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Assessing tourists' perceptions to support the sustainable development of swim-with-dolphin tourism

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ABSTRACT

The popularity of swim-with-dolphin tourism (SWDT) calls for research to secure its sustainable growth. This study evaluated tourists' perceptions of dolphins and SWDT in Mozambique. Specifically, 245 tourists including SWDT tourists, scuba divers and beach visitors participated in a survey measuring awareness and knowledge of dolphins, fascination with and relatability to dolphins, and attitudes towards dolphin conservation and SWDT. While awareness and knowledge of dolphins were similar across groups, tourists partaking in SWDT were more fascinated with dolphins and had more positive attitudes towards dolphin conservation and ethical SWDT. An affinity for dolphins was central to influencing attitudes. The results highlight the importance of education and interpretation as part of SWDT, and of endorsing dolphin sympathy while ensuring that no false myths are divulged that can result in negative tourist behaviour. Finally, the study demonstrated how tourists value ethical SWDT underpinned by codes of conduct, which need to be enforced.

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knowledge; attitude; conservation; dolphin-based tourism; Mozambique; code of conduct

1. Introduction

The popularity of marine mammals has been growing over the last century, also thanks to depictions of animals like whales and dolphins in the mass media (O'Neill et al., 2004; Wiener et al., 2020). This has resulted in the establishment and growth of marine mammal tourism including excursions with whales and dolphins and interactions with these animals in their natural habitat. Marine mammal tourism can be considered a form of wildlife tourism and soft adventure tourism within the marine tourism industry (Hoyt, 2018; Van der Merwe, 2009), According to O'Connor et al. (2009), in 2008 marine mammal tourism was available in 119 countries and generated approximately USD 2.1 billion annually, with 13 million tourists participating. Within marine mammal tourism, swim-with-dolphin tourism (SWDT), involving sighting and swimming with dolphins in the wild, stands out as a particularly attractive activity which has undergone substantial growth (Filby et al., 2017). This activity is offered in coastal areas where marine mammal populations are easily accessible (e.g. Australia, New Zealand,

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Hawaii), especially in developing countries which are increasingly marketing this form of tourism, such as Mozambique, Cambodia, and Panama (Beasley et al., 2014; Rocha et al., 2020; Sitar et al., 2017; Wiener et al., 2020). The revenue resulting from SWDT can be used to contribute to dolphin conservation and sustainable local development (Rocha et al., 2020; Wiener et al., 2020). For example, Wiener et al. (2020) described how dolphin-viewing and dolphin-swim generate up to USD 19 million in profit per year in Hawaii, with a lifetime revenue generated by a dolphin estimated to be up to USD 3,364,316. Additionally, SWDT can enhance knowledge and conservation awareness among residents and tourists (Filby et al., 2015; Lück, 2015; Pratt & Suntikul, 2016). For example, Pