked through the tracks alone.

> *If they just go for a walk by themselves, they miss so much, you know that they might see some birds, but you know, they won't... They might think that they're the wrong bird. They might think that's a bellbird, but when it's actually a hihi sort of thing. So, I think education's really important because it will help them get to know the right thing.* – Participant G4

> *Some people like to explore the island by themselves, and that's fine, but they sometimes miss out if they don't have a guide, so having that one-on-one, you know, is really good for people.* – Participant G6

> *You know, make people see fine details that are very easy to overlook if you didn't have somebody to say, "But look! Their eyes aren't brown; the eyes of the tuatara are gold."* – Participant G10

Participant G4 explained that the guided tours were essential because they helped visitors accurately identify and appreciate Tiritiri Matangi Island's unique flora and fauna. Without guidance, visitors might not correctly identify various species, potentially mistaking one for another. Therefore, guides were pivotal in ensuring visitors learned about the correct species and understood their significance. Similarly, Participant G4 emphasised the importance of helping visitors differentiate between similar-looking species. This not only built accurate knowledge about the island's biodiversity but also contributed to a more meaningful experience. Participant G6's statement suggests that while some visitors preferred to explore the island independently, they noted that those who chose to have a guide often had a more enriched experience. This was because one-on-one interactions with a guide allowed personalised attention and a deeper understanding of the island's ecology. In addition, having a guide allowed visitors to ask questions and engage in discussion, leading to a richer learning experience. Similarly, Participant G10 emphasised the guides' role in drawing attention to fine details that visitors might easily overlook. Guides help visitors see beyond the surface level, which fosters a greater appreciation for the island's biodiversity and ecological intricacies-accordingly, Participant G1 empathised with visitors who guided themselves.

> *I feel sorry for the visitors that don't realise what they're missing and guide themselves because you've got information up here, but it's not the same as seeing it in situ.* – Participant G1

Such visitors miss the whole experience of seeing the island's hidden beauties first-hand, which cannot be fully captured by the information provided to them by the signage.

The crucial role of the guides in providing environmental education and interpretation to visitors was also evident when participants shared the difference visitors felt when they had opted to take a guided walk.

> *You can talk to them, and they say, "Yes, I am so fortunate I took a guided walk because I wouldn't have seen all these things. I didn't know what to look for."* – Participant G9

> *I know people that have come here without a guided tour and then later came back and did a guided tour, and they said they just saw completely different things that they hadn't noticed before.* – Participant G13

> *Just because each time I've had people with me, they said last time they didn't get a guide and then after the time they've had with me, they just get to see and understand and learn so much more about nature and the birds and the forest.* – Participant G15

Participant G9 pointed out that visitors often express gratitude for taking a guided walk because it allowed them to see and learn about things they would have otherwise missed. This underscores the idea that guides bridged the knowledge gap and facilitated a deeper appreciation of the island's natural beauty and biodiversity by providing context, pointing out key features, and helping visitors recognise and understand the significance of what they encounter. Participant G13 described a common phenomenon where visitors who initially explored the island without a guide sometimes returned for a guided tour and had a significantly different experience. This was because guides played a pivotal role in enhancing visitors' observation skills and helped visitors see the island's wildlife, plant life, and ecological interactions from a fresh perspective while often revealing hidden treasures and nuances. Therefore, as Participant G15 argued, visitors who had experienced guided tours typically left with a much deeper understanding of the island's ecology and conservation efforts, as the guided tours were designed to facilitate comprehensive learning about Tiritiri Matangi Island's natural and cultural features. These findings reflect Skanavis and Giannoulis' (2010) argument that interpreters serve as the primary informational and awareness-raising resource for many visitors to naturally protected destinations through direct interaction. These findings also support the Supporters of Tiritiri Matangi Guiding Manual's claim that guides are *"a channel through which the visitor experiences the Island"* and Pastorelli's (2003) argument that the guides link the visitors and the destination.

4.4.1.2 Personal Identification and Expertise

Another key finding was that the guided tours were designed to encompass guides who personally identified with the island or had suitable expertise. For example, it was noted that some participants were involved in restoring the island by planting there with their families.

> *Like our family, when our children were five and three, we came here and planted trees. And so, I often don't make a big point about that, but I say I have absolute commitment and passion to this island and our whole family. For this reason, like here, this is about something really significant that happened in our lives.* – Participant G2

> *My children came here to plant when they were primary school age, and they're in their 40s now. So, you know, we have a whole generation that has been affected by the island now.* – Participant E2

Participant G2's experience planting trees with their family on the island reflects a deep personal commitment and passion for Tiritiri Matangi. This connection goes beyond a simple visit, representing a hands-on investment in the island's restoration and conservation. It also became evident that planting trees had become a significant life event for this participant, etched into their family's history and symbolising a shared commitment that spanned generations. Participant E2 also highlighted this generational impact, as their children, who planted trees at a young age, had carried the experience into adulthood; Tiritiri Matangi had left a lasting impression on multiple family generations. Ultimately, guides who established a personal connection with the island through their history and family ties infused their roles with added passion and commitment, enhancing their ability to share insider insights and experiences with visitors. For example, Galbraith (1990) argued that developing a sense of personal identification increases volunteers' commitment to ensure a project's success. McGrath (2003) also acknowledged that local guides contribute to local tourism development due to their rich understanding and lived experience of the destination. Similarly, Bryon (2012) observed that people with local knowledge and personal investment in a place make the best interpretive guides, as visitors can sense when someone genuinely cares about and is deeply knowledgeable about a destination, which builds trust and credibility.

While these participants shared their family involvement with Tiritiri Matangi Island with visitors, Participant G2 argued that their stories were not solely about their family but more about how individuals can get their families involved in conservation efforts.

> *Using the example of the way that we came here to plant when our children were little, you know, saying this is how people get it, in deep, you know, really deep, not just talking about it because I've read about it in a book or something, you could bring your family here, bring your whanau here, bring your mokopuna [grandchildren] here, you know? Come and help out and do something on the island because this is where people change, and they do.* – Participant G2

This was also echoed by Participant G8, who explained that people involved in the Tiritiri Matangi story from the early stages could pass the conservation message onto visitors.

> *I'm just a guide, but there are a lot of people with the Tiri story that have been in that mindset for such a long time, and it's like, I'm picking that up and carrying it forward.* – Participant G8

This also shows that it is not a requirement for guides to have been involved in the early planting stages of the Island but that anyone can volunteer. Volunteers all had slightly different aspects that were closer to them and that they were more passionate about. For example, Participant G13 described the various aspects guides can be knowledgeable about.

> *Some people are amazing with the history of this place. Other people are insanely knowledgeable when it comes to all the different research or all the scientific backgrounds. Someone might be very interested in birds or insects, or someone else is really passionate about plants.* – Participant G13

The Supporters of Tiritiri Matangi Guiding Manual also acknowledged this diversity of guides regarding their track preferences, timings, and expertise.

> *Most of the established guides have their preferences for which route they take; some have particular areas of expertise (plants, birds, history) and some are known to guide more quickly or slowly than others.* – Supporters of Tiritiri Matangi Guiding Manual

The different angles guides were also discovered in the conversations with participants, as they shared their backgrounds, occupations, and interests.

> *I grew up always being very aware of birds, and I started watching birds at a very early age.* – Participant G1
>
> *I am an avid reader of everything to do with natural history.* – Participant G3
>
> *I belong to all sorts of conservation groups outside of Tiritiri.* – Participant E2
>
> *I worked here as a DOC volunteer for about six years, starting 2010.* – Participant G9
>
> *I work for Sustainable Schools as an educator.* – Participant G11

Having a range of guides with various interests and expertise was an essential aspect of Tiritiri Matangi Island's environmental education and interpretation as it ensured that visitors could connect with guides who shared their specific interests, enabling a more personalised and engaging experience that catered to a diverse range of visitor preferences and learning styles. This was also mentioned in the Supporters of Tiritiri Matangi Guiding Manual. When the Guiding Manager knew the guides' preferences, visitors could be allocated appropriately, thus contributing to their personalised experience. Therefore, the Supporters of Tiritiri Matangi Guiding Manual's statement that *"What the guided group learns from the guide depends on their own interest and expertise"* was evident.

4.4.1.3 Dynamic Guided Tours

The findings suggested that the guided tours on Tiritiri Matangi Island were designed to be a dynamic and evolving educational experience, as guides were offered opportunities to learn more about the island, learn new skills, enrich their existing skills, and delve deep into conservation, ecology, history and education through the training programme. For example, the documents and interviews' findings revealed that Tiritiri Matangi Island guides underwent continuous learning and development.

> *Guides never stop learning about the Island, about themselves and their abilities, about their visitors and how best to engage them. Our training is designed, not only to give you initial training as a guide, but also to provide ongoing opportunities to develop your skills and learn.* – Supporters of Tiritiri Matangi Guiding Manual

> *We are constantly offered opportunities to be able to learn more.* – Participant G2

The first statement highlights the commitment of guides on the island to continuous learning, which was essential because the island's ecology, conservation efforts, and visitor dynamic were continually evolving. Therefore, guides had to stay informed about these changes to offer accurate and current information. This statement suggests that this process sparks personal growth and self-awareness as guides learn about themselves and their abilities. For example, they not only acquired knowledge about the island but also developed skills in communication, interpretation, and effective visitor engagement. This approach reflects a visitor-centric focus as guides adjust their methods and interactions to cater to their audience's diverse needs and interests, enhancing the informative and enjoyable visitor experience. Participant G2's experience supports these findings, as Tiritiri Matangi Island provided guides with ongoing training that contributed to their growth and expertise.

It was encouraging to find that the training programme had seven main components. The first component was the Supporters of Tiritiri Matangi Guiding Manual, which laid out the fundamentals of guiding, including information on visitor safety, duties and responsibilities, how guiding was organised, and advice on conducting a guided walk. This was followed by practical training of six or more so-called "buddy walks," in which new guides accompanied different experienced guides on their walks.

> *We go out about six or seven times with another guide to learn the ropes.* – Participant G6

More specifically, new guides observed the experienced guides' walks. As their knowledge and confidence grew, they were invited to contribute by identifying plants and animals, providing information about the Island's history, and safely guiding the group from the Wharf to the Visitor Centre.

> *They're buddy-guided around a few times, and then before you know it, they're thrown into the deep end, and they've got to guide people.* – Participant G3

This finding about the six or more buddy walks was encouraging because Eberts et al. (1997) claimed that guides often learn from reading basic materials or accompanying a guide for a few hours before guiding on their own. Therefore, it was evident that Tiritiri Matangi Island took a comprehensive and hands-on approach to guide training to ensure that guides had a deep understanding of the island's ecology and visitor engagement techniques, ultimately enhancing the quality of the educational experience.

Another valuable finding was that guides enhanced their knowledge and skills by exchanging information and stories with each other.

> *Guides learn by being together frequently on the Island, exchanging information and advice, enjoying the Island in each other's company, and swapping their favourite guiding anecdotes.* – Supporters of Tiritiri Matangi Guiding Manual

This was also expressed by participants who stated that guides learned and were reminded of various facts and stories from other guides.

> *Shelley is a new guide, so she walked with me. She learned a few things here which she did not know earlier.* – Participant G9

> *But she tells me she was bitten by wētā, and I didn't know wētā bites. I learned something new.* – Participant G9

> *When I company a guide, I'm still learning. And go, "Oh, I didn't know that fact, I'd forgotten that."* – Participant E2

Participant G9 highlighted that Shelley learned new things during the buddy walk training. They also mentioned that Shelley informed them about being bitten by a wētā, whereas they had not known that a wētā could bite. This example highlights how new and fully trained guides can continue learning and acquiring knowledge about specific topics or experiences. This was supported by Participant E2, who emphasised that even when they accompanied a guide, they were still learning. These comments recognise the value of peer interactions and that the learning process is ongoing and can occur in unexpected moments, even for those in a guiding or teaching role.

Not only was information exchange facilitated during the buddy walks, but it was also found that it occurred during the guides' free time as they exchanged facts and stories relevant to Tiritiri Matangi Island.

> *Definitely learning from each other. Most of the time, at the end, we will just sit down there and have our lunch together, and we will always talk about something.* – Participant G13

> *We don't have many people to guide today. So, five of us went off on our own, and we have been sharing stories about things that we know about. We've all got different stories. We've all got different things that we focus on. We've done a wonderful day of sharing today about what we all do.* – Participant G2

Participant G13 described a situation where learning occurred through casual conversation and shared meals, suggesting that participants engaged in social learning alongside their primary tasks. Similarly, Participant G2 described a scenario in which, with limited guiding tasks, they and four others shared stories and knowledge, enriching the learning experience with diverse perspectives and expertise. Therefore, even without formal guiding and training, individuals actively engage in self-directed learning by sharing their knowledge and learning from others. These are encouraging findings because they contradict Carmody's (2013) view that there was little transfer of knowledge and skills between staff on best-delivering information and environmental messages.

After completing the buddy walks, guides had additional training opportunities, including three training sessions that provided a deeper knowledge on various topics, from health and safety to ecotourism and the evolution of New Zealand's native species. These sessions also included helpful advice from experienced guides and an opportunity to discuss any concerns they may have had. It was also found in the Supporters of Tiritiri Matangi Guiding Manual that for Tiritiri Matangi Island's provision of education to be relevant, it was the Guiding Manager's responsibility to *"develop and distribute appropriate informative material for the guides"* and *"keep the material up to date and distribute new and revised information to the guides."* Similarly, it was found that the Guiding Manager had to *"edit and distribute a guiding newsletter as necessary and include the collating of flora and fauna data, Island track conditions, upcoming events and ongoing guide education."* Therefore, *GuideLines*, a newsletter especially for guides, was emailed every two weeks, providing updates on the island's flora and fauna, track conditions, upcoming events, and ongoing guide education. This was important for guides to read, as the Supporters of Tiritiri Matangi Guiding Manual explained that it is the "*responsibility of guides to stay up to date through GuideLines and any updates to the guiding manual."* Moreover, *"it is particularly important to keep up to date with the dynamic information and thus ensure that we are all giving accurate and consistent facts and figures."* These findings align with Tetik's (2016) argument that guides should regularly update their knowledge and skills through regular education and training. Furthermore, the provision of the guiding newsletter fostered a sense of community among guides, encouraging knowledge sharing, collaboration, and ongoing education, which can enhance the quality of guided tours. Also, by distributing new and revised information, the island could continuously improve its educational programmes, as guides provided feedback and insights based on the materials they received, leading to a cycle of improvement in the visitor experience. This provision was crucial for maintaining the quality, accuracy and relevance of environmental

education and interpretation on Tiritiri Matangi Island. It ensured that guides were well-informed, prepared, and equipped to provide visitors with an engaging and educational experience while fostering community among the guiding team. These are significant findings because Carmody (2013) argued that some tour companies inadvertently fail to train their guides adequately with up-to-date information.

It was also found that one of the Guiding Manager's duties was to *"encourage guides to continue to learn through attending the guide training sessions, talks, guides' day out and buddy guides with each other."* Therefore, another aspect of continuous guide training was the informal learning days, also known as "Guides' Days Out," conducted on the island yearly in the spring. These learning days allowed guides to learn from experts and Tiritiri's so-called "legends" in a sociable environment.

> *There are, you know, training evenings or training days, guides day out. There are always opportunities here.* – Participant G2

Finally, evening talks on topics related to the island were presented on the mainland several times a year and open to all Supporters of Tiritiri Matangi. It was highlighted by Participant G1 that if a gap in knowledge about the island existed, the Supporters attended a lecture to fill this gap.

> *Any time that they realise there's a gap in anything, we have a lecture on it.* – Participant G1

According to the participants, these "Tiri talks" were entertaining and informative as they provided information that could be used in guiding and for the guides' self-knowledge.

> *We have lectures about once a month on various subjects, and quite often, those are from other areas and the importance of things and what's going on in other reserves.* – Participant G1
>
> *Same with the Tiri talks as well. So, you just dive deeper into the topics, and the more knowledge you've got, the more you can pass on to your day visitors, which is really awesome.* – Participant G13
>
> *Tiri talks…so those are when you can go, and they'll have a specialist to come, and I also really love those because I like learning more, and maybe the detail is too detailed for what you might be able to get into with guiding, but for our own self-knowledge, I find that really helpful.* – Participant G8

Aligned with this, Kong (2014) suggested that inviting professional experts to introduce knowledge on ecotourism was useful, and organising workshops and seminars where tour guides share their working experience and nature-based education methods was informative.

Whilst the aim of the guided walks is not to impart everything one knows about the Island, it was found in the Supporters of Tiritiri Matangi Guiding Manual that *"the more we (the guides)*

know, the better the chance of answering tricky questions." This highlights the importance of guides taking training opportunities to pass knowledge on to visitors.

Overall, the guided tours on Tiritiri Matangi Island were designed to be an ever-evolving learning experience, as guides were provided with continuous opportunities for expanding their knowledge, developing new skills, enriching existing ones, and delving deeper into topics through the comprehensive training programme. This commitment to ongoing learning ensured the guided tours remained current and engaging, offering visitors up-to-date and comprehensive insights into the island's natural and cultural features. By fostering a culture of lifelong learning among guides, Tiritiri Matangi Island ensured that every guided tour was a dynamic and educational journey that left a lasting impact on both the guides and the visitors they led.

4.4.1.4 Relevant Guided Tours

The data suggested that guided tours were designed with a focus on relevance. For example, the first part of this theme involved making environmental education relevant to visitors' lives by drawing connections with what the island's volunteers were doing with their lives at home.

> *It's trying to get it relevant for them and their lives.* – Participant E2
>
> *I also relate it to their own lives because I sometimes find kids that have come from rural areas or farming areas; they actually do understand pest control and things like that. So, I like to make them feel like they know this stuff as well and how we can use those tools, those skills, to actually preserve what we've got.* – Participant G8

Participant E2 emphasised the importance of tailoring the educational content to visitors' lives and experiences. This approach recognised that visitors were more likely to engage with and internalise information that they could connect to their contexts and interests. For example, King and Ritchie (2012) and Moscardo (1999) recognised that when education is relevant, visitors will be more engaged and personally satisfied. Furthermore, Screven (1995) argued that educational content will be of little use if visitors cannot make meaningful connections to their previous knowledge and experience. Participant G8 recognised that some visitors, particularly those from rural or farming backgrounds, already possessed knowledge related to pest control and conservation practices. Therefore, guides aimed to validate and build upon this knowledge, making visitors feel like active participants in conservation efforts. This aligns with Falk et al.'s (2012) finding that the ability to integrate prior knowledge and familiarity with the present is the essence of comprehension learning. By relating the information to visitors' experiences, environments and skills, guides empowered them to see themselves as potential contributors to conservation. Therefore, a sense of ownership and responsibility for conserving the environment could be fostered. This supports Hungerford's (1996) and Kals et al.'s (1999) view that relevant information promotes empowerment and ownership.

The second aspect of this theme involved designing guided tours that were relevant for visitors by discussing what was appropriate to the current time and circumstances of contemporary interest.

> *We, as guides, are current with what's going on, being well-informed and prepared beforehand.* – Participant G2

> *I do point out a lot of the different things that have happened here and are happening.* – Participant G13

Participant G2 highlighted that staying current and knowledgeable was crucial for guides because they played a key role in educating and enlightening visitors about the environment, history, or any relevant subject matter. In the same way, Participant G13 indicated that they tried to point out ongoing developments in the area they were guiding. Discussing current events ensured that the information shared was not only historical but also relevant to visitors' experiences. In addition, by drawing attention to ongoing events, guides were able to raise awareness about issues or activities that visitors might not have been aware of otherwise. Participant G2 also explained that the guides kept abreast of the organisation's goals and knowledge of the island to serve their visitors better.

> *It is my obligation to do my homework beforehand, to be really au fait with what is going on and current with what might be happening on the island as well.* – Participant G2

> *I think we all owe it to the people that we're guiding to keep current, to be up to play with what's going on with the intentions of the organisation and to weave that, it's woven into the stories about what's going on.* – Participant G2

Both comments emphasise the importance of well-informed and up-to-date guides for effective education. Participant G2's first statement highlights their duty as a guide to be prepared and informed about current island events, ensuring accurate and relevant information for visitors. This commitment to *"do my homework beforehand"* demonstrated a responsible and dedicated approach to guiding. The second comment asserts the collective responsibility of all guides to align with the intentions and activities of the Supporters of Tiritiri Matangi, which was essential to maintaining alignment with the organisation's strategic objectives. Additionally, Participant G2 highlighted that this knowledge should be woven into the stories and narratives shared with visitors to provide a well-rounded and informative experience that not only educates but also aligns with the Supporters' mission.

Further discussion with Participant G2 uncovered two examples of recent events that they included in their conversations with visitors.

> *Really responsive is so important to bring into the conversations around what's going on, well, you know, if we had a rat on the island. We think we've got a rat on the island.*

What are the implications of that? You know, how are we going to trap it and what are we going to do about the outcome from it, and it was a really good outcome in the end. But just constantly looking out for what else is going on. What did the flooding do here? You know, what did the typhoon...what did we have? – Participant G2

This shows that not only were visitors informed of current events, such as the rat present on the island (January 2018) and Cyclone Gabrielle (February 2023) but guides also discussed the implications of these events and what the Supporters did to conserve the island. This fostered transparency and trust, allowing visitors to fully appreciate the conservation efforts and challenges faced by Tiritiri Matangi Island. It also encouraged visitors to become more engaged and potentially support these conservation initiatives, contributing to the island's long-term sustainability. Moreover, by explaining how current events were dealt with on Tiritiri Matangi Island, visitors could be inspired to look deeper into these issues in their community.

If you keep yourself well informed and fascinated by something going on that's current and interesting, you're sharing that with people and encouraging them to go and find out about it in their own community. – Participant G2

This illustrates Participant G2's awareness that their role extended beyond the island. By staying informed about current ecological events and conservation initiatives, they not only educated visitors but also served as catalysts for broader environmental awareness and action in visitors' own communities. Sharing relevant knowledge and motivation contributed to a profound and lasting impact on the island's educational initiatives.

Overall, the guided tours on Tiritiri Matangi Island were designed to be relevant by connecting with visitors' lives at home and incorporating recent events and their implications into the stories guides tell.

4.4.1.5 Personalised Experiences

The findings revealed that the guided tours on Tiritiri Matangi Island were also designed to provide a personalised experience. In the context of Tiritiri Matangi, a personalised experience involves the small nature of the group, guides getting to know the group, being led by the group, and catering to expectations.

4.4.1.5.1 Guided Tour Group Size

According to the Supporters of Tiritiri Matangi Guiding Manual, *"DOC specify that there should be no more than 120 guided visitors (our clients) per day…that group size should be no more than 12."* These conditions not only relieve pressure on the main guiding routes, but the small nature of the groups ensured visitors had a meaningful educational experience. Smaller groups created an intimate experience as visitors could connect directly with the guide, ask

questions, and engage in meaningful conversations about the island's ecology, wildlife, and conservation efforts. In addition, guides could tailor their explanations and discussions to the specific questions of each visitor in the smaller group, which enhanced the educational quality of the tours.

4.4.1.5.2 Getting to Know the Group

The Supporters of Tiritiri Matangi Guiding Manual suggested that guides needed to know their audience to ensure that Tiritiri Matangi Island visitors had a personalised experience.

> *Find out who you are guiding and what they are expecting.*

Participants also demonstrated this theme, as many explained that one of their most important roles and responsibilities as a guide was getting to know the group.

> *Getting to know the people.* – Participant G1
>
> *It's a day where I get to know them and get to know what they want.* – Participant G15
>
> *I think that it's finding out what it is that they know, who they are, what they want, what they are interested in and responsiveness.* – Participant G2

These findings reveal that Tiritiri Matangi Island guides acted as "Animators" in the eyes of Cohen (1985) because they took on a social function by interacting and socialising with visitors, exhibiting friendliness, attentive listening and respecting their preferences. Furthermore, the findings support Räikkönen's (2014, p. 95) argument that "tour guides should be seen as experience enablers whose task is not to impose ready-made experiences but to concentrate on the consumers and empower them to experience whatever it is that they came to experience." It is widely discussed in the tourism literature that visitor experiences should be interactive and personal phenomena strongly influenced by individual consumers seeking to create meaning (McIntosh & Siggs, 2005; Uriely, 2005).

Guides getting to know the group did not solely occur on Tiritiri Matangi Island. Instead, guides were encouraged to interact with visitors on the ferry ride to uncover their expectations and respond to their queries. The Supporters of Tiritiri Matangi Guiding Manual recommended that *"the ferry ride is a great opportunity to talk to the visitors, find out their expectations and answer their questions."* This was also reflected by Participant G5, who typically chatted with those on the ferry who seemed more reserved, asked about their interests and answered any questions they may have had.

> *I generally spot someone who's sitting quietly or a couple on the boat and chat with them, ask what they're interested in and try and answer some questions.* – Participant G5

As the educators were responsible for the school visits, Participant E2 explained that they talked to the teachers and students before they boarded or on board the ferry to align expectations.

> *I'm facilitating their visit, so I'll be talking to the teachers, possibly the students, even before they get on board, or if they're already on board, I'll do it then, and I try and make sure that their expectations are the same as our expectations for the whole day.* – Participant E2

By understanding visitors' expectations and interests before stepping on Tiritiri Matangi Island, the guides ensured a personalised and tailored experience that aligned with the visitors' preferences and maximised the time visitors spent exploring the island.

When speaking to participants, it became clear that getting to know the group involved understanding the best-suited walking track for the group, their origin, and their interests. For example, guides asked visitors which track they would like to walk on based on their preferences and abilities.

> *Usually, prior to us being connected with the group, family or whatever it happens to be, there's a question asked about whether they would rather walk the Wattle track, a slightly shorter track or the Kawerau track.* – Participant G2

> *Having a bit of a look sometimes just to check that they're well enough or fit enough to manage the track.* – Participant G5

Wong and McKercher (2012) similarly argued that providing visitors with tour routes best suited to their particular needs is fundamental. These findings also follow the Department of Conservation's (2005) suggestion that guides must be mindful of visitors' needs and abilities so they can adjust the walking pace for slower visitors.

Once the track choice was determined, it was found that guides typically inquired about the visitors' place of origin.

> *I go around the group and ask them a bit about where they are from and that sort of thing.* – Participant G4

> *Ask them a little bit about themselves, where they've come from, and if they're from overseas.* – Participant G12

This was also evident in the Supporters of Tiritiri Matangi Guiding Manual, which encouraged guides to *"find out where they are from and if they have been to the Island before."*

This was an essential aspect of getting to know the group because guides could then gauge if overseas visitors knew about New Zealand or the Island's history and conservation efforts and whether they had a sense of appreciation for it.

> *It's interesting to know a little bit about where they've come from and for you to find out how much they know about the New Zealand situation and how it was, you know, particularly the island.* – Participant G12

> *You can learn a little bit then if they are very environmentally aware already and they don't need any more of that, or whether they have no understanding at all, that's a different sort of talk you give.* – Participant G12

> *I often like with overseas visitors to know where they've come from so that... do they have an appreciation of it. And then showing the contrast and the similarities when they come to the island, and sometimes people really love that, you know, they're very willing to share their experiences where they live.* – Participant G8

These findings support the Department of Conservation's (2005) claim that guides should learn about visitors' backgrounds to make them feel included and help target environmental education and interpretation. This also aligns with Dewey's (1973) assertion that without establishing connections between the life experiences of the visitor and education, genuine learning and growth would be impossible. Moreover, understanding visitors' backgrounds allowed guides to make connections between the Tiritiri Matangi environment and visitors' hometowns.

> *It helps a lot. You know, if you've travelled quite a bit overseas, which we have from our family to be able to connect with where they're from and just make all of those kinds of connections.* – Participant G2

Participant G2 considered this important because connecting with visitors personally by acknowledging their history and experiences was an effective way to engage them.

> *It is really important to do that connecting with what their own history is if you like, and experiences because then, you know, it's really easy to get them to become interested in what's going on.* – Participant G2

This relates to Moscardo's (1999) study that revealed that finding or making a personal link significantly influences visitor satisfaction and how much they feel they learn. Subsequent interviews further revealed that guides uncovered the interests of visitors during the initial stage of the guided walk.

> *I try and pick up in the first 100 meters or so where the interests lie*. – Participant G3

> *And a big question that I always have is right at the outset, "So, what are you really interested in? What is your passion? What have you learned about before, or have you had a, you know, programme that you've been involved in, or have known anything about the island or about the birds?" So, just sort of doing that exploration about what their interest level is and then really, you need to target, in my opinion, you need to target what you're doing towards that.* – Participant G2

> *Ask them lots of questions about what they are expecting to learn today, what they would really like to see, or, you know, ask them what their focus is because the different groups have different focuses.* – Participant G4

Participant G3 attempted to uncover the interests of visitors within the first hundred metres of the experience. By identifying their interests early on, guides could customise the experience to align with what resonated most with the group. This adaptability led to an engaging and relevant experience for the participants. Participant G2 similarly described their practice of asking participants about their interests, passions, prior knowledge, or experiences related to Tiritiri Matangi Island and its wildlife. By understanding visitors' motivations and knowledge, the guides could craft a tailored experience that catered to their specific interests and motivations. Similarly, Participant G4 emphasised the importance of asking visitors questions about what they expected to learn and what they would like to see during the guided experiences. This was a critical approach because different groups may have varying interests. Therefore, by asking questions, the guide could ensure that the content and activities aligned with the group's specific desires. This was supported by various other participants, who explained the importance of adaptability and tailoring the educational experiences to the particular needs and interests of the guided visitor group.

> *You tend to listen to them, and you can work out what they focused on, and you can tailor, you can refine your talk to suit the people that you have.* – Participant G10

> *Everybody is different, and I think you have to tailor it to the needs of the group that are with you.* – Participant G12

Participant G10 highlighted the importance of actively listening to the groups' questions, comments, and areas of interest. By paying attention to the visitors, guides could determine the topics that resonated with them or the aspects of the experience they were most engaged with. This allowed the guides to refine their tour and align it with the group's specific focus, creating a relevant and engaging educational experience. Similarly, Participant G12 highlighted the diversity among visitors, explaining that every group is different. Therefore, they argued that guides must recognise these differences and tailor their approach to meet the unique needs of each group. By customising the content and delivery, the guides provided visitors with a more effective and meaningful experience.

This also emerged in the Supporters of Tiritiri Matangi Guiding Manual, that understanding the guided tour audience indicated how the tour would play out.

> *Knowing their hopes and expectations and expectations is a good starting point. They might tell you they are hoping to see birds, or plants, or just nature in general, or they might want to know about the Island's history. By asking them what interests them most, you immediately get a sense of how the walk is likely to go.* – Supporters of Tiritiri Matangi Guiding Manual

These findings reflect Pine and Gilmore's (1998) experience economy perspective, as visitors felt involved and actively interacted with the environment, influencing the quality of their experience by informing the guides of their interests and expectations. It also emerged from the

findings that guides who knew something about their group could indicate whether visitors had any expertise that may assist them.

> *Being a guide doesn't mean that you have to feed them knowledge all the time. If there is a botanist in your group and you are struggling to identify some of the plants, enlist their help.* – Participant G3

This statement challenges the notion that guides must be the sole providers of knowledge. Instead, it positions guides as facilitators of learning experiences. For example, Participant G3 recognised that a group may have individuals with their own unique knowledge and expertise that the guide may not know. Enlisting the help of a botanist within the group led to a richer and more comprehensive learning experience for everyone involved because it allows for a deeper exploration of the subject matter and encourages questions, discussions and shared insights. This example illustrates the value of leveraging the collective knowledge of visitors. By involving a botanist or someone with specialised expertise in plant identification, the guide not only enhanced the accuracy of the information shared but also fostered a collaborative learning environment. Therefore, visitors can be empowered to actively contribute to the educational experience.

Several other participants highlighted the importance of recognising and engaging with the expertise and interests of visitors during the guided experiences. The findings emphasise the potential for meaningful interactions and enhanced learning when guides acknowledge and build upon visitors' pre-existing knowledge and passions.

> *But you might have someone who's talking about a research project that they've been involved with, and then you can draw connections.* – Participant G13
>
> *If you get an ornithologist from overseas who read about the island and things, you talk on a different level about what has been done on some of the rare birds there.* – Participant G12
>
> *If you see photographers, you ask about, you know, if you've got good shots, things you were looking for and can offer them any hints if there are things they're still looking for.* – Participant G10

Participant G13 pointed out the value of visitors sharing their research projects or experiences because guides drew connections between the subject matter they were presenting and visitors' expertise. This not only added depth to the discussion but also fostered a sense of shared learning and collaboration. Participant G12 illustrated the importance of adapting conversation to the level of expertise of the visitors. For example, when interacting with an ornithologist well-versed in the subject matter, the guide could engage in more in-depth discussions about rare bird species on the island. Therefore, a tailored approach was presented that was relevant and engaging for the individuals' backgrounds and interests. Finally, Participant G10 explained the significance of acknowledging the interests and activities of photographers in the group. The

guide could offer hints and suggestions and a deeper understanding of the subject matter by asking about the pictures they were trying to capture. Ultimately, these statements collectively emphasise the dynamic, adaptable and personalised nature of the guided experience as guides went beyond a one-size-fits-all approach to education and interpretation.

4.4.1.5.3 Be Led by the Group

It was also found that to provide a personalised experience, guides should be led by their group.

> *We try and be led by the people. So, we sort of go with what they're interested in.* – Participant M1

> *So, following their interests and keeping that going is important.* – Participant G15

These findings reflect the co-creation of experiences as visitors played a central role in the production process (Binkhorst & Den Dekker, 2009; Campos et al., 2018; Prahalad & Ramaswamy, 2004; Prebensen et al., 2013). Moreover, it demonstrates a free-choice learning experience as the visitors had significant control and choice over the learning process (Falk & Heimlich, 2009). Schreiner and Sjøberg (2004) highlighted this importance because by effectively aligning visitors' actual or perceived interest with the information delivered by guides, educational experiences become meaningful and applicable. To demonstrate, visitors can lead the group by pointing things out to guides to spark conversation or asking questions to influence what the guides tell them.

> *And I find kids really like that, where I say, "Look, I'm the guide, but you can see things that I may have missed."* – Participant G8

> *I'm walking in front of you or with you, and I can't keep my eyes everywhere. But certainly, with the children, we always tell them, "Now your eyes are much sharper than mine, you'll see movement", or what have you, or if you see a bird sitting quietly, don't yell, just indicate.* – Participant G12

Participant G8 acknowledged that children can be remarkably observant and perceptive. Stating, *"Look, I'm the guide, but you can see things I may have missed,"* implies that they recognised the potential of young participants and actively involved them in the guided experience. This approach fostered a sense of involvement and empowerment among children, enhancing their engagement and enthusiasm. Participant G12 also highlighted the sharp observation skills of children, and their statement conveyed a sense of trust in children's abilities to notice things such as movements or birds. Children were encouraged to take a more active and leadership role in the group by pointing out flora and fauna to spark discussion. This approach not only enhanced the educational experience but also fostered a sense of curiosity, exploration and appreciation for the natural world among children, which can lead to a long-lasting positive effect on their connection to nature.

Being guided by the group also involved picking up signals from how visitors behaved to determine their interest level and how much information they could take in.

> *A big part of that for me is trying to figure out what they're interested in and how much information they might be capable of getting. And then tailor what we do along the path for that.* – Participant G5

Participant G5 began by highlighting the significance of working out what the visitors were interested in before explaining that it was crucial to assess how much information the participants might be capable of processing. People have varying levels of prior knowledge and different learning capacities, so guides adapted their approach to ensure that the information was accessible and understandable to the group, which tailored the experience.

The Supporters of Tiritiri Matangi Guiding Manual posed two questions to help guides understand how visitors were feeling about their guided walk experience:

> *Are they getting restless and wanting to move on? Are they fascinated by what you are saying and asking lots of questions?* – Supporters of Tiritiri Matangi Guiding Manual

This suggests that guides had to be alert to these signals and utilise them to indicate whether they provided information of interest to visitors. This was reflected by Participant G6, who explained that they *"just judge it with the group that you've got",* as well as the Supporters of Tiritiri Matangi Guiding Manual, which stated, *"Gauge whether you think your group will find it interesting."*

Participant G3 echoed this by providing examples of tailoring the information to match the audience's level of interest and knowledge.

> *Sometimes you get a group that just came out here because they've seen it advertised, and I thought, oh, that's a nice place to go to, and they're not particularly interested. And so, when I start off, I will be saying, "This plant is such and such, and this is such and such tree." And if I'm not getting any sort of feedback from the people, I think right, well, they're not particularly interested in the botany side of things.* – Participant G3

> *I also try and incorporate the Māori names for the plants and the birds if I know them. And in some cases, also the scientific names. But again, most people are not interested in the scientific names, like they're not interested in that a pohutukawa tree is metrosideros excelsa. That doesn't mean anything to them. And you can see that when you're speaking to them.* – Participant G3

The first example describes a situation where visitors participated in a guided walk due to general curiosity or seeing an advertisement rather than having a specific interest like botany. When faced with such a group, the guide initiated a tour by providing information about plants and trees. However, they noted that if they did not receive any feedback or engagement from the participants, they assumed that the group was not particularly interested in the botanical aspects

of the guided tour, so they would attempt to spark interest in a different subject matter. The second example highlighted that while the guide recognised the value of the scientific names for plants, they acknowledged that many visitors might not be interested, as they seemed technical and unfamiliar. Therefore, the guide redirected their tour due to the lack of interest and response they received from the group when mentioning scientific names. Ultimately, these examples emphasise the need for guides to adapt and respond to their audience's interests and knowledge levels.

It was also found that visitor signals could indicate whether the guides were saying too much or too little. For example, some participants said the guides must gauge how much information visitors could receive.

> *You've got to be able to read how much they can take in or not take in* – Participant G2
>
> *So, you gauge with the people you with how much detail they may be interested in. And so, it's very much a perception thing about what you think they want to know and how much detail.* – Participant G8

Some visitors wanted a lot of facts, while some would rather look and listen, take photographs or simply soak in the atmosphere without being burdened by too much information.

> *There are people that just want to come for a nice walk, and they're not necessarily interested in the birds, so you don't overdo it. You talk about other things as well, you know.* – Participant G6

This was also evident in the school education groups.

> *You have to understand the age group of the students, where they're at, how long their attention is, which often isn't very long, and keep it short, snappy, and entertaining.* – Participant E2

Therefore, it was up to the guide to determine the appropriate balance between providing detailed information for those who sought it and ensuring a more relaxed, experiential visit for those who preferred a more observational approach. Hence, guides had to be sensitive to their audience's diverse interests and needs, whether they were adults looking for a pleasant walk, school groups with limited attention spans, or anyone in between. This flexible guiding style enhanced the overall experience, making it enjoyable and enriching for all visitors, regardless of their varying preferences and expectations. It was also found that guides did not feel obliged to give visitors what they wanted. Instead, they aimed to do more than meet their expectations. The Supporters of Tiritiri Matangi Guiding Manual stated, "*They might be fascinated by things they didn't know could be interesting.*"

This was echoed by Participant G12, who explained that while accommodating visitors' interests, the subject matter could be enlarged to encompass a broader understanding of the environment, incorporating various ecological and environmental factors.

> *Talk to them and find out where their interests lie and then enlarge on that and bring in all the environmental factors as well.* – Participant G12

This statement emphasises the importance of adaptability and audience-centred education in guiding. This ensured that visitors were left satisfied with a rich understanding of the environment of the subject matter being explored.

Overall, the guided tours on Tiritiri Matangi Island were designed to be personalised, as the small group size allowed guides to understand the backgrounds, interests and expertise of visitors to tailor the experience for a more enriching and engaging exploration of Tiritiri Matangi Island's natural and cultural features. A personalised experience was also ensured, as guides encouraged visitors to lead the group by pointing out flora and fauna to spark discussion and respond to visitor behaviour signals by directing the subject matter to align with the group's interests and curiosities.

4.4.2 School Education Programmes

While the guided tours were an essential part of the environmental education and interpretation on Tiritiri Matangi Island, it was found that the learning journey did not stop here for children; school education programmes were provided to supplement the guided tours by going into more detail, as highlighted by Participant G8.

> *My part of the guided walk is only part of the educational programme. Very often, the educators will add on to that after we've finished. So, we're like the introduction, and then they will go into more depth.* – Participant G8

> *So, we do all our own thing as guides, and then they can pull it all together or go into something more specific if you were looking for that more in-depth.* – Participant G8

Tiritiri Matangi (2021e) also revealed that schools should book one of the education programmes to enjoy a full experience on the island. There were two streams for pupils: primary, intermediate and middle school children, and Year 11-12 secondary school children. After the guided walk, afternoon programmes at the Visitor Centre were of the school's choosing, depending on the age group of students. For example, the primary and middle education programmes covered various suitable topics for Years 1-10 under the Nature of Science and Living World syllabus. Participants highlighted the importance of age-appropriate communication and educational content when educating younger children.

> *Like all the kids, you obviously talk about different things and like, these guys were seven years old, so I don't talk too much about the really complex structures. Technical terms and such will be less with younger groups.* – Participant G13

> *The younger ones tend to be, yeah, well, it's just about conservation or, you know, they're just interested in native birds or something like that.* – Participant G14

Participant G13 acknowledged that when educating younger children, especially primary students, it was essential to avoid overwhelming them with complex structures and technical terminology. Therefore, educators had to use simple language and focus on broad concepts to ensure comprehension and retention. This reflected an understanding of child development and the need to communicate information that was accessible and engaging for their age group. Participant G14 also recognised that younger children often had specific interests that were more straightforward and relatable, such as conservation or native birds. Therefore, educators needed to align their content with the interests and comprehension level of the group, as younger students may not have had the same depth of prior knowledge or the capacity to engage with complex subjects.

Various activities complemented the guided walk for this age group, such as scavenger hunts, interactive educational talks provided by the educators, or learning about three sustainability goals that highlight consumption behaviour, participation and conservation.

> *So, they may be doing something called the scavenger hunt, which means that they will be finding certain answers to certain questions, and that's leading them into finding out more about species, the island, the history, a certain bird and so on.* – Participant E2

> *I do a presentation in half an hour with the seniors* – Participant E1

> *Three sustainability goals: (1) changing behaviour in the use and disposal of plastic, (2) everyone can be doing something for the environment, and (3) moving towards an invader-free New Zealand.* – Tiritiri Matangi Website (Primary and Middle School Education)

Regarding the senior school groups, participants clarified that the educational focus provided by Tiritiri Matangi Island corresponded with the New Zealand Certificate of Educational Achievement (NCEA) standard. For instance, Participant G14 shared that *"the older they are, the more likely they are to have quite a strict curriculum that they have to stick to"*. Based on this, Participant E1 revealed that three student topics were available.

> *There's about three topics at year 11, 12 and 13.* – Participant E1

Participant E1 explained that senior group topics encompassed speciation, genetic variation and sustainability.

So, if a senior group comes out, then they have the opportunity of a presentation, and a worksheet on topics, so it could be speciation, it could be on genetic variation, it can be sustainability. – Participant E1

This was supported by Tiritiri Matangi (2021f), who described that the programmes offered for Year 11-13 students included "Sustainable Use of an Environment," "Pest Free Tiritiri Matangi", and "Report on a Biological Issue" for Level 1, "Education for Sustainability," "Practical investigation," "Genetic Variation and Change," "Ecological Pattern Recognition for Level 2, and "The Use of Open Sanctuaries," "Responses of Plants and Animals to their Environment," "Evolutionary Processes," and "Biodiversity" for Level 3.

Participants explained that students studying for NCEA were engaging with more systems-based learning than individual systems.

When I look at the curriculum that the kids at different levels have, the high school kids, particularly the NCEA kids, definitely are doing far more systems-based stuff rather than just individual things. – Participant G5

Symbiosis is, yeah, I use that with more with, you know, teenage teenagers that I'm guiding you out of here when they're doing biology. – Participant G4

You've got those two different branches of it: you've got conservation work, but you also have the whole sustainability branch. Yeah, like with older kids, you can talk a lot about sustainability and the impact of humans living in an environment and things like that. – Participant G13

Participant G5 noted that older students were often exposed to more complex and integrated ecological concepts. Participant G4 went further by mentioning the term "symbiosis" when educating older teenagers studying biology, as they could foster a deeper understanding of ecological relationships. Similarly, Participant G13 explained that there was a greater capacity for older students to delve into sustainability discussion by examining the ecological, social, and economic aspects of human-environment interactions.

It was also found that woven through this educational experience was an understanding of the interconnectedness of humans and nature, as exemplified in the Māori world view *"Ko au te whenua, ko te whenua ko au"* (I am the land, the land is me); aligned with this, the Ministry of Education (1999a) argued that environmental education must encompass the concepts of biodiversity and interdependence as they build a knowledge base and draw relationships between the human and environmental spheres. Hungerford and Volk (1990) also revealed that opportunities to change learner behaviour in the environmental dimension can be maximised if educational agencies teach environmentally significant ecological concepts and the interrelationships that exist within and between these concepts.

Overall, Tiritiri Matangi's island classroom supported the New Zealand Curriculum and enabled positive environmental experiences for students as they had the chance to understand ecological processes, the impact of humans on our environment and learn about New Zealand's unique ecology and biodiversity, ultimately contributing to their holistic education and fostering a sense of responsibility as environmentally conscious citizens.

4.4.3 Signage

Based on the discussions with participants, it became clear that Tiritiri Matangi Island had a thoughtful approach to designing signage. The island provided three distinct types of signage: directional, identification, and interpretive.

4.4.3.1 Directional Signage

Firstly, directional signs shown in Figure 3 were installed to help visitors navigate the island.

> *There's the directional signs which DOC put in to tell you where to go, so you're not going to get lost.* – Participant G14

Figure 3. Directional Signage on Tiritiri Matangi Island

Note. Directional Signage at the Wharf on Tiritiri Matangi Island.

This directional sign started by providing valuable information about the history and landscape of Tiritiri Matangi Island.

> *There are numerous tracks on this 220 hectare island, many left over from the huge planting programme between 1984 and 1994 that saw over 280,000 trees planted.*

The statement about the island covering 220 hectares provided context for its size, helping visitors appreciate the scale of the environment they were exploring. It also highlighted the significant 1984-1994 planting programme, shedding light on the island's ecological history and commitment to conservation. The statement also specified that 280,000 trees were planted during the ecological restoration initiative, drawing attention to the conservation project's magnitude and highlighting the importance of re-establishing native vegetation. The reference to *"numerous tracks"* indicated a network of trails, offering opportunities for exploring diverse ecosystems, wildlife observation, and cultural heritage appreciation. This statement was an informative introduction to the island's size, history, restoration efforts, and available tracks.

The information at the beginning of the sign also indicated that Tiritiri Matangi Island had an effective wayfinding and navigation system.

> *Intersections are well sign-posted so you cannot get 'lost…'*

Well-sign-posted intersections enhanced visitor convenience and safety, eliminating the risk of getting lost in Tiritiri Matangi Island's complex terrain. Therefore, visitors could confidently explore the island and focus on natural beauty, wildlife observation, and educational content, creating a more positive and stress-free experience. Not getting *"lost"* also implied safety, as visitors had clear directions and knew where they were always. Following the introduction and reassurance of signposting, this sign continued to provide detailed information about the various walking tracks.

> *Wattle Track. Wharf to Lighthouse. 30 min. Named after the remaining pocket of introduced wattle trees which provide a valuable nectar source for birds in the winter. This is a gentle walk (baby buggy friendly) with excellent opportunities for bird watching.*
>
> *Hobbs Beach. Wharf to Hobbs Beach. 10 min. The track to Hobbs Beach follows along the rocky coastline typical of much of the island. Look out for the penguin boxes at the side of the track. The beach is named after the Hobbs family who farmed the island for many years. It is a sandy beach and a good swimming and picnic spot.*
>
> *Kawerau Track. Hobbs Beach to Ridge Road. 40 min. The Kawerau track travels through a patch of mature coastal forest with large old pūriri and pohutukawa trees. Boardwalks and viewing platforms provide superb bird watching sites. The track is named after the Kawerau iwi that built the Tiritiri Matangi Pa, which is accessed via the steps up to the boardwalk.*

These findings highlight the sign's role in enhancing the visitor experience by providing crucial details about each track's length, features, and accessibility. This information assisted visitors in choosing tracks that suited their time, abilities, and interests. The sign also added historical and cultural context, connecting visitors to the island's past and indigenous heritage by mentioning the Hobbs family and the Kawerau iwi. Furthermore, it encouraged recreational activities like swimming and picnicking, making the island versatile for various interests. Additionally, the emphasis on birdwatching aligned with Tiritiri Matangi Island's conservation goals, actively engaging visitors in observing and appreciating its native bird species. In summary, this information enriched the visitor experience, celebrated the island's rich heritage, offered recreational opportunities, and promoted environmental education and conservation.

The sign also provided visitors with essential information about the key locations on the island.

> *Lighthouse area. This is the location of the main building, take time to explore the historic precinct of the lighthouse.*
>
> *Information Centre. The visitors centre and shop are located near the lighthouse. The visitors centre details the history of the island and this conservation project, with the shop selling souvenirs, publications and cold drinks. No food is available. Shop profits are invested in the island project through Supporters of Tiritiri Matangi Inc.*

This information helped visitors navigate and plan their visit effectively. Highlighting the historical precinct of the lighthouse encouraged visitors to explore and appreciate the island's cultural heritage as it fostered a sense of connection to the island's past. The information centre served as an educational resource by offering insights into the island's history and conservation efforts. Therefore, both the lighthouse area and the information centre contributed to an enriching and well-rounded visitor experience.

A map of the island was then displayed to the right of the sign, depicting bush types, roads, walking tracks, connecting paths, and essential facilities. It showed the location of the visitors so they could orient themselves, plan their routes, and make the most of their visit, facilitating navigation, safety, and environmental awareness. The map provided a visual guide to the island's layout, helping visitors understand where they were in relation to key landmarks and facilities. Displaying the locations of facilities such as toilets and lookout points was crucial for visitor safety and convenience, as visitors could easily find the amenities required. Furthermore, indicating the types of bush on the island raised awareness about the island's diverse ecosystems, fostering a deep appreciation for the island's ecological significance. In addition, understanding the location of waking tracks encouraged visitors to stay on designated paths and minimise the impact on sensitive ecosystems, contributing to conserving the island's resources. Overall, the features on the map enhanced the visitor experience by providing valuable information, promoting safety and sustainability, and allowing visitors to fully and responsibly engage with the island's natural beauty and heritage.

This encouragement of responsible visitation was also demonstrated beneath the map, where several regulations and environmentally responsible behaviours were listed.

> *Keep our endangered island wildlife safe and Tiritiri Matangi free of unnatural pests! Check your boat/kayak/gear thoroughly for stowaways like rodents and insects before you arrive and report any sign of those to the Ranger.*
>
> *No fires or barbecues.*
>
> *No overnight camping.*
>
> *Do not feed the birds.*
>
> *Take nothing but photographs.*
>
> *Take your rubbish with you.*
>
> *Keep to the tracks to avoid disturbing wildlife.*

These regulations aligned directly with the New Zealand Environmental Care Code (Ainge et al., 1991) to preserve Tiritiri Matangi Island's unique natural environment and endangered wildlife. Furthermore, the overall visitor experience was heightened because visitors could become familiar with the regulations and develop responsible and environmentally conscious behaviour, fostering a deeper connection with the island's pristine beauty, rich biodiversity, and cultural significance. This allowed visitors to appreciate the island's value and contribute to its long-term conservation.

This directional sign on Tiritiri Matangi Island went beyond offering directions to deeper insights into its history and context, conservation, safety, and responsible visitor behaviour, offering a holistic and environmentally conscious display of information for visitors to enhance their experience.

4.4.3.2 Identification Signage

Identification signs were present along the walking tracks, as shown in Figures 4 and 5, to give visitors simple factual information about the flora and fauna they encountered.

> *There's the plant signs, which just give a little bit of information about plants.* – Participant G14
>
> *A lot of the trees are identified along the tracks, particularly the Wattle Track.* – Participant G5

Figure 4. Tauhinu Identification Signage

Note. Tauhinu Identification Signage on the Wattle Track on Tiritiri Matangi Island.

Figure 5. Māpou Identification Signage

Note. Māpou Identification Signage on the Wattle Track on Tiritiri Matangi Island.

The identification signage included the flora's common, Māori and scientific names.

> *Tauhinu. Cassinia Ieptophylla. Cottonwood.* – Figure 4
>
> *Māpou/Māpau/Matipo. Myrsine australis.* – Figure 5

This enriched the educational experience because visitors not only learned about the plants' scientific classification but also gained a cultural and historical context, fostering cultural awareness and respect for indigenous culture. This inclusive approach accommodated diverse visitor preferences, ensuring meaningful engagement for all.

The signs comprehensively explained the plants' characteristics, including their height, growing season, and physical features such as colour and texture.

> *5m: Flowers Nov.-Feb.* – Figure 4

> *6m. Flowers November to January.* – Figure 5

> *Leaves have thick covering of white hairs on underside.* – Figure 4

> *A small scrubland tree with grey trunk but red branchlets and young branches. The stiff, gland dotted undulate leaves are broadly elliptic with a hairy mid-vein. Small pale-yellow uni-sex flowers form in clusters. The tiny drupes blacken when ripe.* – Figure 5

This detailed information enhanced the educational value of signage, promoting a comprehensive understanding of the flora. For example, knowing the plant growing season aided in appreciating the island's natural rhythms and supported accurate observation as visitors could match what they saw in nature to the information on the signs. Information about colour, texture, and physical attributes encouraged closer plant exploration and engagement. The signs fostered deep botanical knowledge and ecological awareness, leading to a greater appreciation of the natural environment's diversity and complexity; this awareness could inspire a greater commitment to environmental conservation.

The participants believed identification signage throughout the bush was crucial for visitors exploring the island independently, as it provided helpful information.

> *If you're not having a guided tour, then the signage is the principal way.* – Participant G10

> *Especially if they're walking on their own, just to give them that bit of extra information, isn't it?* – Participant G11

To elaborate, signage empowered individuals to explore the island independently while benefiting from educational content, as it provided a sense of discovery as visitors stopped to read and learn about the island's flora, fauna, history, and conservation efforts. This was especially relevant for visitors who preferred self-guided experiences or arrived at times when guided tours were not available.

It was also found that signage allowed visitors to control the pace of their exploration.

It's important, and it gives it a bit of a digression. You know, it gives you a reason to pause. – Participant G10

And give them like a bench by the sign so they can actually sit down and rest. – Participant G11

Participant G11 revealed that visitors could pause to read the signs whenever they chose, spending more time on topics that piqued their interest. This flexibility accommodated diverse visitor preferences and schedules. Similarly, Participant G11 recommended that benches, or stop-stations, be provided near signage to offer visitors a comfortable and convenient place to pause, read the information, and reflect on what they had learned. Benches near signs encouraged visitors to take their time and absorb the educational content, allowing them to delve deeply into the information provided and foster a more meaningful learning experience. In addition, offering benches at strategic points, such as near the sign shown in Figure 6, allowed visitors to relax and enjoy the island's natural beauty while taking breaks from walking or exploring. This promoted a sense of tranquillity and connection with the environment, aligning with the Supporters' mission of environmental education and appreciation. This also corresponds with Tourism Nova Scotia's (2008) argument that signage is particularly useful in ecotourism destinations where wildlife is often seen as visitors always have access to information about the wildlife.

Figure 6. Birds at the Water Trough Signage

Note. Birds at the Water Trough Signage on the Wattle Track on Tiritiri Matangi Island.

Figure 6 shows a sign near a bench that looks onto the water trough. Firstly, this sign demonstrated a call to action:

Have a seat. Be silent and patient. Look and listen.

These visitor instructions promoted a mindful and respectful approach to the environment, establishing peaceful wildlife observation. The sign also identified potential bird species at the water trough, such as tīeke, North Island kōkako, toutouwai, kākāriki and kererū, as well as gender differences in hihi and tūī. These various images and bird names educated and raised awareness among visitors, allowing them to identify the bird species and distinguish between male and female birds, fostering a deep appreciation of avian diversity. In addition, participants revealed that the images of fauna were helpful on the signage because not everything could be seen at once; some wildlife and natural phenomena occur infrequently and at specific times.

> *Because some of the things they won't get to see because you never see everything at the same time.* – Participant G10

> *Signage for the giant centipede. You know, even though you almost never see them in the daytime unless you see one being predated, usually it's the only time you see a giant centipede in the daytime, but when you see that sign, then you can stop and then talk about the centipedes.* – Participant G13

Incorporating images of fauna on the signage served as a valuable educational tool, allowing visitors to glimpse the biodiversity that might not always be visible during their visit and put their size into perspective.

It was also noted by Participant G13 that signs such as those shown in Figures 4, 5 and 6 were an integral part of the guided tours, as they provided a reminder for guides about flora and fauna to discuss, especially if they had not seen any on the tour.

> *It's really good with the groups because if you haven't seen a bird or so in a while, you've got kind of a focal point to address.* – Participant G13

> *Sometimes, it reminds you of something with the signage. So even if you don't have that as information on your mind at that very moment, the signage reminds you that you can talk about it.* – Participant G13

Participant G13 revealed that guides did not always encounter specific species or natural phenomena, so signage acted as a reference point, allowing them to discuss various topics even if not everything was visible. Additionally, as it could be challenging for guides to remember all the details because they led multiple tours, signage helped ensure consistency across different tours by ensuring that visitors received similar information regardless of the specific guide or the day of their visit. Moreover, signage served as reminders and provided opportunities for on-the-spot education, helping guides cover diverse aspects of the ecosystem and keeping tours lively and informative.

Subsequent interviews further revealed that the signage could reinforce learning, as it served as a checklist of the species visitors had seen and learnt about.

> *They'll be seeing the signs, and that sort of reinforces all the learning.* – Participant E2

> *One thing I do, though, with the signs that have multi-species pictures on them, like on the Wattle Track, you can say to the kids, "What have we seen? We've seen one of those. We saw two of those. We've seen one of those." If you can say, "We've seen this, this, this, this, this, this and this", it's like, "Wow, look already, and we haven't even really started, and we've seen all those."* – Participant G10

Using images as a checklist promoted active engagement, particularly with younger visitors and students, who could actively identify and tick off observed species, fostering a sense of achievement and excitement. This reinforced knowledge and enhanced the educational experience by helping visitors remember and internalise what they had learned from guides or interpretive materials. Furthermore, knowing that there were more species to discover could motivate visitors to explore further and pay closer attention to their surroundings, making them more observant and curious about the natural world. These findings relate to Lidwell et al.'s (2010) claim that images should be utilised, as they are remembered more than words. They can reinforce the message conveyed in words, through optimal recognition and recall of information.

However, Participant G12 argued that having a lot of signage throughout the bush might not be necessary, as the guides could provide information to visitors, and the map could give visitors a sense of direction.

> *I don't know that we need a whole lot of signage all through the bush. I mean, the guides guide people, or they can have a map and see where they're going because it's pretty clear.* – Participant G12

Similarly, Participant G11 stressed that signage should not dominate the guiding, as the proceeds from the guided walk were used for conservation work on the island.

> *Yeah, it's hard, isn't it? We don't do too much signage, then people won't book a guide because that's a big money earner for us.* – Participant G11

In addition, Participant G11 argued that the sanctuary should maintain a natural and green environment, so it should not be cluttered with too many signs.

> *We don't want to put loads of signs up because you want to go all in nature; you want to see green trees.* – Participant G11

This finding relates to Roggenbuck's (1992) warning that frequent signs can hinder visitors' sense of exploration and discovery of the natural environment, generating negative impressions of the ecotourism experience.

Participant G11 also explained that while the Supporters had considered using quick response codes to provide visitors with more information virtually, they did not want visitors to be

detracted from the experience of being immersed in nature and seeing New Zealand's endemic wildlife first-hand.

> *...and then we could do QR [Quick Response] codes, which has been discussed, but we haven't got mobile reception on there, and I don't want people on their phones either. I don't want you on a phone screen, so I don't know. I would like a couple more signs up, but not much more.* – Participant G11

This was aligned with the views of Baxter (2001) and Bramwell and Lane (1993), who argued that a balance must be achieved between the number of signs provided and the minimisation of distractions and visual pollution by littering the landscape with too many signs. Therefore, most of the signage on Tiritiri Matangi Island was located at the Visitor Centre to encourage ongoing independent learning, allowing visitors to choose the depth of their engagement with the island's history, ecology, and conservation efforts, without overwhelming them with excessive signage throughout the natural landscape.

4.4.3.3 Interpretive Signage

The signage at the Visitor Centre was categorised as interpretive as it showed the five histories of the island as well as in-depth information about the different bird species.

> *In the Visitor Centre, there's quite a lot of interpretation which gives the history of the island, as well as quite in-depth information about each of the different birds.* – Participant G14

It also became apparent that while the identification signage along the tracks was factual, the interpretation at the Visitor Centre used storytelling alongside factual information to help visitors learn more about Tiritiri Matangi.

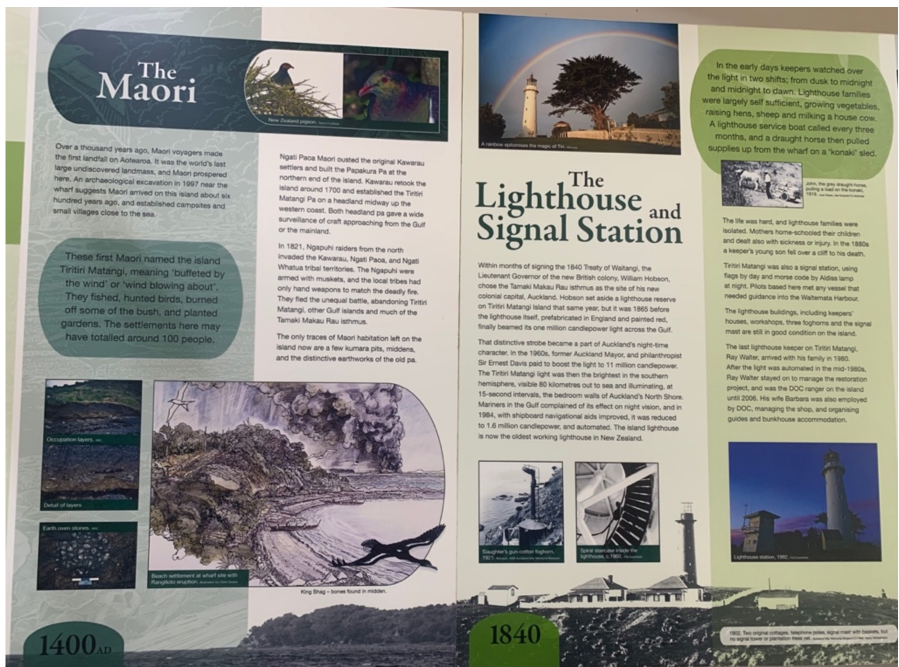
> *A lot of the signage is about what endemic species there are on the island, both in flora and fauna and then a lot of the signage up at the Visitor Centre is about the historic pathway of how the island came to be a conservation sanctuary. But also, there is a lot more in-depth information about the endemic species.* – Participant M1

> *Mostly, it's factual information rather than messages until you get to the Visitor Centre, and then there's a lot more storytelling, you know, about the lighthouse, about the kōkako and things like that.* – Participant G10

Participant M1 noted that more in-depth information was available about the endemic species on Tiritiri Matangi Island and the historical pathway of how the island became a conservation sanctuary. Pearce and Moscardo (1998) found that visitors expect more than raw factual information as part of their experiences. Similarly, Participant G10 mentioned a distinction between the information provided on the signage outside the Visitor Centre and the content found within the building. Outside, the information was primarily factual, while inside offered more storytelling about how the island came to be, as shown in Figures 7, 8, 9, 10 and 11.

Having most of the signage located in and outside the Visitor Centre ensured that the signage effectively was noticed in the environment and not detracted from it, as highlighted by Tourism Nova Scotia (2008).

Figure 7. Iwi and Maritime History Signage



Note. Signage inside the Visitor Centre displaying the Iwi and Maritime History of Tiritiri Matangi Island.

This sign first provided historical context about the arrival of Māori voyagers in Aotearoa (New Zealand) over 1000 years ago and their presence on Tiritiri Matangi Island around 600 years ago.

> *Over a thousand years ago, Māori voyagers made the first landfall on Aotearoa. It was the world's last large undiscovered landmass, and Māori prospered here. An archaeological excavation in 1997 near the Wharf suggests Māori arrived on this island about six hundred years ago, and established campsites and small villages close to the seas.*

This information highlighted the rich history of Aotearoa and Tiritiri Matangi Island, emphasising Māori voyagers' early settlement and the island's historical significance as a Māori campsite and village. It illuminated the deep Māori connection to the land, highlighting their role as environmental caretakers. Acknowledging past Māori presence provided historical context for visitors to discuss human impacts on the environment. This reinforced the idea of a longstanding relationship between people and nature, encouraging visitors to consider the importance of responsible environmental stewardship. This historical information also deepened

understanding of the island's cultural and ecological significance, contributing to a holistic and inclusive approach to conservation education.

The sign also provided insights into the island's Māori name, Tiritiri Matangi, and the activities of early Māori inhabitants.

> *These first Māori named the island Tiritiri Matangi, meaning "buffeted by the wind" or "wind blowing about." They fished, hunted birds, burned some of the bush and planted gardens.*

Understanding the island's name added depth to the educational experience by connecting visitors with its cultural heritage and Māori history. In addition, early Māori activities such as fishing, bird hunting and gardening offered an educational resource, showcasing sustainable practices that can inform modern conservation. In summary, this sign provided a deep understanding of the island's Māori discovery, history, name, and activities. It highlighted the cultural significance of Tiritiri Matangi Island and encouraged education and reflection on its historical and ecological heritage.

The second half of this sign acknowledged the maritime history of Tiritiri Matangi Island through the development and use of the lighthouse and signal station.

> *Hobson set aside a lighthouse reserve on Tiritiri Matangi Island that same year, but it was 1865 before the lighthouse itself, prefabricated in England and painted red, finally beamed its one million candlepower light across the Gulf.*

This statement educated visitors about the island's role in maritime navigation, particularly the establishment of a lighthouse reserve in the mid-19th century. It highlighted the historical significance of maritime navigation in the region during that era, offering insights into the challenges and innovations of 19th-century maritime travel. The lighthouse's installation and its powerful light were emphasised for their critical role in guiding ships safely through the Hauraki Gulf, fostering an appreciation for the island's contribution to maritime safety. Mentioning the lighthouse's prefabrication in England and its transportation to the island showcased the technological advancements of the time, allowing visitors to learn about the engineering and logistics involved in erecting such a structure on a remote island. This historical context added educational value to the visitor experience, illustrating how technological advances shaped New Zealand's maritime history. The sign also delved into the struggles of lighthouse families, offering a comprehensive view of the island's history.

> *Life was hard, and lighthouse families were isolated. Mothers home-schooled their children and dealt with sickness or injury. In the 1880s a keeper's young son fell over a cliff to his death.*

This helped visitors understand life for lighthouse families, their challenges, and the dangers of living in such remote and rugged locations. It provided a glimpse into the sacrifices and hardships endured by those who dedicated their lives to maintaining these vital maritime structures, shedding light on the human stories behind the lighthouses' history.

Finally, the sign revealed that the infrastructure associated with this maritime history was still present on Tiritiri Matangi Island.

> *The lighthouse building, including keepers' houses, workshops, three foghorns and the signal mast are still in good condition on the island.*

This inspired visitors to continue exploring the island and discovering these well-reserved maritime history relics. It encouraged them to delve deeper into the island's rich heritage, relate the information they had learned from the sign to the infrastructure in situ, and gain a first-hand appreciation of the enduring legacy of the lighthouse keepers and their families.

Figure 8. Farming and Military History Signage

Note. Signage inside the Visitor Centre displaying the Farming and Military History of Tiritiri Matangi Island.

The first part of this sign showcased Tiritiri Matangi Island's farming history.

> *Farming began on Tiritiri Matangi soon after 1840 on 200 hectares leased out by the government…Johnny Hobbs and his son Jack leased Tiritiri Matangi from 1902 to 1971 and stocked the island with over 600 sheep and shorthorn cattle…. The farm lease was withdrawn in 1971, when Tiritiri Matangi became a Recreation Reserve in the Hauraki Gulf Maritime Park.*

This finding illuminates Tiritiri Matangi Island's transition from agriculture to a recreation reserve in the Hauraki Gulf Maritime Park, highlighting its farming history dating back to the 1840s. Referring to Johnny Hobbs and his son Jack, who leased and operated the farm, added a human dimension to the island's agricultural history with which visitors could connect. The mention of livestock highlighted the impact of farming on the island's ecosystem. It provided a basis for discussing subsequent ecological restoration efforts to undo the environmental changes caused by farming. This information offered an educational opportunity to discuss the island's changing land use, its significance in conservation, and motivations for the shift toward preservation. Furthermore, it aligned with contemporary discussions on sustainable land use and environmental conservation, encouraging visitors to reflect on broader land management implications. In summary, this part of the sign helped visitors connect with the island's farming history, understand its ecological changes and appreciate the shift towards conservation.

The other half of this sign reflected the military history of Tiritiri Matangi Island.

> *During the Second World War (1939-45) the island was part of the Auckland Harbour defences. The day after war broke out, 12 signalmen from the Royal Naval Volunteer Reserve landed on Tiritiri Matangi to identify all approaching vessels.*

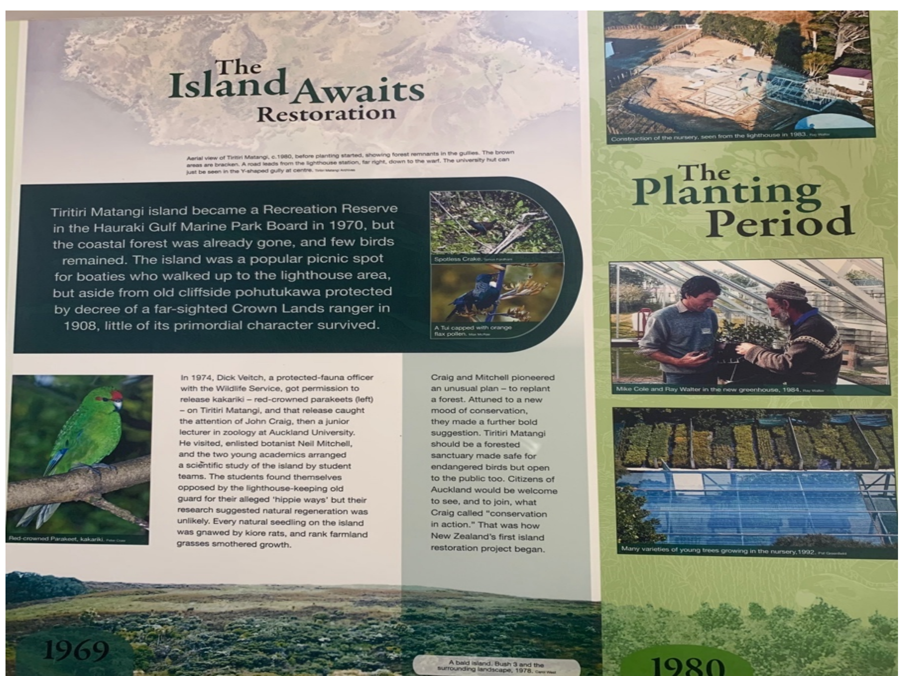
Mentioning Tiritiri Matangi Island's role in Auckland Harbour defences during World War II demonstrated its historical significance in maritime security, and the landing of 12 signalmen highlighted the island's strategic location for vessel monitoring. Educating visitors about this history provided insights into its military heritage and contributions during the conflict. This information could engage visitors in the island's wartime history and foster an appreciation for its role in coastal defence. Sharing stories of the signalmen also added a human dimension to the narrative, connecting visitors with their experiences and challenges.

The sign also mentioned:

> *Mines were also laid across the Tiritiri Matangi Channel and out to Rakino Island. The NZ Army controlled the mines, and during their stay renovated an old keeper's house, and added a watch tower. Remnants of these buildings are in the paddocks south of the lighthouse.*

The old keeper's house, watchtower, and wartime remnants in the paddocks south of the lighthouse offered tangible evidence of the island's wartime history. Visitors witnessed these structures first-hand, potentially inspiring support for initiatives to conserve the island's historical assets. Ultimately, the findings about the presence of mines, military infrastructure, and remnants of wartime buildings on Tiritiri Matangi Island offered a unique historical perspective, engaging visitors in the island's wartime experiences, emphasising historical preservation, and connecting the island's history to global events.

Figure 9. Conservation History Signage



Note. Signage inside the Visitor Centre displaying the Conservation History of Tiritiri Matangi Island.

This next sign reflected the beginning of the conservation history on Tiritiri Matangi Island.

> *Tiritiri Matangi became a Recreation Reserve in the Hauraki Gulf Marine Park Board in 1970, but the coastal forest was already gone, and few birds remained. The island was a popular picnic spot for boaties who walked up to the lighthouse area, but aside from old cliffside pohutukawa protected by decree of a far-sighted Crown Lands ranger in 1908, little of its primordial character survived.*

Mentioning Tiritiri Matangi's designation as a recreation reserve in 1970 marked a critical turning point in the island's history and a shift in conservation priorities. It indicated the loss of coastal forest and declining bird populations by that time, reflecting significant ecological degradation. Educating visitors about this historical context deepened their understanding of the conservation challenges faced by the island, the impact of human activities on the environment, and the importance of conservation efforts.

Figure 10. Conservation History and Supporters of Tiritiri Matangi Signage

Note. Signage inside the Visitor Centre displaying the Conservation and Supporters of Tiritiri Matangi Histories of Tiritiri Matangi Island.

The following sign further reflected Tiritiri Matangi Island's conservation history as it highlighted the island's restored ecosystem and the role that visitors could play as stewards of this natural treasure.

> *Over ten years from 1984-94 thousands of volunteers planted 280,000 trees on Tiritiri Matangi Island.*

It also showed before and after images from 1960, 1989, 2004 and 2006, allowing visitors to visually witness the ecological transformation on Tiritiri Matangi Island, from degradation to restoration. Comparing these images emphasised the consequences of environmental degradation and the significance of conservation. These visuals were important because visitors were more likely to appreciate the value of preserving natural habitats when they witnessed the dramatic improvements achieved through restoration. Therefore, a sense of inspiration was fostered, showing that even severely degraded ecosystems could recover with dedicated effort; visitors could be encouraged to take action in their own lives or support conservation initiatives. The sign also introduced the Supporters of Tiritiri Matangi as a critical stakeholder in the island's conservation success.

> *Jim and Barbara Battersby formed the Supporters of Tiritiri Matangi Inc. (SOTM) in 1988 to raise funds for the island. The society funded new vehicles and equipment to support planting, then raised money for more expensive buildings like the workshop complex added to this visitor centre.*

This historical context was incorporated into visitor education programmes to emphasise the grassroots nature conservation efforts on Tiritiri Matangi. Visitors learned about the passion and dedication of individuals like Jim and Barbara Battersby, who took it upon themselves to make a difference. Understanding the role of organisations like the Supporters of Tiritiri Matangi helped visitors appreciate the collective effort required to restore and protect natural habitats.

Figure 11. Conservation History and Future Endeavours Signage

Note. Signage inside the Visitor Centre displaying the Conservation History and Future Endeavours of Tiritiri Matangi Island.

The final sign highlighted the success that conservation had had on the species on Tiritiri Matangi Island and revealed that the future of this eco-sanctuary was bright.

> *In Tiritiri Matangi's small world, endangered species may again begin to prosper. Kiwi, takahē, kōkako, stitch birds, brown teal and tuatara are all in recovery mode here, each with its own monitoring team and a recovery programme that is linked to wider national rescue strategies.*
>
> *As the forest grows and the numbers of birds, reptiles, and invertebrates increase, Tiritiri Matangi will become still more richly diverse.*

These findings stressed Tiritiri Matangi Island's significance as a sanctuary for endangered species, highlighting its role in local and national conservation. While the previous signs had taken the visitor on a historical journey through Tiritiri Matangi Island's iwi, maritime, farming, military and conservation histories, this final sign left visitors with a profound appreciation for the island's rich and diverse heritage and hopefully inspired them to continue exploring, learning, and contributing to the ongoing conservation and protection of this precious natural

sanctuary. These signs were significant because incorporating diverse educational topics ensured a comprehensive understanding of a destination's development and attributes (Silberberg, 1995). They also reflected Saarinen's (2004) idea that destinations are dynamic entities shaped by dominant and alternative narratives.

The variation of historical and factual information was also highlighted by Participant G11, who claimed that the other half of the signage at the Visitor Centre was about the biodiversity of birds.

> *A lot of it is; I think it's like 50% of it's just biodiversity on birds.* – Participant G11

Similarly, Participant G15 explained that the signage at the Visitor Centre offered comprehensive information for visitors interested in birds and their natural history.

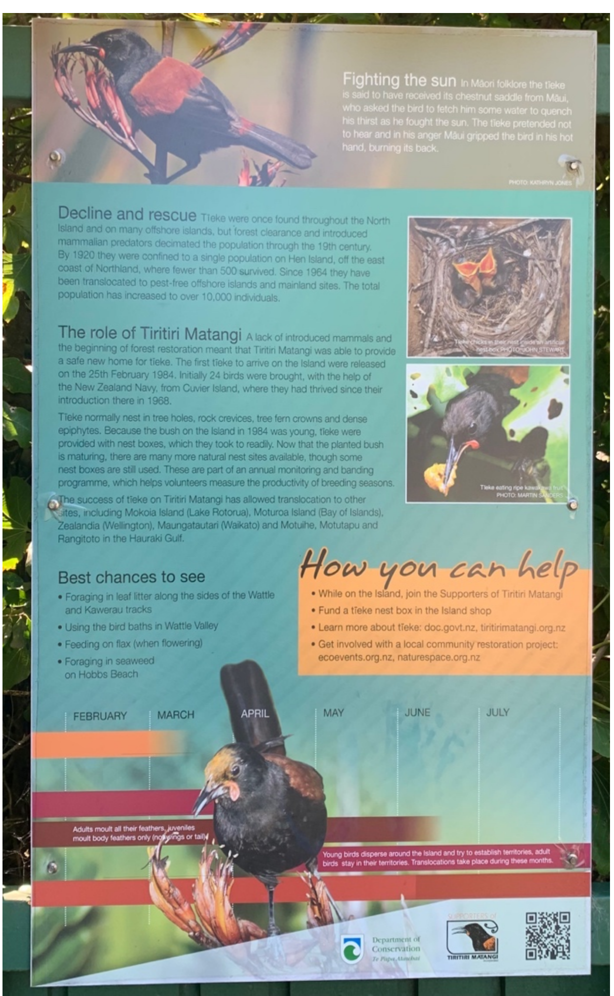
> *But up at the Visitor Centre, some tremendous resources for people to explore birds and the nature of birds and the history of birds.* – Participant G15

Mentioning *"the nature of birds"* and the *"history of birds"* indicated that the signage catered to a wide range of visitor interests because they could explore the biology and behaviour of birds as well as the historical significance and conservation efforts related to the birds, as shown in Figures 12,13,14 and 15.

Figure 12. Tīeke Signage

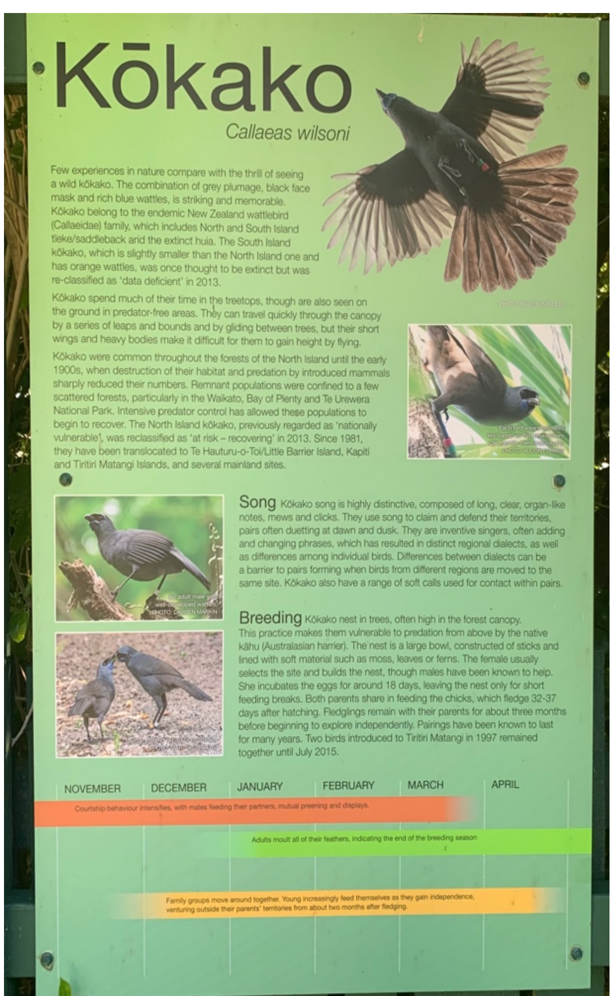
Note. Signage outside the Visitor Centre displaying the Tīeke species on Tiritiri Matangi Island.

Figure 13. Tīeke Signage



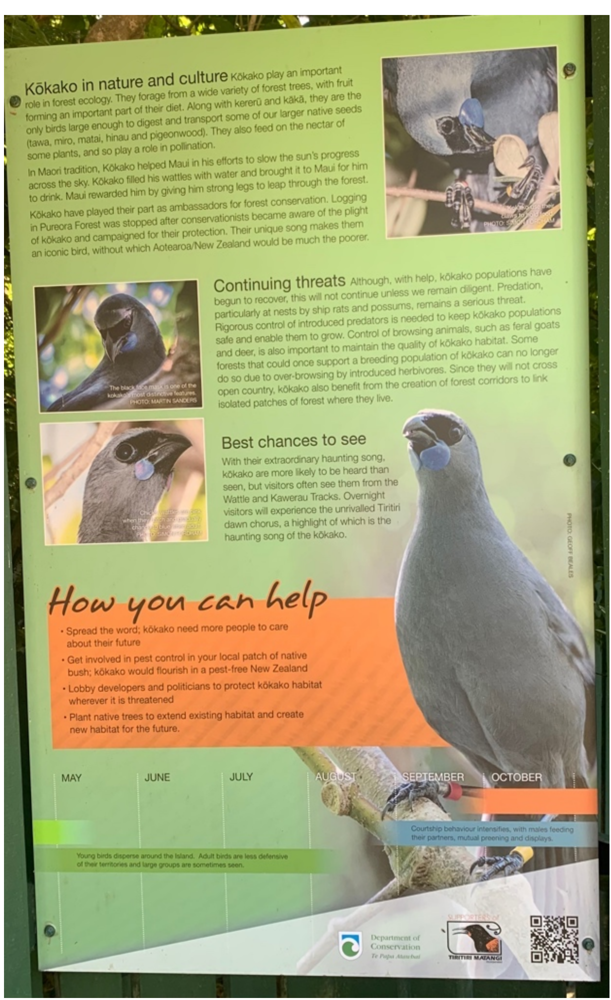
Note. Signage outside the Visitor Centre displaying the Tīeke species on Tiritiri Matangi Island.

Figure 14. Kōkako Signage



Note. Signage outside the Visitor Centre displaying the Kōkako species on Tiritiri Matangi Island.

Figure 15. Kōkako Signage



Note. Signage outside the Visitor Centre displaying the Kōkako species on Tiritiri Matangi Island.

The signage in Figures 12, 13, 14 and 15 followed a similar pattern of displaying key information to visitors. For example, the signs started by revealing the Māori and scientific names of the species.

> *Tīeke. Philesturnus rufusater.* – Figure 12
>
> *Kōkako. Callaeas wilsoni.* – Figure 14

This dual naming convention was essential for instantly connecting visitors with the Māori and scientific species names, deepening their understanding of cultural significance and scientific aspects. It enhanced the educational value of the signage, fostering a greater appreciation for indigenous knowledge and scientific classification. The signage then described the species' unique physical and auditory features to provide visitors with a comprehensive understanding.

> *New Zealand wattlebirds get their name from the pair of brightly coloured fleshy wattles that extend from either side at the base of the beak. Apart from its orange wattles, the tīeke is predominantly black with a rich chestnut patch on its back, which gives the species its name.* – Figure 12
>
> *The strident territorial call of tīeke is one of the dominant bird calls heard on Tiritiri Matangi, often linked to the sound of a car engine trying to start.* – Figure 12
>
> *The combination of grey plumage, black face mask and rich blue wattles, is striking and memorable.* – Figure 14
>
> *Kōkako song is highly distinctive, composed of long, clear, organ-like notes, mews and clicks.* – Figure 14

By providing detailed information about their physical characteristics and distinctive calls, the signage enabled visitors to recognise and identify these birds more easily on Tiritiri Matangi Island. This knowledge enhanced the overall visitor experience, fostering a greater sense of engagement with the natural world and the unique biodiversity of New Zealand. Māori folklore about the species was also presented, as the signage displayed the birds' significant roles in cultural narratives about Māui.

> *In Māori folklore the tīeke is said to have received its chestnut saddle from Māui, who asked the bird to fetch him some water to quench his thirst as he fought the sun. The tīeke pretended not to hear and in his anger Māui gripped the bird in his hot hand, burning its back.* – Figure 13
>
> *In Māori tradition, Kōkako helped Māui in his efforts to slow the sun's progress across the sky. Kōkako filled his wattles with water and brought it to Māui for him to drink. Māui rewarded him by giving him strong legs to leap through the forest.* – Figure 15

This storytelling not only added a layer of cultural richness to the exhibit but also helped visitors connect with the birds deeply by highlighting their importance within the indigenous belief system and their symbolic roles in these traditional stories. These stories also showed how the birds' unique features came to be, which was a captivating way to illustrate the cultural significance and mythology surrounding these avian species. The decline and rescue of the species were then presented to signify the remarkable conservation efforts undertaken to safeguard these birds' future.

> *Tīeke were once found throughout the North Island and on many offshore islands, but forest clearance and introduced mammalian decimated the population through the 19th century. By 1920 they were confined to a single population on Hen Island, off the east coast of Northland, where fewer than 500 survived. Since 1964, they have been translocated to pest-free off-shore islands and mainland sites. The total population has increased to over 10,000 individuals.* – Figure 13
>
> *Kōkako were common through the forests of the North Island until the early 1900s, when destruction of their habitat and predation by introduced mammals sharply reduced their numbers.* – Figure 14

The North Island kōkako, previously regarded as 'nationally vulnerable', was reclassified as 'at risk-recovering' in 2013. – Figure 14

These findings initially emphasised historical challenges for tīeke and kōkako, with their populations plummeting due to habitat destruction and predation by introduced mammals. This served as a reminder of human impact on native wildlife, causing visitors to feel empathetic and develop a sense of responsibility to support conservation efforts and preserve endangered species. The findings then highlighted successful conservation efforts like translocations to pest-free offshore islands and mainland sites, leading to population increases. This conservation success story helped visitors understand the importance of preserving these species and realise there was hope for them and their ecosystems, even in the face of significant challenges. This could inspire a sense of optimism and empowerment, encouraging visitors to take proactive steps toward wildlife conservation and habitat protection. The role of Tiritiri Matangi Island in these conservation efforts was then shown to exemplify the potential of dedicated sanctuaries in providing a haven for endangered species to recover and thrive.

A lack of introduced mammals and the beginning of forest restoration meant that Tiritiri Matangi was able to provide a safe new home for tīeke. – Figure 13

The success of tīeke on Tiritiri Matangi has allowed translocation to other sites, including Mokoia Island (Lake Rotorua), Moturoa Island (Bay of Islands), Zealandia (Wellington), Maungatautari (Waikato) and Motuihe, Motutapu and Rangitoto in the Hauraki Gulf. – Figure 13

Since 1981, they have been translocated to Te Hauturu-o-Toi/Little Barrier Island, Kapiti and Tiritiri Matangi Islands, and several mainland sites. – Figure 14

Visitors could witness first-hand how such initiatives could have a positive and lasting impact on fragile ecosystems, underscoring the importance of preserving and expanding such sanctuaries for the benefit of wildlife and future generations. By revealing other sites that the species had been translocated to, visitors could gain a broad perspective on these conservation endeavours' collaborative and widespread nature. Moreover, visitors were inspired to visit these other translocation sites, further contributing to preserving these species and supporting local conservation initiatives. The signage then highlighted the best places for visitors to see these bird species on Tiritiri Matangi Island.

Foraging in leaf little along the sides of the Wattle and Kawerau tracks. Using the bird baths in Wattle Valley. Feeding on flax (when flowering). Foraging in seaweed on Hobbs Beach. – Figure 13

Kōkako spend much of their time in the treetops, though are also seen on the ground in predator-free areas. They can travel quickly through the canopy by a series of leaps and bounds and by gliding between trees… – Figure 14

With their extraordinary haunting song, kōkako are more likely to be heard than seen, but visitors often see them from the Wattle and Kawerau Tracks. – Figure 15

Understanding the best places and behaviours to look for enhanced the chance of visitors having meaningful encounters with these unique birds, fostering a deep connection to the island's biodiversity. A behaviour timeline was also shown across the bottom of the signage to inform visitors of these bird species' seasonal patterns and activities.

> November to January *Often seen feeding on flax and pohutukawa flowers.* – Figure 12
>
> May to July *Young birds disperse around the island and try to establish territories, adult birds stay in their territories* – Figure 13
>
> December to April *Family groups move around together.* – Figure 15

This helped visitors plan their visits to align with the most reasonable times for observing specific behaviours, such as nesting, feeding, or vocalisations. This seasonal insight enhanced the visitor experience by increasing the likelihood of witnessing these birds' various natural activities, contributing to a more comprehensive understanding of their ecology. This supported Moscardo et al.'s (2004) argument that it can be helpful to use illustrations on signage that depict the animal or advise the visitors of times and locations when the animals are likely to be active. Finally, the signage demonstrated how visitors could help in conservation efforts.

> *While on the Island, join the Supporters of Tiritiri Matangi. Fund a tīeke nest box in the Island shop. Learn more about tīeke: doc.govt.nz, tiritirimatangi.org.nz. Get involved with a local community restoration project: ecoevents.org.nz, naturespace.org.nz.* – Figure 14
>
> *Spread the word: kōkako need more people to care about their future. Get involved in pest control in your local patch of native bush; kōkako would flourish in a pest-free New Zealand. Lobby developers and politicians to protect kōkako habitat wherever it is threatened. Plant native trees to extend existing habitat and create new habitat for the future.* – Figure 15

This was an encouraging finding, demonstrating how visitors could actively participate in and contribute to the ongoing conservation efforts for these bird species. By providing clear and accessible avenues for involvement, the signage empowered visitors to take meaningful actions, whether conducting their own research online, joining local conservation groups, or supporting the nest box initiative. This not only amplified the impact of conservation work but also instilled a sense of collective responsibility and hope among visitors, inspiring them to be stewards of New Zealand's precious wildlife.

It also became clear that many images of the birds were displayed to visually connect visitors with the species they were learning about. Visual representations of the birds not only aided in species identification but also created a deeper emotional connection, fostering a sense of empathy and appreciation for these creatures. This supported Lidwell et al.'s (2010) argument that images should be utilised, as they are remembered more than words and can reinforce the message the words depict through optimal recognition and recall of information. By seeing the

actual birds they were reading about, visitors were more likely to develop a personal attachment to the conservation cause, which could inspire them to take action to protect and preserve these species and their habitats.

The analysis of the signage revealed a consistent pattern that encompassed the presentation of both the Māori and scientific names of the species, Māori legends, distinct physical and auditory traits, the history of species decline and conservation efforts, the role of Tiritiri Matangi Island in these efforts, optimal viewing opportunities and ways in which visitors could contribute to conservation, supported by relevant images. This pattern is significant because Tourism Nova Scotia (2008) stated that signage must achieve three objectives: learning, emotion, and behaviour. Similarly, Ham and Krumpe (1996) explained that signage should be designed to influence visitors' beliefs about an animal, an animal's habitat, or a concept, such as respecting or protecting that animal or habitat, as it could have profound impacts. Therefore, this signage pattern on Tiritiri Matangi Island not only educated and emotionally connected visitors to the conservation cause but also encouraged them to take meaningful actions that contributed to preserving these species and their natural environment.

4.4.4 Interactive Displays

Participants indicated that the interactive displays also reflected environmental education and interpretation on Tiritiri Matangi Island. In this context, an interactive display refers to a physical exhibit allowing visitors to actively engage with and learn about the sanctuary's wildlife, ecosystem, conservation efforts, and related topics (Ballantyne et al., 2011).

4.4.4.1 Bird Feeders

The displays on Tiritiri Matangi Island included hihi and tūī feeders, as shown in Figures 16 and 17.

Figure 16. Hihi Feeder

Note. Hihi Feeder on Wharf Road on Tiritiri Matangi Island.

Figure 17. Tūī Feeders

Note. Tūī Feeder outside the Visitor Centre on Tiritiri Matangi Island.

According to Participant M1, these feeders were explicitly designed to cater to the species' dietary needs rather than satisfying the visual preferences of the public.

> *The hihi feeders are actually designed for the hihi; they're not for the public. –* Participant M1

This statement demonstrated Tiritiri Matangi Island's commitment to the well-being and conservation of these species, as the sugar water was a backup for times when there were not enough plants in flower to provide nectar. This reflected the primary objective to protect, and conserve endangered or vulnerable species. While the feeders might not have been primarily intended for public display, it was found that they still served an educational purpose. For example, Participant M1 explained that in terms of the public, the feeders were designed to engage visitors with the species, particularly those that were endemic and rarely seen on the mainland.

> *…to give visitors more of a way to engage with the species…they are a really good way to engage with those endemic species, particularly the hihi and korimako.* – Participant M1

The feeders provided a population focus for the birds and guaranteed visitors would encounter them.

> *If you were just to watch hihi feeding in kohekohe flowers, then chances are your experiences will be very brief and much fewer in number. Whereas the tūī feeder up at the Visitor Centre, that's gobsmackingly visual.* – Participant G10

> *The hihi feeders are big drawcards because it's so interactive. It's one place you can guarantee to usually see birds.* –Participant E2

> *They're really good at increasing the chance of seeing certain animals, like with hihi and bellbirds, for example, at the sugar feeder, it's amazing how many birds you get to see there.* – Participant G13

> *I think the feeders are fabulous because they really do enable a concentrated opportunity to see those.* – Participant G8

Participant G10 mentioned that the tūī feeder at the Visitor Centre provided a *"gobsmackingly visual"* experience. This suggested that the feeder was a focal point for visitor engagement, offering an opportunity to observe birds up close. Furthermore, Participant E2 highlighted that the hihi feeders were *"big drawcards"* due to their interactivity, making them a reliable sport for birdwatching. This indicated that the feeders enhanced the overall visitor experience by ensuring visitors had a good chance of seeing birds. Participant G13 noted that the feeders significantly increased the chances of seeing birds like hihi and bellbirds. When feeders were strategically placed, they could attract bird species that might otherwise be elusive, allowing visitors to enjoy birdwatching opportunities. Similarly, Participant G8 expressed enthusiasm for feeders because they provided a concentrated opportunity to see specific animals. This

concentration of bird activity around feeders can benefit visitors interested in wildlife observation. This reflects de White and Jacobson's (1994) and Ford's (1995) findings that indicated visitors respond positively to the presentation of various animals in one place and the ability to observe their movement. These findings also correspond with Cohen's (2009) claim that human-animal interactions can be explored due to ethical opportunities allowing various forms of interaction.

Not only did visitors have the opportunity to see these birds at the feeders, but participants also highlighted that the population focus allowed visitors to see the finer physical characteristics of birds and their behaviours while also providing teaching points for guides.

> *Even though people do see a bit of the flash with tūī feathers, tūī are great examples of bird feather iridescence, and people are very often blown away about how they shimmer.* – Participant G10
>
> *I think it does help to make people excited and to see, you know, they look at there's a bird feeder down the Wattle Track where you see bellbirds going in and out, and particularly kids are quite excited by that. It's interesting for them to look at and notice the different sorts of behaviours.* – Participant G5
>
> *The feeders are fantastic to get the children engaged and understanding the difference between a hihi and a korimako and, the way in which they behave and why they're calling as they are. It's a terrific behavioural interaction and observation.* – Participant G15
>
> *I've watched students be enthralled at the behaviour of the tūī, watching the bossing that goes around. Again, it's opening up their eyes to bird behaviour as well as "What's that? What do you give the tūī?" or "Do you like lollies?" "Yes," "Well, they like sugar, and they need it cause there's not many flowers at the moment." So, it provides a teaching point.* – Participant E2

Participant G10 mentioned that observing tūī at the feeders allowed visitors to appreciate their visual appeal, suggesting that birdwatching can go beyond just identifying species and extend to appreciating the birds' aesthetic qualities. This can leave a lasting impression on visitors and enhance their appreciation for the remarkable features of these birds, which is vital because their feelings of admiration and respect for the bird species on display could encourage them to save them, as highlighted in Myers et al.'s (2004) study. Participant G5 noted that observing birds and their behaviours can spark interest and curiosity in young visitors because the population focus allows them to learn about different bird species and their behaviours, fostering a connection with nature. Participant G15 echoed this, emphasising the feeders' value in engaging children and helping them understand the differences between bird species. Therefore, a hands-on educational experience was created, as observing and learning about bird behaviour can deepen visitors' understanding. In the same way, Participant E2 mentioned that the bird feeders provided teaching opportunities. They described how students could be enthralled by watching tūī behaviour and how this observation could lead to a discussion about bird behaviour, dietary

requirements and the importance of specific foods for these birds. This relates to Moscardo et al.’s (2004) claim that displays have educational benefits, as they allow animal behaviour to be observed. Therefore, this finding was contrary to Markwell’s (2015) argument that animals are manufactured into tourism products for consumption by visitors because they also serve an awareness-raising and educational function. It was also clear that Participant E2 made this discussion relatable for the children by comparing the sugar water to sweets, simplifying a complex concept into terms that were easily understandable and engaging for young learners. This analogy is important because it bridged the gap between the unfamiliar concept of bird dietary needs and something familiar to children, making the learning experience more accessible and relatable.

Overall, the findings highlighted that well-placed and thoughtfully designed feeders can be powerful tools in ecosanctuaries because they offer visitors engaging and interactive opportunities to observe birds and serve as valuable teaching moments for educators, allowing them to convey ecological concepts through real-world observation.

4.4.4.2 Wētā Motel

Another interactive display on Tiritiri Matangi Island was the wētā motel shown in Figure 18.

Figure 18. Wētā Motel

Note. Wētā Motel on the Wattle Track on Tiritiri Matangi Island.

According to the Supporters of Tiritiri Matangi Guiding Manual, this interactive display allowed guides to discuss the various species that could be found in the motel.

> *The 'weta house' on the Wattle Track provides an opportunity to talk about the tree weta and sometimes giant centipede.*

This served as an educational tool, enabling guides to impart knowledge about the local wildlife, promote awareness of biodiversity, and inspire visitors to appreciate and protect the natural surroundings of the motel. However, Participant G15 argued that the wētā motels were not particularly effective because the wētā did not use them.

> *The wētā motels are not particularly successful because wētāpunga never use them.* – Participant G15

Unused wētā motels limited visitors' up-close encounters with these creatures, hindering immersive education. However, this presented an opportunity to teach visitors about conservation complexities and ecosystem relationships. For example, visitors could learn about the specific habitat and behaviour requirements of wētāpunga and why they were not utilising the motels. This is important because it contributed to a broader comprehension of how species interact with their environment. Therefore, problem-solving and critical thinking can also be established as visitors can brainstorm alternative approaches or modifications to the motels that might make them more appealing or suitable for wētāpunga. Participant G8 also claimed that the absence of the wētāpunga in these motels could inspire visitors, particularly school children, to think about having one at their school to attract the species to their environment so they could observe them.

> *It's much easier with kids because you can show them practical ways like, for example, a wētā motel. You know, this would be really cool if you had this at school.* – Participant G8

This statement also implies that practical experiences in conservation and ecology have a ripple effect. Suggesting that a wētā motel could be implemented at school encourages environmental education into the curriculum by connecting classroom learning to the real world, making learning relevant and impactful. Additionally, practical experiences like this can inspire young learners to become advocates for nature and conservation because when children see the positive impact of their actions, they are more likely to develop a sense of responsibility toward the environment. Overall, the wētā motels served as tangible embodiments of conservation concepts that educated visitors and inspired them to take an active role in safeguarding the natural world.

4.4.4.3 Tracking Tunnel

In the same way, it was discovered that tracking tunnels, as shown in Figure 19, served as another interactive display on Tiritiri Matangi Island, capable of motivating visitors to gain a more profound understanding of the island's ecological dynamics and conservation initiatives, inspiring them to replicate similar practices in their own environments.

Figure 19. Tracking Tunnel

Note. Tracking Tunnel on the Wattle Track on Tiritiri Matangi Island.

These tunnels were used in ecological research and wildlife monitoring. They consisted of long, narrow, enclosed tunnels made from materials like cardboard and contained a tracking medium such as ink or a fine layer of sand or clay to capture the footprints and signs of elusive wildlife as they passed through. In conservation efforts, these tracking tunnels were often used to detect and monitor invasive species or pests. They helped assess the success of pest eradication programmes by tracking the presence of rodents or other non-native animals. Regarding environmental education, these tracking tunnels allowed guides to convey important lessons about biodiversity, conservation, and the delicate balance of ecosystems memorably and engagingly. For example, Participant E2 highlighted the essential aspect of environmental education and interpretation within the context of tracking tunnels.

> *We call them teaching points, you know, you'll get the tracking tunnels that have some sample cards in, and you say, well, 'These pest cards were from over the water at Shakespeare, and they did have pests; they don't now.'* – Participant E2

Their statement also mentioned comparing tracking tunnel results from different locations, specifically *"over the water at Shakespeare."* This was a comparative approach to teaching as it showed how pest populations had been controlled or eradicated in nearby areas, emphasising

the positive outcomes of conservation efforts. Additionally, highlighting that *“they don’t [have pests] now*” at the specific location showcased success stories in conservation. These success stories were crucial to environmental education as they inspired hope and demonstrated that positive change was possible through collective effort and effective conservation practices. Using teaching points within tracking tunnels can also make the educational experience engaging and memorable because observing tangible evidence of wildlife active and conservation efforts tends to leave a lasting impression on learners. Therefore, the teaching points provided by tracking tunnels helped instil a sense of environmental stewardship as visitors could learn how their actions in conservation initiatives, like having a tracking tunnel present in their home, could make a difference in preserving biodiversity and protecting ecosystems. Ultimately, this statement highlighted the role of tracking tunnels not only as research tools but also as educational assets, as they transformed scientific data into accessible and engaging learning experiences, helping visitors foster a deeper understanding of the natural world and their involvement in it.

4.4.4.4 Hihi Nesting Box

The final interactive display on Tiritiri Matangi Island was the hihi nesting box shown in Figure 20.

Figure 20. Hihi Nesting Box

Note. Hihi Nesting Box on the Wattle Track on Tiritiri Matangi Island.

A nesting box is a specifically designed nesting structure to mimic birds' natural nesting. This demonstration nest box showed how the female hihi made her nest, as stated by Participant G12:

> *It's a very easy way of showing how the hihi nest, where we've got the demonstration nest, and that always gets interest from the children in particular. And they learn about, you know, eggs and all sorts of things like that.* – Participant G12

Participant G12 revealed that the nesting boxes provided a visual and tangible representation of how certain bird species, like the hihi, build nests and raise their young because visitors could observe the materials used for nesting and the arrangement of eggs. This statement also highlights that children, in particular, showed interest in these demonstration nests, which emphasised the ability of such interactive displays to capture the attention and curiosity of young learners, making them more receptive to learning about wildlife and conservation. The mention of learning about *"eggs and all sorts of things"* suggested that the nesting boxes were a comprehensive educational tool as they allowed guides to cover various aspects of bird biology. Learning about the nesting behaviours of birds can also inspire a sense of responsibility and conservation ethics in children as they may understand the importance of protecting natural habitats and providing safe nesting sites for birds. In summary, nesting boxes played a vital role in environmental education, especially for children, because they offered a practical and engaging way to teach about bird nesting behaviours, life cycles, and the importance of conservation. By fostering curiosity and hands-on learning, these displays contributed to building a generation of young nature enthusiasts and conservationists.

Ultimately, these findings on interactive displays indicated that they were designed to facilitate experiential learning, engage visitors of all ages, and foster a deeper connection between visitors and the natural world. Whether observing bird feeding behaviours, tracking wildlife footprints, or exploring ecological concepts hands-on, interactive displays served as powerful tools in environmental education and interpretation, as well as wildlife conservation. By making complex concepts accessible and engaging, Tiritiri Matangi Island inspired curiosity and a sense of responsibility, encouraging individuals to become active advocates for preserving the earth's biodiversity and ecosystems.

4.5 Delivery of Environmental Education and Interpretation on Tiritiri Matangi Island

While planning and designing environmental education on Tiritiri Matangi Island was important, participants argued that it must be delivered in a way that does not burden the visitors. More specifically, many participants shed light on the negative perceptions and experiences of a lecturing delivery style.

I don't think it helped to preach at people…You could do harm by just overdoing it. – Participant G5

To be able to share in a reasonable degree of depth without being overwhelming with people. – Participant G2

You can't really remember much of what they said because they lectured you while you were looking around and trying to engage with what was around you. – Participant G12

Participant G5 suggested that a lecturing style can come across as preaching, which can be counterproductive and may not effectively convey the intended message. This relates to the Supporters of Tiritiri Matangi Guiding Manual, arguing that *"it is equally important not to preach-that might put people off rather than encouraging them."* Participant G5 also suggested that this style can overload visitors with information, leading to cognitive overload. Participant G2 emphasised the importance of balancing sharing information in reasonable depth and avoiding overwhelming participants. This speaks to the challenge of delivering educational content effectively without inundating learners with too much information. Moreover, Participant G12 pointed out visitors' difficulty retaining information when lectures are delivered in environments where participants simultaneously try to engage with their surroundings. This illustrates the potential disconnect between the delivery method and the learning environment. Participants emphasised that environmental education and interpretation must be delivered in a way that enables visitors to remember the subject matter and inspires them to take action.

You want them to remember. – Participant G4

Because if you want people to take action and they felt overwhelmed with too many facts, they are not going to take action from that. It's about the engagement, so that's number one. – Participant G15

Participant G4 highlighted that one of the primary goals of education was to ensure that participants remember the information being presented. This is a fundamental goal, especially in this context, as information retention is a precursor to any subsequent action, as demonstrated by Kaiser et al. (2006) and Zaremohzzabieh et al. (2019). Participant G15 expanded on this idea by emphasising the role of engagement in the learning process. Therefore, it was found that to successfully engage visitors in the environmental education and interpretation offered on Tiritiri Matangi Island; there needed to be more variability in how guides and educators approach the delivery of information and educational content.

We all do different things, I think, well, to a certain degree. – Participant G2

Every guide will deliver it differently. – Participant E2

Participant G2 acknowledged that educators or guides often employed different delivery approaches. Similarly, Participant E2 emphasised that every guide delivered content differently. This diversity was beneficial because it recognised learners' preferences and learning styles.

Therefore, by having a range of approaches, educators could cater to a broader audience and create a more inclusive learning environment to spread the conservation message. Moreover, the investigation discovered the significant role of guides and educators in delivering environmental education and interpretation to shape the visitor experience and overall impact of a conservation and educational project like Tiritiri Matangi.

> *What visitors get out of their visit depends a lot on how the guides present the island to them, how they represent the Supporters of Tiritiri Matangi, how they open their eyes and minds to the inspiring project that is Tiritiri Matangi.* – Supporters of Tiritiri Matangi Guiding Manual

Tiritiri Matangi Island delivered environmental education and interpretation by immersing visitors in nature, providing multi-sensory experiences, utilising storytelling techniques, demonstrating desired behaviours, and encouraging visitors to become stewards of their own environment.

4.5.1 Immersed in Nature

Immersing in nature means being fully engaged, absorbed, and deeply connected with the natural environment. It involves a complete presence and involvement in the outdoor world, often characterised by a sense of awe, wonder, and tranquillity (Walter, 2016).

From the investigation, the fundamental distinction between physical immersion in the natural world and experiencing it through a digital medium was discovered.

> *You're actually in the environment…, you're experiencing the environment. It's not a screen; you're in it* – Participant M1

Participant M1's phrase, *"You're actually in the environment",* emphasised the importance of physical presence. This relates to Pine and Gilmore's (1999, p. 31) definition of immersion as "being physically a part of the experience itself." This direct, tangible experience allowed for a deeper connection and understanding of the natural world. This corresponds with Weinstein et al.'s (2009) argument that the impact of encounters with nature may be powerful when individuals are deeply engaged in these surroundings. *"You're experiencing the environment"* highlights the experiential aspect of being in nature, which can be highly effective in facilitating meaningful learning experiences in the context of environmental education and interpretation. Bystrom et al. (1999) suggested that when immersed, individuals pay greater attention to the attributes of their surroundings, leading to an enhanced ability to perceive and engage with a broader range of environmental elements. Participant M1 also contrasted physical immersion and screen-based experiences. In the digital age, many educational activities and entertainment are mediated through screens, which can create a barrier between individuals and the real world. Therefore, immersion in nature offers a way to break through this barrier and reconnect with the

physical world. Additionally, the phrase "*You're in it"* conveyed a sense of presence and authenticity as the experience was real and unfiltered, which can lead to a profound emotional connection.

It was also found that delivering environmental education and interpretation in nature directly can enhance one's learning of environmental concepts.

> *…Enlarging people's understanding of environmental things and to be walking in the bush with the trees and the birds around you, I think it's the ideal situation to be pointing all the things out. And the different types of trees and berries and everything else.* – Participant G12

Participant G12 revealed one of the primary goals of environmental education: to enhance people's understanding of the natural world and environmental issues. They emphasised that being in the natural environment, like a forest or bush, provided an ideal setting for teaching and learning about environmental concepts. This finding echoes Tilden's (2008) argument that ecosanctuaries are the greatest natural classroom available. This is because guides can effectively convey information about the environment, ecological relationships and the significance of various species. Therefore, nature is a real-life textbook as it allows educators to point out and explain natural phenomena as they occur. Being surrounded by trees and birds exemplified the immersive aspect of environmental education and interpretation on Tiritiri Matangi Island. Ultimately, Participant G12 highlighted the value of outdoor, experiential learning as a practical approach to environmental education. Immersion in a natural setting provides a rich and dynamic learning environment that not only imparts knowledge but also stills a sense of wonder, curiosity and appreciation for the natural world, as highlighted by Johns and Pontes (2019).

The results also showed that delivering environmental education in natural surroundings guaranteed distinctive and one-of-a-kind experiences. This was best described by Participant G6 when they explained that one of the reasons that they enjoyed guiding was because *"no day is the same."* Similarly, various participants highlighted that the visitor experience on Tiritiri Matangi differed every time, as the guides relied on nature to present itself and based their education on what was in front of them.

> *Whichever track you follow, it doesn't really matter. From, again, this is my perspective; it is random, completely random as to what will happen, what you will see, what you will notice, and what might be distinctive about something that's happening that day on the track.* – Participant G2

> *And, of course, what you're seeing is always different. It's never like a film. It's not rerun. It's a fresh experience every time.* – Participant E2

> *I guess there's certain things that I say almost every time, and some things I don't say very often because we don't see that particular bird or that situation doesn't arise.* – Participant G3

Participant G2 emphasised the randomness of outdoor experiences in nature because regardless of the specific path or activity chosen, what unfolded in the natural environment was often unpredictable, adding excitement and surprise to the experience. Participant E2 explained that the outdoor experience in nature was unique and could not be replicated in a film. Therefore, the inherent unpredictability and variability of natural settings encouraged visitors to focus on what was happening in the present moment, fostering mindfulness and a deeper connection with the environment. Participant G3 acknowledged that certain aspects of their guided tour may vary based on what was encountered in the environment. Therefore, the presence of specific wildlife or environmental conditions influenced the content of the educational experience. These quotes capture the ever-changing and unpredictable nature of outdoor experiences and the fact that environmental education and intervention varied on Tiritiri Matangi Island according to the specific encounters on the day. Therefore, these findings support Fennell's (2020) argument that protected areas rely on their natural features to allow visitors to appreciate their natural surroundings and better understand how natural features function.

Another key finding was that being immersed in nature can trigger emotional aspects. This was reflected by Participant G6, who related the visitor experience on Tiritiri Matangi Island to *"forest bathing."*

> *I think when people get in nature, it can be very emotional, isn't it? Cause it's very, you know, what do the Japanese say? Forest bathing or something like that.* – Participant G6

"Forest bathing" involves immersing oneself in a forest or natural environment to promote physical and mental well-being. This statement emphasises the emotional impact and therapeutic qualities of spending time in natural environments because nature's design, performance and immense biodiversity can initiate an emotional response that unlocks ecocentric and anthropomorphic connections to wild animals, as there is time to observe and contemplate (Walter, 2016). Recognising the emotional impact of nature is essential in environmental education and interpretation because it helps learners understand that humans' relationship with the environment goes beyond the intellectual or scientific. Emotions play a significant role in shaping our attitudes and behaviours towards nature; the literature on visitor management shows that visitors are more likely to protect places they feel emotionally connected to (Harbrow, 2019). Therefore, by acknowledging the emotional side of nature experiences, educators in Tiritiri Matangi Island encouraged a deeper, more personal connection with the natural world and motivated individuals to protect and preserve the environment.

Overall, delivering environmental education and interpretation in the natural setting of Tiritiri Matangi Island offered a unique and valuable opportunity to engage visitors in a transformative way. It allowed educators to foster a deep connection between visitors and the natural world, promoting a greater understanding of biodiversity and influencing emotional responses that could turn into action for conservation efforts.

4.5.2 Sensory

Due to the immersive nature of the Tiritiri Matangi Island experience, another critical theme in the research findings was that environmental education and interpretation were delivered through multi-sensory experiences. On Tiritiri Matangi Island, this theme entails the engagement of the senses of sight, hearing, smell, and touch.

4.5.2.1 Sight

The sense of sight enabled visitors to detect and interpret visual stimuli using their eyes. Through sight, visitors could observe the rich biodiversity of plant and animal species, and guides could point out specific features, highlight natural processes, and share the beauty and wonder of the natural environment with visitors. Participant G6 emphasised observation as a primary means of engaging with nature.

> *I just want people just to observe, you know; I try not to talk too much.* – Participant G6

This statement suggests a preference for allowing visitors to immerse themselves in the environment without unnecessary verbal distractions. While verbal communication may be necessary for delivering educational content, the guide encouraged visitors to follow their curiosity, ask questions, and seek answers by refraining from excessive talking. This self-directed learning through the visual sense can lead to meaningful discoveries and a sense of empowerment. Moreover, by prioritising observation, the guide could promote hands-on learning, allowing visitors to explore and discover nature's wonders first-hand. This experiential approach can be particularly effective in fostering a deeper understanding and appreciation of the environment.

Based on the findings, it was discovered that the sight sense was stimulated by both the natural environment and physical resources on Tiritiri Matangi. Firstly, it was evident that the central aspect of the sight experience involved looking at the environment in which they were immersed on Tiritiri Matangi Island. For example, when questioned about the primary informational and awareness-raising resource for visitors, Participant G7 believed it was *"seeing the birds visually."* Some more thoughtful insight was added, as Participant G7 argued

that a significant factor of the visual experience was that many visitors saw rare species in situ rather than in a book or through word of mouth.

> *The fact that they're seeing different species that they'd never seen before, I think, and like the saddleback, the hihi, the kōkako there is just so interesting. Even the little, red-crowned parakeet. So visually, actually seeing them rather than just hearing about them or reading about them, I think that has quite a big factor.* – Participant G7

This was also supported by Participant G10, who said it was common for visitors to see species for the first time on Tiritiri Matangi Island.

> *Very often, a lot of stuff that they're seeing, they're seeing for the first time in their life, so everything is new.* – Participant G10

Engaging the visual sense on Tiritiri Matangi Island involved the guides taking the time to point out the finer details of species so that visitors could become curious and look closer.

> *Be prepared to sit down on the ground with kids or get down really low with people and point out tiny little things. "Look at the eyebrow feathers of the hihi and male hihi and how they flash." And when they see that, then it's even better; you describe it to them, and they look closer and see it.* – Participant G10

Participant G10 revealed that guides drew attention to the natural world's small, often overlooked details. This approach promoted interactive and experiential learning by pointing out specific features and encouraging visitors to observe closely. In doing so, visitors were actively involved in the learning process, which could enhance their understanding and retention of information. Ultimately, by getting up close and personal with the natural world and pointing out the beauty and wonder of tiny details, the guides created opportunities for visitors to develop a deeper connection and appreciation for nature.

4.5.2.1.1 Physical Resources

While sight was helpful for visitors to discover and appreciate the natural environment they walked through on Tiritiri Matangi Island, not all species or their finer details were seen. Therefore, visitors were also offered opportunities to look at the guides' physical resources, such as pictures and models.

4.5.2.1.1.1 Pictures

Many participants showed visitors pictures of flora and fauna in the books they carried.

> *I carry around a little book with me that has photos of that.* – Participant G2
>
> *I've got some small books that I can show pictures of.* – Participant G4

> *I've got a book that's got a lot of the pictures of the flowers and things that they could see at the time that they're flowering or the berries and the different trees, but also the birds, all the birds that we are likely to see, I have got photos of all of them and can display them as required.* – Participant G12

The participants' practice of carrying visual aids demonstrated a practical and effective approach to environmental education and interpretation on Tiritiri Matangi Island because carrying visual aids allowed guides to engage visitors on a deep level. For example, graphic materials, such as photos and booklets, capture attention and stimulate interest as visitors can ask questions and point to specific features, making the learning experience more engaging. In addition, visual aids were invaluable for species identification as they provided a reference point for visitors to compare what they saw in the environment with the images in the books, thereby facilitating the recognition and learning of various species. As a result, visitors became confident in their ability to identify and appreciate the natural world, which encouraged a sense of ownership over their learning, as they could independently identify species and engage in self-directed learning. In essence, carrying visual aids was an effective strategy for delivering environmental education and interpretation. It supported species identification and empowered visitors to connect deeply with the natural world by using their sight to make discoveries based on the resources.

Other participants shared photographs they or their family members had taken with visitors.

> *I take my phone with me and show pictures that I've taken of wētāpunga mating, you know, a couple of weeks ago.* – Participant G8

> *I have some pictures in my camera. Like they're looking for a morepork. We did not see. But two weeks ago, my granddaughter was here, and she took a very good picture of a morepork looking at her, and she said to me. So that's in my phone. "So, see, morepork looks like this; it's about that big."* – Participant G9

The participants' use of mobile phones to share their photographs of wildlife added a valuable dimension to learning because it provided real-world images and offered tangible evidence of the diversity and beauty of the environment being discussed. Furthermore, sharing photographs allowed for storytelling, as visitors could hear about the context of the photos, such as where and when they were taken, what was happening at the time, and the photographer's personal experiences and emotions. Sharing personal photographs also demonstrates a personal connection to the environment and reinforces the idea that anyone can observe and appreciate nature. Therefore, visitors might be inspired by guides' experiences to seek out similar wildlife on Tiritiri Matangi Island. These statements also highlight that photographs can help visitors identify specific species and understand their characteristics, especially those not often seen, such as the morepork and wētāpunga. Several participants illustrated using visual aids and photographs to showcase less commonly seen species.

In that booklet, I've also got photographs of some of the things that are really significant, like the pūriri moth that you never see. – Participant G2

Extra material like photos are always good. Like you might not be able to see a Tuatara, but someone asks about it, so you can pull that out. – Participant G13

Participant G2 mentioned the pūriri moth as a scarce and seldom-seen species, and Participant G13 revealed that visitors might not see a tuatara during their visit. While visitors may not encounter them in the wild, using photographs and visual aids to introduce these species allowed educators to convey their significance, life cycles, and roles within the ecosystem, thus contributing to a broad understanding of biodiversity. These were encouraging findings because rare and elusive species like pūriri moth and tuatara are invaluable components of biodiversity, and just because they may not be seen in situ does not mean they should not be recognised. Therefore, Tiritiri Matangi Island realised that environmental education goes beyond what is merely visible. It encouraged visitors to appreciate not only the species that could readily be observed but also those that were more elusive through visual aids. This fostered a sense of curiosity and an understanding that the natural world is not limited to what is immediately visible but also holds hidden wonders beyond our initial perception. These hidden wonders, whether rare species, intricate ecological processes, or hidden gems of the environment, enriched visitors' appreciation of the complexity and beauty of the natural world. Furthermore, visitors may have been encouraged to explore beyond the guided experience to independently seek out these rare species or participate in guided tours specifically focused on finding them. This extended the environmental educational journey from Tiritiri Matangi to other locations, reflecting the comprehensive ecotourism model (Weaver, 2005) and promoting independent learning and curiosity-driven exploration.

The discussion with participants also uncovered pictures of pests and predators not on Tiritiri Matangi Island, which were also shown to visitors.

Sometimes, it's really good to show kids what a stoat looks like cause they have no idea. – Participant G8

Most environmental education and interpretations on Tiritiri Matangi Island mentioned pest control, so these images provided visitors with a reference point. In addition, Participant G8 noted that when visitors had a mental image of a species or natural feature, they were more likely to recognise it when encountered in the wild; a well-informed mental image can help visitors identify invasive species and report their presence promptly.

If they have an image in their head of what they look like, then they'll recognise them, and then we can start talking about the behaviours and what they're doing. – Participant G8

This comment by Participant G8 also recognised that mental images serve as cognitive anchors as they provide a reference point for visitors to build their understanding of a specific species or ecological concept. Therefore, starting with recognition can ease visitors into discussions about behaviours, habitats, and ecological roles.

Visuals of pests were also shown to visitors by Participant G7, who used a *"cheat sheet"* featuring photos of cats, stoats and possums.

> *I've got a cheat sheet of photos with cats with baby birds in their mouth, a stoat, a possum eating a baby bird, and actually visually seeing it, even though it's just a picture. Especially the possum, people are quite shocked.* – Participant G7

Participant G7 depicted the predation of baby birds by introducing species, which grabbed visitors' attention and elicited a strong shock reaction. This shock can be a powerful motivator for discussion on conservation and the impact of invasive species. Seeing the visual evidence of the harm caused by invasive species can also lead to behaviour change, as visitors may be more inclined to support efforts to control these pests and take actions to protect local wildlife. More specifically, showing that cats are predators prompted ethical discussions about responsible pet ownership and the moral obligations of individuals to prevent the harm caused by them. Ultimately, Participant G7's use of shocking images was a compelling strategy for conveying the urgency of addressing invasive species and their impact on native wildlife. It engaged visitors emotionally, fostered awareness, and encouraged actions toward conservation and responsible environmental stewardship.

4.5.2.1.1.2 Models

Like the images, models of species not commonly seen on Tiritiri Matangi Island were shown to visitors. In this context, a model is a representation or replica of an object, system or concept. It is a tangible object that serves as a scaled-down or simplified version of the original. It plays a crucial role in education by providing visual aids to facilitate learning. Based on the discussions with participants, it became clear that the guides used toy models of species or ecological specimens that were not commonly seen on the island, such as tuatara, wētā, rats, and even the droppings of takahē.

> *I've got little models in my kit like a little mini tuatara or a wētā, so if we don't see it in them in the bush, you know, I've got something to show them.* – Participant G6
>
> *Sometimes, we play around with a rat model.* – Participant E1
>
> *I crocheted a nine-metre long takahē poo, so I always get that out.* – Participant G11

Toy models of sea life were used by Participant E1 to convey *"No plastics"* and *"Save the seas"* messages through roleplaying.

We have these toys, and some are wrapped up in plastic…like dolphins or turtles, so I've got them in my bag, and you pull them out and biff them around some of the kids, especially at the front and then pull out one that's covered in plastic. So, it's a role-play using toys and getting that message across.

Toys like dolphins and turtles served as visual representations of real-life species, which made it easier for visitors to connect with and recognise the animals being discussed, reinforcing learning and understanding. Using a toy covered in plastic can symbolise the impact of plastic pollution on marine life, delivering a powerful environmental message about the importance of reducing plastics. Furthermore, role-playing with the toys allowed visitors to step into the shoes of these animals metaphorically. This encouraged them to think from the creature's perspective, promoting empathy and a deep connection with the animals and their habitats. Incorporating toys into the educational tool kit adds diversity and can resonate with individuals who learn best through hands-on experiences. It was also found that using toys, especially with children, actively engaged visitors as an effective way to capture attention and maintain interest during educational sessions, as highlighted by Participant E1

That's the way to, you know, to engage people in learning, to be entertained. Just standing there and saying, you know, "No plastics," "Save the seas", and doing a very boring...This age group, you've got to entertain. – Participant E1

This quote highlights that standing and delivering dry, monotonous facts about environmental issues may not capture the attention of younger audiences or leave a lasting impact. This recognises the need for age-appropriate techniques in delivering environmental education and interpretation. Younger learners, in particular, often respond better to interactive and entertaining methods that stimulate their curiosity and creativity. This approach made the learning memorable for visitors as they were more likely to remember the information and the associated environmental messages when actively engaging with the models. In summary, using toys in environmental education and conservation messaging was a creative and engaging approach. It facilitated active learning and helped convey important environmental messages effectively. Therefore, it combined play with education, making the learning experience enjoyable, memorable, and impactful.

4.5.2.2 Hearing

The sense of hearing is one of the primary senses that relies on specialised sensory organs, the ears, to capture sound waves. Visitors use this sense to detect and interpret sound vibrations in the natural environment. On Tiritiri Matangi Island, this was the second most commented sense by participants, as these sounds included birdsong and wind through trees, as described by Participants G7 and G15.

A lot of it is listening for the birdlife. – Participant G7

I get them to listen to the movement and the flow of the trees. – Participant G15

Participant G7 highlighted the importance of actively listening to birdlife, aiding visitors in recognising bird species by their calls while fostering an awareness of the diversity of fauna on the island. Participant G15's statement emphasises the value of listening to specific sounds and the overall movement and flow of trees in the environment. Listening to these natural rhythms can deepen visitors' connection to the forest, providing insights into the ever-changing and dynamic nature of the ecosystem. Recognising and interpreting the sounds of birdlife, wind in the trees, and other natural elements can provide valuable information about the ecosystem's elements, health and vitality. Furthermore, engaging with the sounds of nature fosters mindfulness and a sense of connection to the natural world as it encourages visitors to slow down, be present, and appreciate the natural environment's subtle and overlooked auditory aspects. In summary, these statements emphasise the role of active listening in environmental education and nature appreciation. They encouraged visitors to tune into the sounds of the natural world, which can enhance the overall environmental education and interpretation experience.

To ignite this hearing sense among visitors, the Supporters of Tiritiri Matangi Guiding Manual suggested that the guides utilise silence and encourage visitors to listen and identify the auditory elements they can hear.

Use silence- ask people to listen for a few minutes, what can they hear?

Various participants also demonstrated this by sharing the exercises they practised with visitors to use this hearing sense. For example, Participants G2 and G10 revealed that they encouraged visitors to close their eyes and count the number of bird calls they heard.

I've got a little exercise now that I use for families and adults and children, where everyone closes their eyes for about maybe about three minutes, and I get them to count the number of calls that they hear during that time. – Participant G2

On my guides, I like to have at least one time where everybody is just quiet for a couple of minutes. And with kids, it's great if you can get them to close their eyes and count the number of bird songs. But always, in one of my guides, we'll have a period where we will all just simply sit down and not say anything and just listen. Yeah, that's one thing I always do. – Participant G10

Participant G2's exercise of having visitors count the number of bird calls they heard during a set period was an engaging way to promote auditory awareness. It also encouraged visitors to differentiate between various bird species and their calls. Therefore, this exercise served as a form of active learning, as visitors engaged with their surroundings and learned to identify different bird species based on their sounds, thus providing environmental education and interpretation. Participant G10 also highlighted the value of moments of quiet observation in

their guiding practices. Their approach allowed visitors to sit, be still, and listen to the natural sounds without any spoken commentary. In the same way, Participant G10 explained that by getting visitors to be silent and listen for the birdsong, they could enter a meditative state where their attention was drawn to what they heard around them.

> *Because it gets people to pay attention. If you get people to sit down and be meditative and not to look for visual things but for oral things, when you start doing that, you naturally slow your body down, and you make your body more responsive to what's happening around you.* – Participant G10

This provided a reflective experience, allowing visitors to absorb the soundscape and connect with nature on a deep level. Both exercises were inclusive and adaptable to various age groups, making them suitable for families, adults, and children, as no prior knowledge was required. They enhanced sensory awareness, specifically auditory perception, which aligns with the goals of environmental education by promoting an understanding of and appreciation for the environment. They also fostered a sense of responsibility and conservation ethics as visitors became more attuned to the value and fragility of natural habitats. This idea was echoed by Participant M1, who stressed that Tiritiri Matangi Island is a unique place where visitors can hear the songs of endangered bird species.

> *Where else do you go where you can stand and just hear the birdsong of endangered species that can't survive on our mainland because of the predators?* – Participant M1

This quote highlights the exceptional opportunity that specific natural environments offer visitors to connect with endangered species and their distinctive sounds. This connection can raise awareness about preserving these species and their habitats. This statement also exemplifies how environmental education can provide first-hand experiences that are not only informative but also emotionally resonant. Education allows individuals to witness the direct consequences of habitat preservation and its positive impact on vulnerable species. Participant G14 also believed that by walking in the bush and experiencing the natural sounds of native birds, visitors could understand what New Zealand's environment used to be like and what it could be like if we took action to protect it.

> *…and how you walk in the bush, normally you don't hear all this birdsong because this is the way New Zealand used to be and the way it might be in the future. But it ain't the way New Zealand is at the moment.* – Participant G14

Participant G14's statement also reflects a historical perspective on New Zealand's natural environment, as it suggests that the current abundance of birdsong and biodiversity is a departure from the past, indicating that the ecosystem has undergone significant changes over time. By describing the present state of the environment as different from the past, this quote also presents an idealised vision of how New Zealand's natural landscapes should be. Similarly, Participant G4 argued that the problem with Tiritiri Matangi Island was that the next time

visitors walked in the bush on the mainland, it would not be an enjoyable experience because they would notice that the birdsong was missing.

> *I can hear birds, and I actually say to people, there is a problem with this island. And the problem is, if you have got a piece of bush that you like to go in and go for a nice walk, the next time you go into that piece of bush, you are going to know there's something missing. Because you can't hear birds singing like this. And so, you know that piece of bush that you've enjoyed walking in is never going to be the same again.* – Participant G4

Therefore, encountering endangered species and their sounds in a protected environment can serve as a compelling message for conservation, as suggested by Participant G2.

> *Everyone says, "Wow, it's silent here and listen to all this noise in here."* – Participant G2

This reinforces the idea that ecosystems need to be safeguarded to ensure the survival of these species, which contributes to broader environmental awareness. Therefore, these auditory experiences can motivate visitors to take action to support conservation so that they can hear the bird song experienced on Tiritiri Matangi Island in their own environment, whether in their gardens or local bush. This was reflected by Participant E2, who explained that the absence of the birdsong in their local bush, compared with the prominent sounds on Tiritiri Matangi Island, could help visitors realise this problem and inspire them to act in their environment.

> *So again, it's that light bulb moment, the awareness. "Oh, they really are vulnerable. I can see the difference here being assorted by all this noise from the birds...It ain't like that in my local park or forest." And "Maybe I should be doing something. I will ring up that person or get that trap or join that group."* – Participant E2

This quote highlights the powerful transformation in visitors' awareness and attitudes towards environmental conservation. For example, "*lightbulb moment*" refers to a sudden realisation or epiphany. In this context, it represents a significant shift in the visitors' awareness of the vulnerability of species or ecosystems. Visitors' experiences of being in an environment with abundant birdsong contrast with their usual experiences in local parks or forests, where such sounds may be absent or diminished. This contrast makes visitors acutely aware of the vulnerability of these species and their habitats. As a result, their newfound awareness can promote empathy and concern for vulnerable species because the emotional connection can be a powerful motivator for taking action to protect and preserve nature. This statement highlights how this awareness can catalyse action, encouraging visitors to consider practical steps to conserve species.

These findings highlight the profound impact that auditory involvement in environmental education and interpretation can have on visitor awareness, emotion and motivation. Whether visitors appreciate the abundance of birdsong on Tiritiri Matangi Island or realise that this is a

unique experience that cannot be replicated on the mainland, they can be inspired to take action to support conservation efforts. Therefore, it exemplifies the transformative potential of environmental education and interpretation utilising this sense and underscores the importance of fostering a deeper connection between people and the natural world.

4.5.2.3 Touch

The sense of touch is a fundamental sensory system that allows visitors to perceive and interact with the physical environment through physical contact. Through skin and sensory receptors throughout the human body, we can detect various sensations, including pressure, temperature and texture. In a bush environment, the sense of touch becomes rich and engaging. On Tiritiri Matangi Island, visitors can touch leaves, as shown in Figure 21 and by Participant G4, wood samples in Figure 22, and ferns described by Participant G8.

Figure 21. Skeleton Leaf

Note. Skeleton Leaf found on the Wattle Track floor on Tiritiri Matangi Island.

Figure 22. Wood Samples

Note. Wood samples provided to the research by a guide on Tiritiri Matangi Island.

> *I have some pieces of wood and some seeds, and you know, I just pick up seeds from the track and pick up leaves like mahoe leaf, the skeleton leaf and that sort of thing.* – Participant G4

> *Touch what a rasp fern feels like.* – Participant G8

Participant G8's statement reveals the value of tactile engagement in the learning process. The mention of a specific plant, the rasp fern, suggests visitors can explore the island's flora through touch. This is important in environmental education and interpretation, as understanding how different plants feel can be integral to recognising and identifying them. Participant G4's comment about collecting pieces of wood, seeds, and leaves reflects a hands-on approach to learning about the forest. Picking up natural objects like seeds and leaves along the track, visitors engage with the environment directly. In addition, collecting seeds and leaves can promote awareness of biodiversity as visitors can learn about the variety of plant species in the forest by handling different natural features. Ultimately, tactile exploration in the forest can enhance learning outcomes because when individuals touch, feel, and handle natural objects, it stimulates their sensory perception, making the learning experience more vivid and memorable. This was supported by Participant G14, who explained that when visitors were physically involved by utilising their touch sense, they were more likely to remember the educational content associated with that natural feature.

They say, "I forget. Tell me something, and I'll forget it." You know, and "If you involve me and touch things, then I'll remember." And so, it encourages memory. – Participant G14

In addition, engaging with natural objects through touch fosters environmental awareness and appreciation as it encourages visitors to pay closer attention to the details of the forest, such as the texture of leaves, the hardness of seeds, or the characteristics of different plant parts. This heightened awareness can contribute to a greater sense of environmental stewardship. These findings highlight the significance of tactile exploration in forest environments as a valuable tool for environmental education. Through hands-on experiences like collecting seeds and leaves and touching plant specimens, visitors can connect with nature deeply, enhance their learning and memory, and develop a greater appreciation for the forest's biodiversity and unique ecological features. However, while it is helpful for visitors to touch things, it was stressed that visitors must only touch things that are on the ground, rather than pulling or picking leaves or berries off trees, as this can cause damage, and that they must return items after they have touched them.

So, we use things, the things we pick up, we just put them back down where we found them. – Participant G4

One of the problems with the world is that people like to collect things, and that very interest led to the extinction of so many birds and animals because people wanted to possess them. – Participant G3

Participant G4 highlighted the importance of responsible environmental practices. This reflects an ethos of leaving no trace and ensuring the natural environment remains undisturbed after exploration or educational activities. By emphasising the return of collected items to their original locations, Participant G4 promoted ethical behaviour in the forest. This practice ensured that the ecosystem remained intact and that future visitors could enjoy and learn from the environment. Similarly, Participant G3 raised ethical concerns about collecting items from the natural world. This statement indicates how the desire to possess or collect items from nature has contributed to the endangerment and extinction of various species. Participant G3's comment, therefore, serves as a reminder of the broader implications of human behaviour on the natural world and emphasises the importance of conservation efforts and responsible tourism in natural areas. These statements highlight the delicate balance between using the touch sense in environmental education and preserving natural habitats. While it is essential to educate visitors about the natural world and foster a connection to it, it must be done in a way that minimises harm to the environment. Therefore, when incorporating the touch sense into environmental education and interpretation, it must be demonstrated responsibly and ethically and foster a sense of responsibility, conservation and respect for the environment among visitors.

4.5.2.4 Smell

The sense of smell enables visitors to perceive and interpret various odours in the natural environment. This sense relies on specialised sensory cells called olfactory receptors located in the nasal cavity, which detect odour when we inhale. In discussions with participants, this sense was the least mentioned, with only Participant G2 identifying it as a crucial aspect of the visitor experience and providing an example.

> *I've got a little cup in my bigger backpack, which I call the smelly cup. And, you know, sometimes we put a whole lot of different leaves, like kawakawa leaves, that are lying on the ground and stir it around, and everybody smells it to smell what it's like. –* Participant G2

This example shows how the sense of smell can be incorporated into environmental education and interpretation on Tiritiri Matangi Island and how it can enhance the learning experience. For example, using a "*smelly cup*" to collect and mix leaves, allowing visitors to smell and experience different scents, embodies the principles of experiential learning. This transforms the educational experience from a passive one into an active and participatory endeavour. In addition, experiencing the scents of leaves directly connects visitors with the natural environment and encourages them to engage with and appreciate the plant life. This is an important activity because it can stimulate curiosity and inquiry. For example, visitors may become curious about the different scents of leaves, promoting questions about why leaves have distinct odours or what role these odours play in the ecosystem. This curiosity can lead to educational discussions and deeper insights. The use of kawakawa leaves in this activity also highlights the importance of incorporating indigenous or local knowledge into environmental education, as it provides an opportunity to share cultural traditions and the ecological significance of specific plant species. Finally, engaging in sensory activities can develop practical skills like plant identification, as visitors can learn to recognise different plant species based on their scents. Overall, using a *"smelly cup"* for visitors to explore laves and their scents is an excellent example of how the sense of smell can be integrated into environmental education. This promotes experiential, multisensory learning, fosters curiosity, and encourages a deeper understanding of the natural world. Ultimately, such experiences not only enrich the educational experience but also contribute to a holistic and environmentally aware perspective among visitors.

4.5.2.5 Multi-Sensory Experiences

Based on these findings, it was evident that Tiritiri Matangi Island delivered environmental education and interpretation in a multi-sensory fashion. Furthermore, Participant M1 revealed that the senses of sight, hearing, smell, and touch were engaged on the island.

> *…so, you're actually in the environment, you're hearing it, you're smelling it, you're seeing it, you're touching it, you're experiencing the environment.* – Participant M1

This was also supported by Participant G14, who revealed the multifaceted nature of sensory experiences on Tiritiri Matangi Island.

> *Well, you don't just talk. You touch things, you smell things, you listen to things, you look at things at a distance, and you know, the views. So, it's not just what you're saying; it's the whole experience of being there, if you like, you know if you're trying to stimulate all of the senses rather than just listening.* – Participant G14

These are encouraging findings because, predominantly, tourism studies have been centred on the visual or aesthetic component of the visitor experience (Hosany & Witham, 2010; Pan & Ryan, 2009; Xu et al., 2013). Tiritiri Matangi Island, however, involved multi-sensory experiences, thereby following the suggestion of Urry (2002) to provide a holistic approach to the sense-scape, as did other authors (Degen, 2008; Gretzel & Fesenmaier, 2003; Rahman et al., 2016; Rodaway, 1994; Tuan, 1977). Similarly, Gardner (1993) argued that a multi-sensory learning environment promotes engagement.

Participant G8 revealed that when visitors utilised all their senses, they gathered a broader range of information about their surroundings, enriching their understanding and experience.

> *Use all your senses…because all those sorts of cues that you can use.* – Participant G8

This quote also mentions sensory cues, which are signals or prompts that provide information about a particular context or situation. Engaging all the senses can help guides pick up on these cues and relate the environmental education and interpretation to the natural features they see, hear, smell and touch. Therefore, engaging multiple senses leads to a more holistic learning experience, which is beneficial for visitors as they can develop a well-rounded understanding of a subject by incorporating other senses. In environmental education, utilising all the senses is crucial, allowing visitors to connect more intimately with the natural world. In essence, this quote emphasises the importance of leveraging all the senses as valuable tools for learning and observation. This approach is particularly valuable in environmental education, where it fosters a more profound connection with nature and promotes a more comprehensive understanding of the world around us. Overall, by actively engaging all the senses, Tiritiri Matangi Island enriched the visitors' learning experience and helped visitors gain a deeper appreciation of the environment.

4.5.3 Storytelling

The findings clarified that storytelling was another way environmental education and interpretation were delivered to Tiritiri Matangi Island visitors. Storytelling is the art of conveying a narrative or series of events through written or, in this case, spoken words.

Participants stressed that while much factual information was involved in the environmental education and interpretation delivered to visitors, storytelling was crucial to keep visitors engaged.

> *I want to emphasise that we don't need to be too much fact. We have to really build stories and engagement.* – Participant G15

> *So, there is a lot of factual information there, but there's also a few tales to be told, if you like.* – Participant G14

> *I mean, it would be so easy to come here as a guide and just, oh, "That's a tīeke da da da da da da da, that's a tūī da da da da da da" and looking at these people and they're like totally overwhelmed, you know? But it's the stories and the family connections and all the other things that you can bring into it.* – Participant G2

Participant G15 explained that relying solely on facts and information may not be effective; instead, they advocated for a more engaging approach that involves storytelling. This suggests that engaging an audience emotionally and creating a narrative could be more impactful than presenting dry facts. In the same way, Participant G14 acknowledged the presence of factual information but suggested that it should be complemented with storytelling. This implies combining facts and storytelling can make information more interesting and relatable. The importance of storytelling on Tiritiri Matangi Island was expressed by Participant G2, who highlighted the potential pitfalls of overwhelming an audience with a bombardment of factual information, such as identifying species without any context. They argued that including stories, family connections, and other elements can make the information more digestible and engaging. This implies that personal and relatable anecdotes can help people connect with a subject matter, so these findings emphasise the power of storytelling and engagement in communication and education. They suggest that simply presenting facts and information may not be enough to capture an audience's interest or make them retain the information. Instead, weaving stories, personal connections and context into the presentation can be a more effective way to convey information and create a memorable experience for the audience. This approach was especially relevant in the guided tours and educational presentations on Tiritiri Matangi Island, as information needed to be conveyed engagingly to get the conservation message across.

When probed further about why stories were effective for visitors, Participant G15 reiterated that they heighten engagement among all ages and facilitate learning.

> *People engage in stories; stories are what adults and children learn from.* – Participant G15

This statement suggests that storytelling is a universal and timeless form of communication and delivery because people are drawn to stories regardless of age or background. Additionally, the statement emphasises that stories are a primary vehicle for learning, as both adults and children

can absorb complex ideas, morals, values, and information through stories. Therefore, storytelling was incorporated into the environmental education and interpretation on Tiritiri Matangi Island to make subjects more accessible and understandable.

Another participant explained that visitors enjoy learning about myths and legends and the justifications for why specific species of birds have particular appearances.

> *I think they love learning about myths and legends, you know, and the explanation of why a bird looks a certain way.* – Participant G6

Myths and legends often provide insights into a culture's beliefs, values, and history. People are naturally curious about the stories that shape different cultures, especially international visitors, and they may find these narratives captivating and enlightening; also, humans are naturally inclined to seek explanations for the world around them. Myths and legends often provide imaginative and creative explanations for natural phenomena, which can add depth and meaning to the seemingly complex aspects of the natural world. They are powerful educational tools as they can convey complex ideas, such as the origins of specific natural features or the symbolism associated with animals, in an engaging and memorable way.

The responses highlighted that stories must be informed, as they can provide a framework that visitors can relate factual information to.

> *If they've got a story, they've got some sort of a framework they can hang the bits of information on.* – Participant G5

> *Tell stories, but informed stories.* – Participant G2

These two findings emphasise the importance of storytelling as a framework for organising and conveying information effectively. For example, Participant G5 revealed that when information was presented as a narrative, it became easier for individuals to grasp and remember. This corresponds with Kim and Youn's (2017) finding that emotion brought about by a destination story leads to better memory. Participant G2 added a layer of nuance to the importance of storytelling, noting that while storytelling is powerful, it should also be accurate and well-informed; providing informed stories builds engagement and reliability, building trust with the audience. In summary, these two findings highlight the value of storytelling as a framework for organising and presenting information effectively. However, they argue that they must be well-informed and factually accurate to maintain trust and ensure the information's credibility. Balancing storytelling and accurate information can give visitors a compelling and educational experience.

An additional advantage of communicating environmental education to visitors through storytelling was evident, as Participant G4 indicated that visitors would remember stories rather than facts and figures.

> *Imparting the information in a way that is interesting and fun and using lots of stories that they're going to remember.* – Participant G4

> *People are not going to remember all the facts and figures and all that sort of thing. But if you tell the stories, they're going to remember.* – Participant G4

Participant G4 emphasised the importance of making information delivery engaging and enjoyable. They mentioned that when information is presented in an interesting and fun manner, it captures the audience's attention and keeps them invested in the content, so using stories increases the likelihood that the audience will remember the information. This aligns with research that shows people tend to retain information more effectively when presented within a narrative context. Participant G4's second statement also reinforces that storytelling is a potent tool for information retention; facts and figures alone are less likely to be remembered. Instead, stories are highlighted as the key to ensuring that information stays with the audience.

Further insight into visitors being more likely to remember information from stories was provided by Participant E2, who explained that stories are meaningful sources of interpretation on Tiritiri Matangi Island.

> *It's about interpreting the island in a meaningful way so that these people will go home with a sentence in their head about how wonderful it was. You know, "I didn't realise that..." And they'll carry it with them.* – Participant E2

This statement revealed that the goal of interpretation is to leave a lasting impression on visitors. By offering a story that resonates with visitors personally, guides and educators aimed to ensure they had a memorable experience with them. In addition, the idea of visitors saying, "*I didn't realise that…*" suggests that effective interpretation through storytelling should bring forth aspects of the destinations or topic that are surprising or enlightening. This reveals that effective interpretation is more than presenting facts and aims to engage, surprise, and emotionally connect with an audience. Storytelling ensures visitors carry information and a sense of wonder, appreciation, or newfound understanding, which can have far-reaching educational and conservation implications. When people understand and value the environment or culture of a place, they are more likely to support conservation efforts.

Moreover, it was discovered that stories were valuable when wildlife was not sighted, or there was a standstill on the tracks.

> *So, there's no guarantee that people are going to see birds on the island, so you have to be able to tell lots of stories.* – Participant G6

> *Keep a few stories and titbits for when there is a hold-up on the track.* – Supporters of Tiritiri Matangi Guiding Manual

Participant G6 acknowledged that when dealing with wildlife or natural phenomena, there are no guarantees of sighting them. To compensate for this lack of assurance that visitors would see birds on the island, the participant emphasised the importance of storytelling. Therefore, if the intended wildlife sightings did not occur, storytelling could provide an alternative way to engage and educate visitors because guides can paint "mental pictures" (Pond, 1993. p. 93) through storytelling.

Stories can focus on the history, ecology, or interesting aspects of the environment, ensuring visitors have a fulfilling experience regardless of the wildlife's presence. The guides can create value for the experience by telling stories, making it more than just a wildlife-watching trip. Similarly, the Supporters of Tiritiri Matangi Guiding Manual emphasised the need for guides to be prepared for delays or interruptions during guided tours or activities. Based on this, guides were advised to have a repertoire of stories and interesting information ready to share during such delays to keep visitors engaged. Sharing stories and titbits during delays can turn what might otherwise be seen as a disruption into an opportunity for enrichment, as they can provide educational content or entertainment while waiting. This approach also highlights that flexibility is required in guiding, as guides must be adaptable and capable of adjusting the programme to meet the needs and expectations of visitors, even in unexpected situations. Both findings affirm the importance of storytelling as a valuable tool for guides, especially in uncertain or delayed situations. Storytelling can enhance the overall experience, educate visitors, and maintain engagement even when original plans might not unfold as expected. Therefore, being prepared with a range of stories was a practical strategy for delivering meaningful and enjoyable educational experiences for visitors. Hence, it was emphasised by Participant G10 that storytelling was the primary information and awareness-raising resource for visitors who experienced a guided tour.

> *If they're having a guided tour, storytelling is the principal way.* – Participant G10

On Tiritiri Matangi Island, it was found that storytelling involved both negative and positive stories.

4.5.3.1 Negative Stories

Negative stories emphasise unfortunate or adverse events, experiences, or outcomes. These stories typically focus on challenging circumstances, difficulties, or the negative consequences of actions. Participants' accounts of their stories revealed that negative stories were used to facilitate feelings of concern or care for the environment among visitors. Examples of these

negative stories provided by participants included the threat of the kōkako extinction and the survival struggle of the blue penguins.

> *As I'm talking to the public, I will tell them about the kokako, which were on the way to being extinct. The South Island one probably already is, and the North Island one was going down really fast, and nobody was basically doing anything about it.* – Participant G3
>
> *…the penguins and how they've struggled over the years, just so those sort of understandings of just how sensitive nature is and how much we can unbalance things is a key part.* – Participant G15
>
> *If you talked about like the little blue penguins not being able to find enough food out in the Hauraki Gulf because of overfishing and all that sort of thing. And, you know, particularly if they got to see one of our little blue penguins in a penguin box and you tell them how tragic it is that these birds can't find enough food because of overfishing.* – Participant G4

These examples emphasise the importance of educating visitors about the challenges faced by various species and the broader ecological consequences of human actions through storytelling. This relates to Barnes and College's (2013) argument that while individuals need to have a chance to enjoy the delight and beauty of nature, they also need to be exposed to the sobering truths of environmental challenges. Participant G3 drew attention to the precarious situation of the kōkako, a bird species facing the threat of extinction. By discussing this issue with visitors, they raised awareness about the urgency of conservation efforts. This participant stressed that some species are on the brink of extinction, and public knowledge and concern are essential for addressing these issues. Participant G15 highlighted the struggles of penguins and used their story to convey the sensitivity of nature. This approach aimed to make visitors understand the delicate balance of ecosystems and how humans can disrupt them. By emphasising the vulnerability of penguins, this participant encouraged a broader understanding of the interconnectedness of all living organisms and their environments. Participant G4 provided a more specific example of little blue penguins struggling to find enough food due to overfishing. This narrative approach likely resonated with the visitors because it humanises the issues, making them relatable and emotionally impactful. The participant's approach also encouraged responsible behaviours and stewardship and emphasised the consequences of human actions, such as overfishing, on local wildlife. These findings demonstrate the power of storytelling and concrete examples in environmental education. They show that personalising the challenges faced by species and ecosystems can foster empathy and a sense of responsibility among visitors. This supports Peredo and Chrisman's (2006) explanation that a trigger to action is a shared perception of ecological loss combined with a motivation to take action in the landscape that has meaning for the visitor. It also supports Stern et al.'s (1999) theory that people feel obliged to take proper action when they perceive that highly valued objects are in danger and think that their efforts can assist in restoring these values.

Additionally, these findings emphasise the role of interpretation and communication in raising awareness and building a sense of connection to the natural world.

According to Participants E2 and G15, these depressing tales had an impact since they helped visitors comprehend why the birds were not surviving as they thought about what it would be like to be a natural species in danger.

> *My feeling is that if you can get a student to understand what it feels like to be a native species that's under threat….* – Participant E2

> *So, you actually are triggering their emotions by how hard it can be for some of these birds and animals.* – Participant G15

Participant E2 highlighted the value of creating a deep and empathetic connection between students and native species under threat. The idea was to move beyond just imparting knowledge to making students genuinely understand and feel what it is like to be in these species' shoes (or feathers!). This encouraged visitors to see the world from the perspective of these vulnerable species and fostered a sense of responsibility and stewardship. By understanding the challenges and struggles faced by these native species, students may be more motivated to take action and protect them and their habitats. This relates to Park and Lee's (2014) finding that by imagining themselves as the leading character in the story and experiencing their behaviours due to empathy, persuasion can be developed.

Participant G15 also emphasised the deliberate use of emotions to convey the difficulties and challenges many birds and animals face. By doing so, educators aim to engage the audience intensely, evoking empathy and compassion. Ultimately, the approach through storytelling went beyond traditional teaching methods and tapped into the emotional dimension of learning. These findings reflect Walker and Moscardo's (2014) study that highlighted that the focus must be shifted away from transmitting information towards facilitating concern. It recognises that fostering empathy and understanding is vital to building a more sustainable and harmonious relationship between humans and the environment. In the same way, Tan and Law (2015) and Blamey (2001) acknowledged that it is desirable to implement visitor management strategies that attempt to shift the visitor experience from simple enjoyment and satisfaction towards promoting environmentally responsible behaviour by stimulating emotions.

These feelings of concern, empathy, and regret, because of negative storytelling, were demonstrated by various participants.

> *I think just with the stories that you tell, you identify, you know, how they struggle or how they thrive and to feel concerned for that.* – Participant G6

> *…and empathy for the animals and their lives.* – Participant G6

> *They may feel regret that some of those lovely birds don't exist anymore.* – Participant G7

Participant G6's first statement emphasises that understanding and empathy are often intertwined. When visitors understand animals' experiences and difficulties, they are more likely to feel empathetic towards them. Building on their previous statement, Participant G6 discussed the importance of fostering empathy for the lives of animals because developing empathy for animals' lives can lead to more compassionate attitudes and behaviours towards them. For example, Barnes and College (2013) and Martínez-Rodríguez et al. (2018) emphasised the importance of empathy as well as caring about the well-being of all living things because people who are inspired by and have a love for the Earth are more inclined to take steps to preserve, restore, and celebrate the planet.

Participant G7 introduced the concept of regret, suggesting that individuals may feel a sense of sadness or remorse when they learn about the extinction or decline of certain species. This reflects Holak and Havlena's (1998) argument that to be persuasive, storytelling must provoke negative emotional responses such as sadness or regret. This emotion can stem from understanding the irreversible consequences of human actions on the environment. Regret can motivate conservation efforts because when people regret the loss of a species, they may be more inclined to support conservation initiatives and advocate for the protection of endangered species. This finding highlights the importance of educating visitors about the beauty and diversity of the natural world but also the potential loss and irreparable harm caused by human activities. These findings suggest that stories and narratives can evoke empathy, concern, and even regret in visitors, which can be effective strategies for promoting environmental stewardship. Various authors supported that concern can directly influence behaviour intentions (Hassan et al., 2021; Hughes, 2013; Mehmetoglu, 2010; Yadav & Pathak, 2017).

This was highlighted by Participant G15 when they explained that negative feelings can develop into feelings of care for the flora and fauna and make visitors think of ways to contribute to conservation and protect these species.

> *I think there's a lot in the way I do my stories, which gets them to feel really caring towards the birds and the bush, and then in that process, they start to feel, "Oh, we need to do that."* – Participant G15

This demonstrates the potential of storytelling to inspire environmental stewardship. When people care deeply about a cause, they are more likely to engage in behaviours that contribute to its well-being, such as supporting conservation efforts, adopting sustainable practices, or advocating for policy changes. This is an encouraging finding because it implies that storytelling not only raises awareness but also empowers visitors to take responsibility for the well-being of the environment. This supports van Dijk's (2011) idea that when used

strategically, stories are used not only to inform, share, or learn but also to articulate what is wrong and how it can be resolved.

4.5.3.2 Positive Stories

While negative stories help make visitors concerned, compassionate, and remorseful, Participant G11 mentioned that they strived for visitors to develop positive feelings through success stories as they did not want to make visitors feel depressed.

> *I probably push more about appreciation than concern because I don't want to upset people.* – Participant G11

> *I don't want to depress them; It's such a fine balance between telling them... Yeah, I think it's talking more about success stories…* – Participant G11

The first quote suggests that Participant G11 focused more on fostering appreciation for nature than evoking concern. This approach aimed to create a positive and uplifting experience for visitors. Participant G11 may have been concerned that overly emphasising the negative aspects of environmental issues, such as decline or habitat destruction, could upset or discourage people. Therefore, by promoting appreciation, the goal was to inspire love and attachment to the natural world. The second quote highlights the challenge of raising awareness about environmental issues and maintaining a positive and hopeful tone. This participant recognised the need to avoid overwhelming or depressing the audience with negative information. Instead, they suggested focusing on success stories that inspire hope and action. Other participants demonstrated examples of positive success stories as they encouraged visitors to develop an appreciation for species that were brought back from the brink of extinction.

> *I relate to some of the success stories, like the saddleback story, for instance. Saddleback were completely gone from the North and South Island… And so, I relate that story to them and then how the number of islands that have saddleback on them have been increased by predator control. And then saddlebacks being transferred and how they catch them and do the transfers.* – Participant G3

> *We've had some real success stories like that one I told about the black robin over on the Chatham Islands. That was a real miracle of a conservation success story.* – Participant G4

Participant G3 emphasised the importance of success stories in illustrating the impact of conservation efforts. The story of the saddlebacks on the brink of extinction and then making a comeback through predator control and transfers demonstrated the positive outcomes that can result from conservation actions. This participant's approach was educational and inspirational, as they showed how concentrated efforts through human intervention and stewardship can lead to tangible improvements in biodiversity. Likewise, Participant G4 told of a *"miracle"* conservation success story involving the black robin on the Chatham Islands. This story likely

captivated the audience by demonstrating the species' remarkable resilience and recovery potential even in dire situations. The participant's choice of words, such as *"miracle,"* emphasised the awe-inspiring nature of these success stories, which can be emotionally powerful. Such stories can instil a sense of wonder and optimism, emphasising that even species on the brink of extinction can rebound with the proper conservation strategies. These examples illustrated the significant impact of success stories in environmental education and interpretation on Tiritiri Matangi Island. Success stories provide tangible examples of how conservation efforts can make a difference, instilling hope and motivation in the audience. They emphasise the value of conservation actions, human intervention, and the potential for positive change in the world. Therefore, such narratives were powerful tools for inspiring individuals and communities to actively engage in conservation and environmental stewardship.

In addition, Participant G3 provided a comprehensive explanation that positive stories about the replanting success on Tiritiri Matangi Island were also told to give visitors confidence that they could be involved in conservation efforts in their own environments.

> *When it was first mentioned that this was going to happen, a lot of people said, "Well, actually, people don't know how to plant trees, and most of them will die, and it won't succeed." And there were so many naysayers, so many doomsayers that said it wasn't going to work. And while we were planting the trees, Ray used to take a selection of trees on the trailer, take them down to the area being planted and a couple of basic instructions. One, you need two spade lengths between each tree in every direction, so that gave them space. The other thing he used to do is hold the tree up like this by the little trunk or foliage and take the plastic bag off. When you've dug your hole, the green bit points to the sky, and the bit with soil on goes into the ground. That was the only instruction he used to give him. So, because all the naysayers had said, you know, "It won't work, and the trees will all die.", we actually almost doubled the number of plants that we would have been required because we thought we'd lose 50% of them. But we actually only lost 20%, which is a pretty standard amount for people who know how to plant trees because you got the vagaries of the weather and the rain and all sorts of different things. And so actually, we planted too many trees or too many survived. So that, again, that proved to all these people who said it wouldn't work. They were wrong. Yeah. And so, I tell that story, but that encourages people to think, well, if that worked on, you know, here on this island, what's to stop me digging a hole and putting a tree in? Whatever the plant is, a tree, a bush, whatever it is, I can do that. Yeah. And so that's a story that I hope gives them confidence to be able to go, "Yeah, I can do that."* – Participant G3

This recount of a powerful narrative of overcoming scepticism and achieving success in tree planting and conservation efforts was inspiring. The story not only inspired confidence but also held valuable lessons about the importance of taking action despite doubters and challenges. The story begins with a backdrop of scepticism and negativity from naysayers who doubted the success of the tree-planting project on Tiritiri Matangi Island. This scepticism is a common barrier in many environmental and conservation initiatives, as people can question the feasibility or impact of such endeavours. The narrative highlights the importance of perseverance and determination in facing obstacles by addressing this scepticism and proving it

wrong. The story then provides a simple yet effective method for planting trees, emphasising that anyone can contribute to conservation efforts with minimal guidance. This accessibility is crucial in encouraging individuals to act and make a difference in their communities. The instructions were straightforward, demystifying the tree-planting process and making it approachable for many people, regardless of their prior knowledge or experience. The narrative then showed how, despite initial doubts, the project succeeded and exceeded expectations. This underscores the importance of learning through practical experience and experimentation. It also emphasised that failure is a natural part of conservation efforts but should not deter individuals from taking action. Instead, it can be a valuable learning experience and inspire individuals to improve their techniques. The core message of this story was empowerment and encouraged visitors to believe in their ability to contribute to conservation efforts. Highlighting the success achieved on the island inspired confidence and fostered a sense of agency among the audience. This reflects Watson's (2003) discovery that stories about people acting ethically and responsibly can encourage visitors to behave admirably.

This empowerment is essential because it can lead to more widespread participation in conservation activities and a greater sense of responsibility for the environment. Overall, this success story served as an inspirational example and a call to action for those who hesitated to be involved in environmental conservation. Participant G13 shared some deeper insights by declaring that the replanting stories were effective with visitors because they provided a deeper connection, as visitors could understand what this project was like for the people involved.

> *Just to put people into the shoes of the people that started this or that did certain things-your kind of just painting a bit of a picture so that the connection is a little deeper.* – Participant G13

Participant G7 also suggested that when hearing these positive success stories and developing connections, visitors may feel hopeful that they can contribute to conservation efforts, too.

> *They may feel positive that there is something they could do.* – Participant G7

The inspiration goal of the Supporters was reflected in this, as well as the Supporters of Tiritiri Matangi Guiding Manual's suggestion that guides should deliver inspiring and informative stories by referencing Tiritiri Matangi Island as a shining example of successful conservation efforts.

> *Let what you say be inspiring as well as informative and let the success of Tiritiri shine through as an example of what can be done.* – Supporters of Tiritiri Matangi Guiding Manual

These findings showed that Tiritiri Matangi Island delivered both positive and negative stories to visitors during their environmental education and interpretation programmes. The negative

stories involved the extinction challenges various species face and the broader ecological consequences of human stories to evoke emotions of concern, empathy, and regret. On the other hand, the positive stories involved successful narratives about bringing species back from the brink of extinction due to conservation efforts and the replanting project on Tiritiri Matangi Island, triggering feelings of appreciation, hope and inspiration. These are encouraging findings because Hughes (2013) found that visitors were more likely to indicate and intend to modify their behaviour if they had been emotionally invested in the experience, whether negatively or positively. Therefore, delivering positive and negative stories on Tiritiri Matangi Island can foster emotional connections with visitors, enhancing their engagement with the educational content and increasing the likelihood of them taking action to support conservation efforts and environmental stewardship.

4.5.4 Role Modelling

Another theme present when discussing with participants how environmental education and interpretation are delivered to visitors on Tiritiri Matangi Island was through role modelling. Role modelling is a social and psychological concept where individuals observe and learn from the actions, attitudes, and behaviours of others, often referred to as role models. An example of this was presented by Participant G3, who revealed that they immediately pick up any rubbish they find and dispose of it responsibly.

> *If I see any rubbish at all, I pick it up immediately. So, it could be a sweet packet, it could be an aluminium can from some kind of drink, or it could be a plastic bottle. I pick it up immediately and carry it with me until I get on the ferry and put it in the rubbish bin.* – Participant G3

Participant G3 believed that seeing rubbish made people think it is okay to litter, but a clean environment encourages good behaviour.

> *I believe that if people see rubbish, that gives them permission to drop rubbish and if there's no rubbish around, there's just that little, tiny thing that goes off in the brain that "Maybe I shouldn't drop rubbish here," but if they see rubbish, then they, "Oh well someone else has dropped rubbish so it's okay for me to drop rubbish."* – Participant G3

This suggests that visitors' behaviour is influenced by what they observe in their surroundings. When visitors see rubbish in a location, it may unconsciously signal that littering is acceptable in that context. Those who litter can inadvertently become negative role models, setting a precedent for others to follow. The quote also highlights the concept of "*permission*" in littering. When people perceive that others have engaged in a particular behaviour, they may interpret it as socially acceptable or permissible within that context. This was also depicted by the Supporters of Tiritiri Matangi Guiding Manual, which stated, *"...there is a danger that anything we do, visitors might assume they can do as well."* Therefore, Participant G3 took the

initiative to keep Tiritiri Matangi Island clean and litter-free to encourage others to follow suit. This indirect technique relates to Participant G2's statement, "*We can role model that without having to ram it down their throats,*" implying that role modelling is important because the Supporters can lead by example without being overbearing or demanding. Role modelling was part of environmental education because if visitors witnessed the Supporters picking up litter and disposing of it correctly, they understood the practical application of responsible environmental behaviour. This relates to Bandura's (1986) finding that most visitors learn through observation, including various role modelling forms. Additionally, it reflects Miller and Dollard's (1941) suggestion that learners must be provided with examples of behaviour. This first-hand experience went beyond theoretical knowledge, providing a real-world example of how individual actions can positively impact. It relates to Kong's (2014) claim that tour guides should encourage and motivate visitors to protect natural areas. Therefore, environmental awareness and respect for the environment can be fostered, as visitors can witness and understand the tangible impact of their actions on the natural world. In essence, environmental education comes to life when it is demonstrated through practical actions and positive role modelling, as it empowers individuals to understand environmental principles and actively engage in responsible practices, thereby promoting a sustainable and respectful relationship with the natural world. This corresponds with Pu et al. (2022) and Yamada's (2011) arguments that the ultimate goal should be encouraging visitors to demonstrate environmentally conscious behaviours both on-site and at home.

This theme of role modelling was also present in the Supporters of Tiritiri Matangi Guiding Manual, as the guidelines emphasised the responsible behaviour of guides in the natural environment.

> *We should not attempt to attract wildlife by any means, including sound recordings, mechanical bird callers, imitations of calls, nor are we allowed to feed the wildlife. (Attempts to attract wildlife can disrupt their natural behaviour. As guides we should set an example by not doing this, and we should ensure that those in our group know that it is not permitted….)* – Supporters of Tiritiri Matangi Guiding Manual

This statement shows that attracting wildlife with artificial means or feeding them can interfere with their instincts and behaviour. Therefore, guides must adhere to this rule by setting an example for visitors. By actively communicating and demonstrating these local regulations and ethical standards, guides fulfil their duty to protect the environment and maintain its integrity. Furthermore, when guides follow ethical wildlife interaction practices, they teach visitors to responsibly engage with the environment by setting an example for ethical wildlife observation. This is important on-site to ensure the protection and conservation of native species and off-site because this education extends beyond the guided tours as visitors can apply these principles in future interactions with wildlife and natural areas. Therefore, guides played a pivotal role in upholding these principles by setting an example for responsible and ethical wildlife

observation. Through this, they not only protected the environment but also educated and inspired visitors to become responsible stewards of nature.

It was also found that guides must maintain the integrity of the ecosystem by preserving its natural beauty and safeguarding its cultural heritage.

> *We must not cut down or damage any vegetation or damage any natural feature or historic resource on the Island.* – Supporters of Tiritiri Matangi Guiding Manual

When individuals, particularly those in positions of influence of authority like the Tiritiri Matangi Island guides, adhere to the principle of not damaging vegetation, natural features, or historic resources, they demonstrate responsible behaviour; such behaviour can inspire visitors to act in a similar manner. Promoting and following this rule also serves as an educational opportunity for visitors, as guides can explain the importance of these principles, helping visitors develop a deeper appreciation for the environment and heritage. Through this, visitors are more likely to take these principles to heart when they witness guides practising what they preach. Furthermore, through this awareness, visitors can demonstrate more responsible behaviour by respecting the environment and cultural heritage without causing harm or destruction. Ultimately, these findings indicate that role modelling can extend to individuals' influence on their groups and communities. When someone sets a positive example by respecting the island's natural flora, fauna and historical assets, it can influence their peers' behaviour, creating a ripple effect of responsible behaviour and ethical conduct.

Positive role modelling on Tiritiri Matangi Island was vital because it meant that Supporters would not claim that they cared about the birds and then engage in harmful practices that negatively impacted the species.

> *We can't say, "Save all the birds," and got every single item in our lunchbox wrapped up in Glad wrap that's going straight to landfill when they get home.* – Participant G11

This would be hypocritical because it contradicts the principles of environmental conservation and responsibility that the Supporters advocate for. Therefore, it is suggested that the Supporters walk the talk by following through with their messages about the environment and conservation, inspiring visitors to do the same.

Collectively, these findings on role modelling are encouraging because they reflect the New Zealand Environmental Care Code (Ainge et al., 1991). For example, Participant G3's approach to picking up rubbish aligns perfectly with the "Remove Rubbish" aspect of the code, which emphasises the importance of leaving natural areas cleaner than they were found. Moreover, the Supporters of Tiritiri Matangi Guiding Manual's emphasis on guides not attempting to attract wildlife and not cutting down or damaging any natural feature or historic resource on the island

aligns with both the "Protect Plants and Animals" and "Respect Our Cultural Heritage" aspects of the code; they encourage guides to treat New Zealand's forests and birds with care and respect and treating the spiritual and historical significance of the island with consideration and respect. Regarding environmental education, the principles outlined in the Supporters of Tiritiri Matangi Guiding Manual and the New Zealand Environmental Care Code emphasise the importance of awareness and respect for the environment. They serve as educational tools by highlighting the significance of protecting natural resources and cultural heritage. Therefore, as guides follow these principles, they can educate visitors about the intrinsic value of these resources and the rationale behind their environmentally responsible behaviour. Additionally, the findings reinforce that environmental care is not the sole responsibility of authorities or organisations but a collective effort involving individuals at all levels. By aligning the New Zealand Environmental Care Code through their actions, these role models actively preserve New Zealand's beautiful natural landscapes for current and future generations.

Overall, role modelling was crucial to delivering environmental education and interpretation on Tiritiri Matangi Island because it provided tangible examples of responsible and sustainable behaviour, promoted discussion on why these practices should be adhered to, inspired positive change, and fostered a deeper connection between individuals and their environment.

4.5.5 Encouragement

The data showed that environmental education was delivered to Tiritiri Matangi Island visitors through encouragement. Encouragement is a form of support, motivation, or reassurance provided to someone to boost their confidence, morale or determination. It involves offering words or actions to inspire individuals to overcome challenges, pursue their goals, or, in this case, continue learning and contribute towards conservation efforts.

4.5.5.1 Book Recommendations

It was discovered that the participants encouraged visitors to continue their environmental educational journey by conducting their own research or learning once they returned home. For example, specific books were recommended to visitors and those for sale in the Visitor Centre.

> *If I see that they're really interested I will tell them about books that you can read that will tell you all this.* – Participant G3

> *With older groups, you can also point out certain books. There's a lot of amazing books in the Visitor Centre. Like different stories that I talk about, I'll just point out where they're from like reference the books and things like that.* – Participant G13

> *I think the shop provides an opportunity for people to take home stuff that might be really well-informed as well.* – Participant G2

> *And of course, we also have books and things for sale in the shop that they can buy and take as reference as well.* – Participant M1

Participants G3 and G13 recommended books to interested visitors, allowing them to deepen their knowledge in specific areas of interest, fostering self-directed learning, and maintaining a connection to the principles and practices they learned while visiting Tiritiri Matangi Island. This supports the continuation of their environmental education journey and Walker and Moscardo's (2014) argument that the ultimate goal of ecotourism is to encourage sustainability beyond the visitor experience. Participant G13 specifically mentioned the availability of a wide range of books in the Visitor Centre, which signified that it was not only a place for immediate education but also a hub for accessing educational materials. Participants G2 and M1 highlighted the role of the shop as a place where visitors could purchase books and other resources related to the island's ecology and conservation efforts. This suggests that the shop served as an extension of the educational experience, allowing visitors to take home materials as references and reminders of what they learned during their visit. Stronza et al. (2019) revealed that giving access to take-home materials optimises an experience's potential impact on visitors' adoption of environmentally sustainable behaviour in their personal and professional lives. In summary, recommending and making these resources available in the Visitor Centre and shop enriched the visor experience and encouraged ongoing learning, reflecting the comprehensive form of ecotourism (Weaver, 2005).

4.5.5.2 Digital Recommendations

It was also found that visitors were referred to YouTube videos, podcasts and applications relevant to conservation, New Zealand birds, and nature in general.

> *There's also things you can look up on the computer, and it'll give you different stories about conservation and YouTube...* – Participant G3

> *...podcasts as well sometimes, there's quite interesting ones.* – Participant G13

> *I introduce people to a couple of apps. The iNaturalist app and New Zealand Birds online app to show that they can get far more information on that.* – Participant G5

Participant G3 mentioned using computers and online resources to access different conservation stories. Online research is essential because it can provide visitors with up-to-date information, case studies, and multimedia content that enhances their understanding of environmental conservation and related issues. Mentioning YouTube suggests using video content, which can be highly engaging and informative, especially for visual learners. Participant G13 highlighted using podcasts as an educational resource that provides a convenient way to learn about conservation topics while travelling. Podcasts often feature interviews, discussions, and storytelling that can provide in-depth insights into environmental issues and initiatives. Visitors

could also listen to podcasts whilst walking in nature to deepen their connection with the environment, simultaneously immersing themselves in the sights and sounds of the natural world while gaining valuable insights and knowledge about the ecosystems they are exploring. This combination of sensory experiences and informative content enhances their appreciation for nature and their understanding of the importance of conservation. This could be especially useful for those who prefer to explore the natural world at their own pace without being in a guided group setting, as the educational content is delivered through a podcast. Participant G5 introduced visitors to specific mobile applications, such as the iNaturalist and New Zealand Birds online apps. Educational apps offer interactive and hands-on learning that allows visitors to actively engage with the natural world at their convenience and contribute to data collection efforts. These findings highlight the adaptability of environmental education and conservation efforts in the digital age. Encouraging visitors to utilise online resources, watch television programmes, listen to podcasts and use mobile apps beyond the educational experience on Tiritiri Matangi Island provided them with various ways to learn and stay connected to conservation topics. It also acknowledged that different individuals may have varying preferences for how they engage with environmental information, and offering a range of digital resources ensured that a broader audience could be reached and inspired to participate in conservation efforts, even when visitors had left the island.

4.5.5.3 Environmental Action Beyond the Site

Participants also reported encouraging visitors to consider what they could do regarding conservation in their environment and communities. This reflects The Tbilisi Intergovernmental Conference on Declaration Environmental Education (1978) final objective of "Participation," which aimed to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward the resolution of environmental problems (a common limitation present in the literature is that the outcomes are limited to the individual site [Ballantyne & Packer, 2011; Fennell, 2020; Hughes, 2013; Moscardo, 2015; Powell & Ham, 2008]). For example, Participant G11 revealed they *"try and share different easy things they can do back home in their garden."*

Visitors learned about trapping, tracking tunnels, and the management of predators on the island so they could go home and implement these conservation tools in their own environment. This was best expressed by Participant M1, who described the work done on Tiritiri Matangi Island as a model that visitors could replicate on a smaller scale in their garden.

> *It's a model, and you can apply it to a small extent in your own garden, like have a rat trap, check for stoats and things; if you've got cats and dogs, how are you making sure they're not...how you are managing them?* – Participant M1

Several other participants also mentioned that visitors were encouraged to place traps and tracking tunnels in their gardens and manage pets.

> *It doesn't have to be grand scale; it could be a rat trap in the garden so that their tūī survives the summer with the chicks.* – Participant E2
>
> *I do talk about rat traps if rat traps come up when we see the tracking tunnels and those sorts of things and talk about it; if it's appropriate, you have to make that judgment that they can have rat traps at home and where they might get them from.* – Participant G5
>
> *So, I teach year five and six students to do trapping. Rat and mousetraps, anyway, nothing too big.* – Participant E2
>
> *So, I show people the little traps that we have around the island and explain how they work, and we have things called black tracking tunnels, which actually are very easy to set up at schools, for instance.* – Participant G5
>
> *Also, talk about if they do have cats and what they can do to minimise the damage because cats are natural born killers and they go out at night, so encouraging people to maybe put a bell on their cat or possibly leave it in at night or different angles like that.* – Participant G7

Participants E2 and G5 first emphasised that conservation actions did not have to be grand or complicated. This notion aligns with Ballantyne et al.'s (2011) study, which found visitors were more likely to engage in conservation activities that required minimal effort. Mentioning something as simple as setting up rat traps in one's garden can make a significant difference for local wildlife. Small-scale actions are also often more accessible and less intimidating for individuals, making them more likely to undertake them. These participants also described opportunities for education and engagement in conservation efforts through encouragement. Participant E2 mentioned teaching year five and six students to do trapping, which not only contributes to conservation but also educates the younger generation about the importance of protecting native wildlife. Therefore, explaining how traps and tracking tunnels work gave visitors practical knowledge to apply in their settings. Participant G5 also mentioned black tracking tunnels, which are easy to set up at schools. This highlights the availability of accessible tools and resources for educational institutions and community groups to engage in conservation efforts. Making such resources known to visitors can inspire them to explore conservation activities in their own communities. Participant G7 addressed the issue of cats as natural predators. By discussing how individuals can minimise the impact of their cats on local wildlife, such as by using bells or keeping them indoors at night, this participant promoted awareness and responsibility among pet owners. This highlights the role of education in promoting responsible pet ownership as a form of conservation. These findings emphasise the importance of guides and educators customising their advice based on the interests and needs of visitors. Not everyone may be interested in trapping, own a cat, or have the same environmental

challenges in their area. Therefore, providing tailored recommendations increases visitors' likelihood of implementing the suggested actions.

Visitors were also encouraged to plant trees to attract birds they had seen and heard on Tiritiri Matangi Island but were absent in their own gardens.

> *And encouraging people when they get home to grow native plants that could provide food for the birds. Just generally being more aware of why the birds aren't there.* – Participant G7
>
> *I do try to say if you want to tūīs in your garden, plant trees that will provide them with the food they need* – Participant G3
>
> *There's all sorts of things you can do, just plant a tree in your garden that birds come to.* – Participant G3
>
> *So just asking the kids if they've planted trees before and that kind of sows the seeds, so then even if they haven't, maybe in the future they're more likely to do something like that.* – Participant G13

Participant G7 mentioned the importance of raising awareness about why birds may not be present in certain areas, fostering visitors' understanding of the specific needs and challenges local bird populations face. Both participants G3 and G7 mentioned the significance of planting native trees and plants in gardens to attract and support native bird species like tūīs; native plants provide essential food sources and habitats for local wildlife, contributing to the overall health of ecosystems. Encouraging people to grow native plants and create bird-friendly habitats demonstrates the link between individual actions and bird conservation. Participant G13 discussed asking children if they had planted trees before, which could metaphorically plant the seeds for future conservation actions. By introducing the idea of planting trees early in life, individuals, especially younger people, are more likely to consider similar activities in the future. These findings highlight actions that are accessible to a broad audience. Planting a tree or native plants in one's garden is something that many people can do, regardless of their location or available space. It promotes inclusive conservation efforts, encouraging participation from various demographics and age groups. These findings highlight the significance of encouraging visitors to plant native trees and plants in their gardens as a practical and accessible way to support bird and wildlife conservation. Such actions only enhance local ecosystems but also raise awareness about the needs of native birds and foster a shared responsibility for their protection.

While providing visitors with ideas about what they could do at home regarding conservation is essential, Participant G15 argued that they would prefer if the visitors developed their own ideas and took them home.

> *I have the conversation about what would they do. So, we have conversations, and I don't always give the ideas. They'll often come up with put bells on a cat. Because I'd rather they were the ones who had the ideas and took them home.* – Participant G15

This participant's approach empowered visitors by engaging them in a conversation and encouraging them to brainstorm solutions. Initiating conversations and encouraging visitors to express their thoughts and ideas creates an open and inclusive learning environment. It allows for two-way communication, where visitors feel heard and valued. Empowering visitors to think for themselves can lead to a more meaningful and lasting behaviour change because people are more likely to act on ideas they generate themselves. By allowing visitors to develop their own ideas, they take ownership of the solutions and feel a stronger sense of responsibility for implementing them. This approach is also crucial because not all solutions work for every situation, so encouraging visitors to develop their own ideas ensured that solutions were tailored to their unique circumstances. In summary, this finding demonstrates an effective educational strategy that educated and promoted visitor engagement and ownership of conservation ideas.

Finally, it was discovered that the Supporters encouraged visitors to join their local community conservation groups.

> *I suggest groups that do actively participate, like the Forest and Bird, which are pretty active around Hibiscus Coast.* – Participant G7
>
> *I can suggest to them, you know, different groups that they might like to join, you know, back on the mainland kind of thing they might like to.* – Participant G4
>
> *…encourage them to see what's available in their community.* – Participant G4
>
> *If there's a local group getting involved with predator control or tidying up the bush or the stream, there's an opportunity there to get involved.* – Participant G3

The participants recognised that a visit to Tiritiri Matangi Island could catalyse ongoing engagement in conservation efforts. Suggesting local groups and initiatives helped visitors see the broader context of conservation activities happening in their own communities. This relates to Weiler and Black's (2015) claim that guides can create opportunities for visitors to contribute to local community initiatives and become involved in environmental protection. Encouraging visitors to join local groups, such as the Forest and Bird Society or community-based conservation organisations, allowed them to actively contribute to conservation efforts in their own regions, strengthening these local initiatives with new members and volunteers. Connecting visitors to local conservation groups fostered a sense of community and belonging among those passionate about nature and wildlife. This sense of belonging can motivate individuals to become more active and committed participants in conservation efforts. Additionally, joining these groups can influence further environmental education as people become exposed to diverse perspectives and experiences within the conservation community.

Moreover, connecting visitors to local initiatives emphasises the relevance of conservation to their own lives and surroundings, and therefore, visitors may be more likely to engage when they see the direct impact they can have on the environment in their local area.

Overall, the findings in this theme illustrated that Tiritiri Matangi Island's delivery of environmental education and interpretation aligned with a comprehensive form of ecotourism (Weaver, 2005). They achieved this by offering guidance for visitors to continue their learning journey when they return home through book recommendations and references to online resources and encouraged them to participate in conservation through pest control, planting and joining community groups. This approach signified the island's commitment to instilling a long-lasting dedication to nature preservation and education in its visitors, extending the impact of their experience well beyond their time on the island.

4.6 Conclusion

Analysing the documents and the semi-structured interviews yielded deep insights that hold significance within the existing knowledge framework presented in Chapter 2. The first section, concerned with the background of Tiritiri Matangi Island, answered research question one, as it revealed and signified the five unique histories of the island which led to conservation and the shift to develop visitor management and educational initiatives. The second section, which pertained to the planning of environmental education and interpretation on Tiritiri Matangi Island, also answered the first research question as it highlighted and delved into the island's strategic vision and primary conservation-oriented outcomes across multiple domains, the specific objectives that steer their efforts in environmental education and interpretation initiatives, as well as the diverse target audiences for these programmes. The third section, which focused on the design of environmental education and interpretation on Tiritiri Matangi Island, answered the second research question. It outlined and provided the rationale for the diverse design components integrated into the guided tours, school education programmes, signage, and interactive displays. Finally, the fourth section, which concentrated on the delivery of environmental education and interpretation on Tiritiri Matangi Island, answered the third research question, as it disclosed and investigated the various experiential and stimulating methods utilised to deliver programmes and conservation messages to visitors.

The next chapter presents the in-depth answers to the research questions, concludes the study, acknowledges its implications and limitations, and provides recommendations for future research.

Chapter 5: Conclusion

5.1 Introduction

This chapter concludes the study by revisiting the initial aims and objectives of the research, providing answers to the research questions, and offering the theoretical and practical value and contribution thereof. It also addresses the study's limitations and proposes opportunities and recommendations for future research to expand further on this and similar topics.

5.2 Research Aim, Objectives and Questions Revisited

This research aimed to understand how environmental education and interpretation is planned, designed, and delivered on Tiritiri Matangi Island. More specifically, the study set out to achieve the following three objectives:

Objective 1: Develop a comprehensive overview of Tiritiri Matangi Island's background and strategic framework in a broader context and with a specific focus on its environmental education and interpretation components.

Objective 2: Understand how environmental education and interpretation were designed on Tiritiri Matangi Island and the rationale behind their design choices.

Objective 3: Investigate the different methods used to deliver environmental education and interpretation to visitors on Tiritiri Matangi Island.

Through thematic analysis of primary and secondary data using a case-study approach, the research highlighted significant findings related to the planning, design, and delivery of environmental education and interpretation on Tiritiri Matangi Island. The overall findings, in accordance with each research question, are presented, summarised, and discussed next.

5.2.1 Question 1

What is the general background and strategic plan of Tiritiri Matangi Island, and what are the objectives behind its environmental education and interpretation efforts?

Tiritiri Matangi Island's background is characterised by a diverse history, weaving together five historical facets that provide a solid foundation for immersive educational and interpretive experiences. Firstly, the island holds profound cultural significance as a site where early Māori communities established campsites and villages. Additionally, the island has played a crucial role in maritime navigation, given its strategic location, and has been home to a lighthouse that

guided ships safely through its waters. Notably, during World War II, Tiritiri Matangi played a critical role in the Auckland Harbour defences, highlighting its maritime security during that era. The island's history also includes a period of farming activities underlying its historical significance in agriculture. These historical phases of indigenous heritage, maritime navigation, colonial defences, and farming activities led to a long history of anthropogenic degradation. However, a significant transformation occurred when the island was designated a recreation reserve and left to regenerate naturally. An ecological restoration project was initiated, recognising that natural generation would take many lifetimes. This marked the beginning of the island's journey as an open sanctuary, with human-assisted ecological restoration efforts that led to the creation of the community group Supporters of Tiritiri Matangi. Conservation goals were focused on extending and enhancing the existing flora and fauna while creating a replacement ecosystem for Tiritiri Matangi Island. Over time, the focus shifted from managing primarily a voluntary labour force to managing the island's visitors, infrastructure, and biodiversity. Furthermore, as the island's popularity grew, the Supporters of Tiritiri Matangi invested in various educational and interpretive initiatives. They formulated a strategic plan to ensure continued sustainability efforts, enhance visitors' experiences, and expand educational outreach initiatives.

Tiritiri Matangi Island's strategic plan encompasses five key areas, each vital to its mission. First and foremost is "Nature Conservation", as the island aspires to establish a thriving and exemplary ecosystem that effectively serves the needs of advocacy, species protection, species management, and education. Furthermore, its goal is to become a global model for nature conservation, inspiring and guiding similar efforts worldwide. Following this is "Cultural and Historic Conservation", as Tiritiri Matangi aims to leverage its unique cultural and historical status to set an example in heritage conservation by recognising and preserving its cultural and historical significance. Tiritiri Matangi Island strives for "Insight" by functioning as a vital hub for research, generating knowledge that caters to the needs of conservation, encompassing ecological, cultural, and historical studies. Additionally, the island seeks to "Inspire" individuals to become advocates for natural, cultural, and historic heritage, motivating them to impact their communities and environments positively. Finally, the Tiritiri Matangi project intends to ignite "Participation" by offering a range of opportunities with diverse abilities and personal interests to become actively involved in conservation efforts and community engagement.

Tiritiri Matangi Island's environmental education and interpretation objectives are multifaceted and encompass four key dimensions. Firstly, they aim to enhance visitors' knowledge and awareness of New Zealand's flora and fauna, the island's conservation initiatives, and the potential for individual and community engagement in conservation efforts. Furthermore, environmental education and interpretation on the island endeavours to illuminate the intricate interdependence between all living organisms and their profound impact on ecosystems.

Additionally, it seeks to motivate conservation action by urging visitors to actively safeguard the natural world and emphasising humans' collective responsibility in conserving it for future generations. Lastly, the island's environmental education and interpretation initiatives aspire to show that ordinary individuals with passion and determination can catalyse positive change in conservation efforts.

Tiritiri Matangi Island's environmental education and interpretation objectives are also tailored to distinct target groups. For international visitors, environmental education and interpretation focuses on providing background knowledge of New Zealand's ecology, culture, and history, highlighting the uniqueness of New Zealand's conservation practices and their impact on species preservation. For domestic visitors, environmental education and interpretation aims to inspire a sense of ownership among New Zealand citizens, encouraging them to engage in local conservation projects, even if they are already familiar with local wildlife. Finally, for children, environmental education and interpretation on Tiritiri Matangi island seek to ignite a lifelong commitment to environmentalism, empowering the younger generation to advocate for environmental stewardship within their communities.

In essence, Tiritiri Matangi Island showcases a captivating history with its holistic strategic plan and comprehensive environmental education and interpretation efforts aligned seamlessly with its conservation, community engagement, and advocacy mission. These initiatives work in tandem to restore the island's ecosystem, preserve its cultural heritage, drive research, inspire visitors, and empower individuals to actively participate in conservation efforts. Ultimately, they provide a robust foundation for crafting versatile and immersive educational and interpretive experiences on Tiritiri Matangi Island.

5.2.2 Question 2

How is environmental education and interpretation designed on Tiritiri Matangi Island, and what are the reasons driving its design approaches?

Environmental education and interpretation on Tiritiri Matangi Island encompass guided tours, school education programmes, interpretive signage, and interactive displays.

Firstly, the guided tours on Tiritiri Matangi Island are designed to cater to the general public and school groups to ensure that people of all ages and backgrounds can access the island's educational message. The tours are carefully structured to provide a seamless journey from the Wharf to the Visitor Centre. This approach allows visitors to start the tours at an accessible location, physically explore the island's natural environment, and seamlessly transition into further exhibits and educational resources at their destination. Guides are carefully chosen for their personal connections to Tiritiri Matangi Island or their expertise in its ecology and history.

This is because guides who have a personal connection to the island and are experts in the subject matter infuse their roles with passion and commitment, making them more engaging and trustworthy for visitors. Tiritiri Matangi Island ensures that it has guides with various interests and expertise to ensure that visitors can connect with guides who share their specific interests, leading to a more personalised and engaging experience. Tiritiri Matangi guides are also provided opportunities for continuous learning and skill development as they are regularly updated with the latest information about conservation efforts, native species, and ongoing research. This commitment to training ensures that guides are well-informed, prepared and equipped to provide visitors with accurate and relevant information. The guided tours on the island are also designed to draw connections between the island's conservation efforts and visitors' daily lives to foster a sense of ownership and responsibility for conserving the environment among them. Guided tours are also conducted in small groups, allowing for a more intimate and personalised experience. Guides take the time to understand visitors' backgrounds, interests, motivations, and expectations to ensure that the content and activities align with the group's specific desires and knowledge levels. Additionally, guides co-create the experience with visitors, adapting based on visitor curiosities and signals from their behaviours.

School education programmes on Tiritiri Matangi Island are designed to cater to a diverse range of school-age groups and encompass a holistic approach that not only educates but also fosters a deep sense of environmental responsibility among children. Firstly, different programmes are available, with content specifically designed to match the development stage and educational needs of the students to ensure that students receive information and experiences that are relevant and understandable for their age and academic level. The island's educators employ a communication style that avoids overwhelming students with complex structures and technical terminology. Instead, they use simple language and focus on fundamental and broader concepts. This approach acknowledges the developmental stage of younger children and aims to make the information accessible and engaging to foster better comprehension and retention. The educational approach on Tiritiri Matangi is also designed to align with contemporary educational practices, especially for students studying for the National Certificate of Educational Achievement. It emphasises systems-based learning, which provides students with a holistic understanding of ecological processes. Rather than focusing solely on individual ecological systems, these students learn how they are interconnected and interdependent to enhance their knowledge and promote critical thinking and a broader perspective on environmental issues.

The signage on Tiritiri Matangi is thoughtfully designed and driven by a commitment to enhancing the visitor experience while promoting environmental education, conservation, and cultural appreciation. For example, the island has strategically placed directional signs that not only guide but also enrich their visitor experience. These signs provide essential information

about the island's tracks, including details on length, features, and accessibility to empower visitors to choose tracks that align with their interests and physical abilities. Moreover, the signs offer historical and cultural context to promote cultural understanding, awareness, and appreciation, as well as environmentally responsible behaviours to encourage visitors to respect and actively participate in its conservation efforts. The identification signs along the tracks reveal the common, scientific, and Māori names and factual information about the flora visitors encounter. They are designed this way to foster a deeper level of botanical knowledge and ecological awareness and a deeper appreciation for the island's natural heritage and significance. Furthermore, the static design of these signs empowers visitors to explore the island independently. It grants them the freedom to pause and engage with the signage information at their own pace, allowing them to delve deeper into topics that capture their interest. Additionally, the island's design includes the provision of benches or stop-stations near signage to encourage visitors to take their time and absorb the educational content, fostering a more profound and meaningful learning experience while connecting with the environment. Identification signs of birds are located by a water trough to allow visitors to identify the bird species they come across, and distinguish between male and female birds, fostering a deep understanding and appreciation of avian diversity. In addition, images of fauna are depicted on the signs to give visitors a glimpse into biodiversity that may not always be seen during their visit. Furthermore, the images serve as a checklist of the species visitors have seen and learnt about to reinforce learning and motivate visitors to explore further and pay closer attention to their surroundings as they realise there are more species to discover. The interpretive signage in the Visitor Centre depicts the five histories of Tiritiri Matangi and the island's future to take visitors on a journey through its unique heritage and inspire a deeper appreciation of the island's cultural and natural heritage. This fosters a sense of connection between past, present, and future generations, all while encouraging a commitment to its ongoing preservation and conservation. Finally, the interpretive signage outside of the Visitor Centre is a consistent pattern that combines Māori and scientific names of species, Māori legends, physical and auditory traits of species, the history of species decline and conservation efforts, the role of Tiritiri Matangi Island in conservation, optimal viewing opportunities, and ways visitors can contribute to conservation. This pattern ensures that visitors are not only educated and emotionally connected to conservation but also encouraged to take meaningful actions to preserve these species and their natural environment.

The interactive displays incorporate sugar water feeders to attract hihi and tūī, a design choice to offer visitors up-close encounters with these species. This setup ensures bird sightings, enabling visitors to admire the aesthetic qualities of these birds while also focusing on population dynamics to deepen their understanding of avian behaviour and dietary needs. In the context of the wētā motel, the dry cavity for wētā inhabitants provides a unique opportunity for

visitors to observe these elusive creatures. It allows guides to impart knowledge about the diverse species inhabiting the motel. Moreover, it inspires school children, encouraging them to establish similar habitats in their school environments to foster a connection between classroom learning and real-world conservation efforts. Similarly, the tracking tunnels serve as a platform for guides to communicate essential lessons and success stories regarding pest-tracking initiatives and motivate visitors to implement similar practices in their own surroundings. Lastly, the nesting boxes serve as a concrete and visible depiction of the female hihi's nest-building process, providing visitors with a direct opportunity to appreciate the intricate efforts involved in constructing these nests. Additionally, they enable guides to address various aspects of bird nesting behaviours and life cycles and underscore the importance of conservation efforts.

Ultimately, the design of Tiritiri Matangi Island's guided tours, school education programmes, signage and interactive displays all converge towards a common goal: to create a holistic and immersive educational experience that fosters a deep appreciation and understanding of the island's natural and cultural heritage while instilling a sense of environmental responsibility in visitors of all ages and backgrounds. Through carefully structured guided tours led by passionate and knowledgeable guides, age-appropriate school programmes that simplify complex ecological concepts, informative and culturally enriched signage, and interactive displays that offer close encounters with wildlife, Tiritiri Matangi Island aims to empower individuals with the knowledge and inspiration needed to actively participate in conservation efforts, both on the island and in their daily lives. This comprehensive approach ensures that Tiritiri Matangi Island serves as not only a beautiful natural sanctuary but also a powerful educational and interpretive platform, promoting a lasting connection between people and the environment.

5.2.3 Question 3

What methods are employed to deliver environmental education and interpretation to visitors on Tiritiri Matangi Island?

The approaches used to convey environmental education and interpretation to Tiritiri Matangi Island visitors involve immersing them in the natural surroundings, offering experiences that engage multiple senses, employing storytelling methods, demonstrating eco-friendly practices, and encouraging additional learning and environmental action beyond the site.

Firstly, visitors are immersed in nature to connect profoundly with the island's unique ecosystem. This immersion allows them to perceive and appreciate the intrinsic beauty of the environment and the need for its preservation. Moreover, it provides an ideal setting for teaching and learning about environmental concepts. It offers real-world examples and

experiences that vividly illustrate ecological principles, making the educational process more tangible and impactful as emotional responses are influenced.

Environmental education and interpretation are also delivered through multi-sensory experiences by engaging visitors through sight, hearing, smell, and touch to create an immersive and memorable understanding of the natural world. For example, guides and educators draw attention to small and often overlooked details in the natural world, employing visual aids, photographs, models, and biological objects to illuminate the hidden intricacies of the island's past and present ecosystem and conservation messages to foster a greater understanding of its delicate balance and nurturing a heightened sense of wonder among visitors. Furthermore, guides and educators encourage visitors to actively listen to the birdlife and flow of the trees, aiding in the awareness and identification of different bird species. This practice not only deepens visitors' connection to the forest but also helps them realise that the current abundance of birdsong and biodiversity is a departure from the past to reinforce the idea that ecosystems need to be safeguarded. Additionally, tactile exploration in the forest is used to make the learning experience more vivid and memorable as visitors pay closer attention to the details of the forest and are more likely to remember the educational content associated with the texture or characteristics of natural features. Moreover, visitors are encouraged to smell and experience different forest scents to foster curiosity and develop a deeper understanding of the natural world.

Storytelling, encompassing negative and positive tales, is another method to deliver environmental education and interpretation on the island. This technique effectively captivates visitors by rendering information more interesting and relevant. Furthermore, mental imagery is crafted through storytelling, and emotional connections are fostered between visitors and the island's species to nurture a heightened sense of responsibility and stewardship. Environmental education and interpretation are also demonstrated through role modelling as the Supporters practically demonstrate environmentally responsible behaviours to indirectly educate visitors about sustainable practices, encouraging them to learn and adopt these behaviours, thus promoting a deeper understanding of ecological conservation and encouraging active engagement in responsible environment actions.

Finally, the Supporters encourage visitors to continue their environmental education journey by recommending specific books and digital resources. They also inspire visitors to take tangible steps towards conservation, starting with small actions like setting up traps in their gardens, putting bells on cats, and planting trees. Additionally, they suggest becoming involved with local groups or community-based conservation organisations to extend their impact and become active participants in preserving our natural world. This comprehensive guidance empowers

visitors to be lifelong learners and environmental stewards, fostering a ripple effect of positive change beyond their visit to Tiritiri Matangi Island.

The methods to deliver environmental education and interpretation on Tiritiri Matangi Island encompass a holistic and immersive approach. They aim to not only educate visitors but also to instil a deep sense of appreciation, responsibility, and stewardship for the island's unique ecosystem. By immersing visitors in nature, engaging their senses, employing storytelling, demonstrating eco-friendly practices, and encouraging additional learning and environmental action beyond the site, Tiritiri Matangi Island strives to create informed and empowered individuals who are inspired to protect and preserve the natural world, both on the island and in their own environments. These methods collectively contribute to a transformative educational experience that extends far beyond the island's shores, fostering a lasting commitment to environmental conservation and sustainability.

5.3 Implications

This study on the planning, design, and delivery of environmental education and interpretation in the ecotourism destination of Tiritiri Matangi Island offers both theoretical and practical contributions. It aligns with Denzin and Lincoln's (2018) concept of 'richness of information', a fundamental aspect of qualitative research methodology, emphasising comprehensive and contextualised data collection to deepen understanding. By employing a case study approach and qualitative research methods such as document analysis and interviews, this study intentionally pursued this depth and contextuality in data collection. Through meticulous examination of documents and insightful interviews with key stakeholders, the study uncovered layers of meaning and insight into the planning, design, and delivery of environmental education and interpretation within the ecotourism context of Tiritiri Matangi Island. This methodological choice facilitated a move beyond surface-level observations, providing a nuanced portrayal of the intricate relationship between environmental education and interpretation, and the visitor experience. Consequently, by adhering to the principles of 'richness of information', the study offered a comprehensive and insightful exploration of its research domain, enriching both theoretical understanding and practical implications.

Theoretically, the study enriches the understanding of ecotourism as a holistic endeavour by delving into the intricacies of education and interpretation within this context. Furthermore, the results and analysis of this study may add to the limited body of research that already exists in this ecotourism area by offering a comprehensive understanding of how environmental education and interpretation can be strategically integrated into the visitor experience. The findings also shed light on how environmental knowledge can be effectively imparted to visitors, fostering a deeper connection between visitors and the natural world. Therefore, the

identified themes can serve as a useful guide for future research in the field that is applicable across various destinations. By examining the theoretical frameworks, models, and best practices, this study provides a theoretical foundation for ecotourism stakeholders, enabling them to make informed decisions on programme development and implementation. Additionally, this research advances academic discussions on sustainability in ecotourism because it demonstrates the importance of environmental education, interpretation, and responsible tourism practices in achieving sustainability goals. Therefore, the findings can inform future discussions on how ecotourism can catalyse education and conservation. Overall, the theoretical contributions of this research extend beyond the specific context of planning, design, and delivery of environmental education and interpretation, as they encompass a broader understanding of ecotourism as a powerful tool for not only promoting environmental education and appreciation but also fostering sustainable tourism practices, ecological conservation, and the harmonious coexistence of human visitors and the natural world.

For practice, this research directly benefits ecotourism stakeholders, including tour operators, conservation organisations, and policymakers. By elucidating best practices in planning, design, and delivery, the study equips these stakeholders with actionable insights to create more engaging and environmentally responsible ecotourism experiences. Practical contributions also extend to developing sustainable ecotourism strategies, promoting responsible visitor behaviour, fostering a deeper appreciation for New Zealand's natural and cultural heritage, and inspiring visitors to contribute to conservation efforts in their own lives. Moreover, the findings of this study demonstrate a significant alignment with the Sustainable Development Goals (SDGs) set forth by the United Nations World Tourism Organization (2015). Notably, Tiritiri Matangi Island's strategic plan closely corresponds with SDG 15: Life on Land, which emphasises the protection, restoration, and sustainable management of terrestrial ecosystems. At the heart of the island's strategy is a commitment to nature conservation, intending to establish a flourishing ecosystem that can serve as a global conservation model. Through targeted efforts such as the restoration and enhancement of flora and fauna, Tiritiri Matangi Island actively contributes to biodiversity conservation and the preservation of terrestrial ecosystems, mirroring the objectives of SDG 15. Additionally, the island's environmental education and interpretation initiatives play a crucial role in deepening visitors' understanding of New Zealand's biodiversity, highlighting the interdependence between living organisms and their habitats. This educational approach fosters a heightened appreciation for biodiversity and conservation, thus advancing the overarching goals of raising awareness and promoting the conservation of biodiversity as outlined in SDG 15. Furthermore, by fostering a deeper connection between visitors and the natural environment, this study actively supports ecosystem conservation efforts, which are essential for sustaining life on land. Tiritiri Matangi Island's endeavours also align with SDG 12: Responsible Consumption and Production, which centres on fostering sustainable practices

while promoting efficient resource use and waste reduction. The island's commitment to cultural and historic conservation underscores its aim to showcase heritage preservation and set a precedent for sustainable tourism practices. Additionally, Tiritiri Matangi Island's environmental education and interpretation initiatives actively promote eco-friendly practices, such as pest trapping, tree planting, and the adoption of sustainable behaviours. Guides on the island also play a crucial role by demonstrating environmentally friendly behaviours to visitors, further reinforcing the importance of responsible consumption and production. By encouraging visitors to embrace these practices, the island fosters responsible consumption and production, in line with SDG 12's objectives of reducing environmental impact and promoting sustainable lifestyles. Finally, Tiritiri Matangi Island's efforts resonate with SDG 4: Quality Education, which emphasises the importance of inclusive and equitable quality education and lifelong learning opportunities for all individuals. The island's commitment to quality education is evident through its school education programs, tailored to accommodate various age groups and educational needs. These programs not only provide students with enriching experiences but also instil a profound sense of environmental responsibility. By offering educational experiences aligned with contemporary practices, Tiritiri Matangi Island contributes to SDG 4's objectives of ensuring inclusive and equitable education. Furthermore, the island delivers environmental education to visitors through guided tours, interpretive signage, and interactive displays. These immersive experiences cater to individuals of all ages and backgrounds, promoting ecological literacy and empowering visitors to actively engage in conservation efforts. By fostering a deeper understanding of environmental issues and encouraging sustainable practices, Tiritiri Matangi Island supports SDG 4's goals of promoting education for sustainable development and nurturing global citizenship. In summary, Tiritiri Matangi Island stands as a beacon of sustainability, embodying the principles outlined in SDGs 15, 12 and 4. By championing biodiversity conservation, responsible consumption and production, and quality education, the island exemplifies the transformative potential of sustainable tourism. Through its integrated approach to environmental education, interpretation, and conservation, Tiritiri Matangi Island serves as a shining example of how ecotourism can harmonise with ecosystem protection. The alignment of this study's findings with the SDGs highlights its pivotal role in promoting sustainable tourism practices and advancing broader global sustainability objectives.

Ultimately, this research bridges the gap between theory and practice, offering a roadmap for ecotourism destinations to simultaneously achieve conservation objectives and provide enriching and inspiring educational experiences for visitors.

5.4 Limitations

Despite its contributions, it is necessary to acknowledge the limitations of this research that affect its reliability and validity. Firstly, it is important to note that the goals, requirements, and motives for environmental education and interpretation may differ within various ecotourism destinations. Therefore, the findings of this study should be viewed as indicative and generally applicable rather than universally applicable. In addition, the dynamic nature of ecotourism means that the findings represent a snapshot in time and may not capture the long-term trends of future developments of environmental education and interpretation in the field. Furthermore, the research relied on data collected through document analysis, which may introduce bias or limitations in data coverage. This is because the researcher relied on the subjective judgment of the member of Supporters of Tiritiri Matangi management to select the internal documents for the research. Hence, the researcher could not control how this collection process was carried out. Another limitation was in the chosen participants for the semi-structured interviews. Since the member of Supporters of Tiritiri Matangi management, educators, and guides primarily held visitor-facing roles, they do not fully encompass all the stakeholders involved in the planning, designing, and delivering environmental education and interpretation on Tiritiri Matangi Island. Nevertheless, the chosen documents and participant group provided insightful grounds for understanding the planning, design, and delivery of environmental education and interpretation on Tiritiri Matangi Island, especially since there is little academic research on this process, and related elements enhance the visitor experience and inform sustainable practices within this unique ecological context.

Overall, acknowledging these limitations is vital for a well-rounded interpretation of the research outcome and indicates potential directions for future studies to address these constraints and further enrich the understanding of this critical component of ecotourism, education, and conservation.

5.5 Recommendations for Future Research

Recommendations for future research in this field are abundant and hold the potential to advance the understanding of the planning, design, and delivery of environmental education and interpretation in ecotourism settings. In the context of Tiritiri Matangi Island, one notable recommendation is that other stakeholders involved in the planning, design, and delivery of environmental education and interpretation be included in future studies. This could encompass individuals from both visitor-facing and non-visitor facing roles. For instance, Department of Conservation rangers who deliver daily pest control talks and occasional species information to visitors, as well as those primarily engaged in behind-the-scenes work on maintenance, wildlife, and interpretation on the island, could be part of the discussion. Furthermore, representatives

from the iwi connected to the island could also be considered. Their collective insights can provide valuable perspectives from both conservation and cultural standpoints, thereby enriching the understanding of environmental education and interpretation efforts on Tiritiri Matangi Island. It would also be worthwhile to explore the resources offered by the Tiritiri Matangi Island educators to children during their on-site experiences, along with an examination of the educational activities and resources accessible on the Tiritiri Matangi Website to contribute to a deeper understanding of the island's educational strategies and their influence on the environmental education of young visitors. Moreover, investigating the information conveyed through the quick response codes on the interpretive signage could yield valuable insights into how these digital resources enhance visitor engagement and learning experiences, shedding light on their effectiveness in delivering environmental education and interpretation within the ecotourism context. It might also be valuable to examine and compare the delivery techniques of guides from different generations to discern potential shifts in educational approaches, communication styles, and their impact on visitor engagement and comprehension, thus providing a nuanced perspective on the evolving nature of ecotourism education and interpretation practices over time. A longitudinal study could see the changes in Tiritiri Matangi Island's planning, design, and delivery of environmental education and interpretation as strategic plans are updated and implemented. Since the data collection of this research, Tiritiri Matangi has welcomed a new lead educator and is recruiting a new guide manager. Future research may, therefore, examine the extent to which management and staffing changes impact education programmes. As this study implemented a case study approach, future research could extend its scope to investigate the planning, design, and delivery of environmental education and interpretation in various other ecotourism destinations across New Zealand and around the world. Such comparative studies would offer valuable insights into the diversity of approaches and practices, allowing for a more comprehensive understanding of how different ecological and cultural contexts influence environmental education and interpretation in ecotourism and can shed light on best practices. Overall, these recommendations offer a roadmap for future research endeavours in the dynamic field of environmental education and interpretation within ecotourism, paving the way for a more comprehensive, sustainable, and impactful approach to fostering ecological awareness, cultural appreciation, and conservation efforts within ecotourism destinations, both in New Zealand and beyond.

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Appendices

Appendix A: Interview Guide

Auckland University of Technology

Private Bag 92006, Auckland 1142, NZ

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www.aut.ac.nz

Indicative Questions for Interviews with individuals involved in the planning, design and delivery on environmental awareness on Tiritiri Matangi Island

Research Title: Environmental Education in Ecotourism Destinations

The questions seek to discover how environmental education and interpretation are planned, designed, and delivered on Tiritiri Matangi by the operations/guiding manager, educators, and guides.

Guiding:

What is your role on the island?

Can you describe a typical day of providing education to visitors on Tiritiri Matangi Island?

What do you see as your most important responsibilities and tasks as an education provider or guide?

What do you aim to achieve by providing education to visitors?

Do you believe it is important or beneficial for visitors to take a guided walk? Why?

What is the aim of the guided tours?

Aspirational Goals:

Can you describe how Tiritiri Matangi Island's aspirational goals are reflected in the communication of environmental awareness?

How do Tiritiri Matangi Island's aspirational goals contribute to shifting the visitor experience from one of satisfaction to environmental awareness?

How does Tiritiri Matangi Island's education program or your own guiding provide the groundwork for additional learning and active participation of visitors in conservation efforts?

Education:

What are the key distinctions between education provided for school children and adults?

For you personally, what is the main message of education?

What would you expect visitors to have the knowledge of once they leave?

Do you believe that environmental education provided to visitors is necessary on Tiritiri Matangi Island? Why?

What are your approaches to raising environmental awareness among visitors as an education provider or guide?

What other resources do you use to aid your provision of education? Are these effective? Why/why not?

How do you engage visitors in the educational components you provide?

How does education play a role in inspiring visitors?

Interpretation: Signage & Displays

Can you describe what the signage reflects along the tracks and at the Visitor Centre?

Do you believe the signage is important? Why?

Is the signage designed to convey any particular messages?

What are the interactive displays like the weta motels and hihi feeders designed to do?

Are these interactive displays effective in providing environmental awareness to visitors? Why?

Would you say the environmental communication through the guiding and signage reflects a minimalist form of ecotourism by focusing on the particular site (the island), or a comprehensive model by encouraging greater learning opportunities? Why?

Communication:

What is the primary informational and awareness-raising resource for visitors?

What do you think is the best way to communicate environmental awareness to visitors? Why?

Is there any difference in how environmental awareness is communicated to international visitors compared to domestic visitors?

Do you believe any changes are necessary in the way environmental awareness is communicated to visitors? Why/Why not?

Ecological Literacy:

How do you portray the human-environment relationship in your educational programmes or guiding?

How does the education programme or your guiding help people on their own journeys towards being more environmentally friendly?

Psychological Components:

How does the education program or your guiding shift away from the transmission of information towards the facilitation of concern?

What is the most important opportunity promoted by the environmental awareness you provide?

Is there anything else you want to share or that you find relevant that I haven't asked you about?

***Approved by the Auckland University of Technology Ethics Committee on* 23rd Febraury 2023. AUTEC Reference number 22/375.**

Appendix B: Ethics Approval

Auckland University of Technology Ethics Committee (AUTEC)

23 February 2023

Abrar Faisal
Faculty of Culture and Society

Dear Abrar

Re Ethics Application: **22/375 Environmental Education in Ecotourism Destinations**

Thank you responding to AUTEC's conditions.

Your ethics application has been approved for three years until 23 February 2026.

Non-Standard Conditions of Approval

1. Assurance that the follow up invite email is to all staff so that those who have not yet decided about participating are not identified.
2. Alteration of the escalation process in the researcher safety protocol to better protect the researcher and to involve official assistance more swiftly. Please explain what will happen if support people do not have contact from the researcher and in what time frame.

Non-standard conditions do not need to be submitted to or reviewed by AUTEC unless requested but must be completed before commencing your study.

Standard Conditions of Approval

1. The research is to be undertaken in accordance with the Auckland University of Technology Code of Conduct for Research and as approved by AUTEC.
2. All public facing documents must have the AUTEC approval number and be of a high standard of spelling and grammar. Dates on the Information Sheet(s) and Consent Form(s) must be consistent.
3. Any amendments to the project must be approved by AUTEC prior to being implemented.
4. A progress report is due annually on the anniversary of the approval date.
5. A final report is due at the expiration of the approval period, or, upon completion of project.
6. Any serious or adverse events must be reported to AUTEC, this includes unforeseen issues that might affect continued ethical acceptability of the project.
7. AUTEC grants ethical approval only. You are responsible for obtaining management permission for access from any institution or organisation at which your research is being conducted and you need to meet all ethical, legal, public health, and locality obligations or requirements for the jurisdictions in which the research is being undertaken.

The application number and title need to be referenced on all correspondence related to this project.

All forms are available online http://www.aut.ac.nz/research/researchethics

For any enquiries, please contact ethics@aut.ac.nz
(This is a computer-generated letter for which no signature is required)

The AUTEC Secretariat
Auckland University of Technology Ethics Committee

Cc: ccc6796@autuni.ac.nz; tomas.pernecky@aut.ac.nz

Auckland University of Technology, D-88, Private Bag 92006, Auckland 1142, New Zealand.
T: +64 9 921 9999 ext. 8316: E: ethics@aut.ac.nz: www.aut.ac.nz/researchethics

Appendix C: Participant Information Sheet

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Information Sheet for individuals involved in the planning, design, and delivery of environmental education and interpretation on Tiritiri Matangi Island

Date Information Sheet Produced: 20/02/2023

Research Title: Environmental Education in Ecotourism Destinations

Kia ora,
My name is Georgia Cook, a Master of International Tourism student at the Auckland University of Technology. I am conducting research to contribute towards this qualification as I am wanting to find out how environmental education and interpretation is planned, designed, and delivered on Tiritiri Matangi Island. Would you be willing to help me?

Ecotourism operations are directed towards conserving environmental resources, benefits reaching the local people, and environmental awareness through education. While the sector's contribution to protecting and enhancing the natural environment and host community is recognized, little is known about the processes and techniques used to provide visitors with environmental education and interpretation. This is a critical issue because education in ecotourism serves to provide information about the natural history and culture of a site while promoting conservation ethics, through a soft intervention that may infuse visitors with stronger pro-environmental perceptions and behaviours if the conservational knowledge resides with them. In addition, environmental education has been defined as a learning process that not only raises people's environmental knowledge and awareness, but enhances their abilities and competency in problem-solving, and fosters the attitude, motivation, and commitment necessary to make decisions and take action. Therefore, knowledge regarding environmental issues is an essential prerequisite of the intention to behave environmentally friendly. Furthermore, it is argued that for an activity to be viewed as ecotourism, there must be some type of conservation effort extended on behalf of the operation's managers and visitors.

I would appreciate your participation in this study; depending on the information you are able to share, the interview with you should take about fifteen to twenty minutes to complete. Your contribution is valuable and highly apprciated, and your answers will be kept confidential. Thank you for your kind attention in concisering this invitation.

Kind regards,

Georgia Cook
Master of International Tourism Management Student
School of Hospitality and Tourism
Faculty of Culture and Society
Auckland University of Technology

E ccc6796@autuni.ac.nz **W** aut.ac.nz

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What is the purpose of this research?

The purpose of this study is to understand how environmental education and interpretation on Tiritiri Matangi Island is planned, designed, and delivered. This research project also intends to identify and examine the set of conservation opportunities and challenges promoted by environmental education and interpretation on Tiritiri Matangi Island. This is important because while New Zealand's ecotourism destinations and ecosanctuaries represent critical opportunities for the creation of environmental education, less is known about the planning, design and delivery of ecotourism experiences that aim to improve visitors' environmental knowledge, attitudes and behaviours.

Please note that the findings of this research may be used for academic publications and presentations as the further avenue of this research aims to extend scholarly discussions on the topic.

How was I identified and why am I being invited to participate in this research?

Participants selected for this study are individuals involved in the planning, design, and delivery of environmental education on Tiritiri Matangi Island.

The Tiritiri Matangi Island Manager has identified you as a potential participant for this study as your primary role on the island involves the planning, design, and delivery of environmental education, and you meet the study's inclusion criteria.

The inclusion criteria for this study require participants to speak English and be over the age of 16.

How do I agree to participate in this research?

You can agree to participate in the research in 2 ways:

(1) Expressing your interest to be interviewed immediately on-site on Tiritiri Matangi Island.
(2) Contact the primary researcher at ccc6796@autuni.ac.nz with the subject 'Research Participation'.

You can also agree to participate in the research voluntarily by physically providing your consent on paper before the interview on-site.

You also have the option to receive a copy of the written consent form. The protocol for providing written consent can be found attached to this Information Sheet.

Your participation in this research is voluntary (it is your choice) and whether or not you choose to participate will neither advantage nor disadvantage you. You are able to withdraw from the study at any time. If you choose to withdraw from the study, then you will be offered the choice between having any data that is identifiable to you removed or allowing it to continue to be used. However, once the findings have been produced, the removal of your data may not be possible.

What will happen in this research?

This research has invited you to take part in a fifteen-to-twenty-minute interview at your convenience. The purpose of this interview is to understand how environmental education and interpretation is planned, designed and delivered on Tiritiri Matangi Island.

There are 3 locations you can choose from for the interview:

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(1) On the arriving ferry service.
(2) On-site on Tiritiri Matangi Island.
(3) On the returning ferry service.

You have the opportunity to ask any questions before the researcher asks for your written voluntary consent to participate in the study. The interview will then commence and be recorded and notes will be taken down by the primary researcher with your permission. Questions relating to your role on the island and your viewpoints and experiences relating to your role, the Supporters of Tiritiri Matangi aspirational goals, the island's education programmes, communication techniques and the portrayal of the human-environment relationship and emotional aspects of environmental education and interpretation will guide the interview to discover how environmental education and interpretation is planned, designed and delivered on Tiritiri Matangi Island.

Participation is voluntary, and you have the right to accept or decline any questions and withdraw from the interview at any time.

Once the interview is complete, the verbal data will be transcribed by the researcher and no further contact will be made with you unless you wish to receive a copy of your written consent or a summary of the research findings.

What are the discomforts and risks?

As this study is trying to find out how environmental education and interpretation is planned, designed and delivered on Tiritiri Matangi Island, questions relating to organisational practices will be asked during the interview. However, you are authorised to make decisions pertaining to sharing information about your organisational practices you have the freedom to answer and decline any questions and withdraw from the interview or study at any time.

Due to the small nature of the participant group, complete confidentiality cannot be guaranteed. However, your identifying information will be disassociated from the data.

What are the benefits?

The potential benefits of this research to the participants are that it will provide a sense of pride as their shared experiences and interpretations can make a contribution towards the research on the planning, design, and delivery of environmental education and interpretation. Participants can also develop a greater sense of self-awareness as they can gain a new perspective on their situations by hearing themselves talk about their experiences rather than thinking about them, which may also be an impetus for positive behavioural change.

The potential benefits of this research to the primary researcher are that she can foster critical thinking and analytical skills through hands-on learning, define their academic and career interests, expand knowledge and understanding of the tourism sector outside of the classroom, build community with faculty and organizations on- and off-campus, and fulfil the requirements of the Master of International Tourism Management program.

The potential benefits of this research to the wider community are that the findings from this study will provide an understanding of how ecotourism destinations can be a platform for implementing conservation initiatives through visitor engagements in conservations and the advancement and interpretation of environmental knowledge. In addition, as research of this nature is limited, especially in the context of Tiritiri Matangi Island, the findings from this research will be valuable to Tiritiri Matangi Island stakeholders as they can better understand their environmental education programmes. Furthermore, this research will benefit other researchers eager to pursue further studies on environmental education and visitor management in

tourism destinations. Finally, the findings provide insights into the environmental interpretations will benefit the wider community as it will generate new knowledge on environmental education.

How will my privacy be protected?

Every attempt will be made to preserve your confidentiality due to the small nature of the participant group. For instance, personal identifiers such as names and positions will be disassociated from the data as the consent of participants will be obtained with their permission and stored separately from the interview data which will be ethically managed and exclusively used for this study. The audio interview recordings and transcriptions will be kept in a restricted folder on a network drive at AUT and removable storage in secured locations, and it will be retained for six years complying with the AUT policies. Any personal information held on the participants will be destroyed at the completion of the research. Access to the interview data will be strictly limited to the researcher and supervisors. De-identified data and research findings will be used in a thesis.

What are the costs of participating in this research?

There are no direct costs to interview participants. However, it will take around fifteen to twenty minutes of your time.

What opportunity do I have to consider this invitation?

You will have two weeks to consider the invitation and to ask any additional questions you might have before accepting or declining this invitation.

Will I receive feedback on the results of this research?

A summary of the research findings will be available upon completion of the research. Participants will have the option to request access to the summary of the research findings via email and provide the appropriate contact details when they provide their consent.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Dr Abrar Faisal, abrar.faisal@aut.ac.nz, (+649) 921 9999 ext. 6265.

Concerns regarding the conduct of research should be notified to the Executive Secretary of AUTEC, *ethics@aut.ac.nz* , (+649) 921 9999 ext. 6038.

Whom do I contact for further information about this research?

Participants can keep a copy of their Information Sheet for their future reference. They are also able to contact the research team as follows:

Researcher Contact Details

Georgia Cook
Email: ccc6796@autuni.ac.nz

Project Supervisor Contact Details:

Dr Abrar Faisal
Email: abrar.faisal@aut.ac.nz
Phone Number: (+649) 921 9999 ext. 6265

Prof. Tomas Pernecky
Email: tomas.pernecky@aut.ac.nz

Approved by the Auckland University of Technology Ethics Committee on **23rd Febraury 2023. AUTEC Reference number 22/375.**

Appendix D: Participant Consent Form

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Consent Form

Research Title: Environmental Education in Ecotourism Destinations
Research Supervisors: Dr Abrar Faisal and Professor Tomas Pernecky
Researcher: Georgia Cook

- ○ I have read and understood the information provided about this research project in the Information Sheet dated 20th February 2023.
- ○ I have had an opportunity to ask questions and to have them answered.
- ○ I understand that notes will be taken during the interviews and that they will also be audio-taped and transcribed.
- ○ I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without being disadvantaged in any way.
- ○ I understand that if I withdraw from the study then I will be offered the choice between having any data that is identifiable as belonging to me removed or allowing it to continue to be used. However, once the findings have been produced, the removal of my data may not be possible.
- ○ I agree to take part in this research.
- ○ I wish to receive a summary of the research findings (please tick one): Yes○ No○

Participant's name: ....

Participant's signature: ....

Participant's Contact Details (if appropriate):

....

....

....

....

Date: ....

***Approved by the Auckland University of Technology Ethics Committee on* 23rd Febraury 2023. AUTEC Reference number 22/375.**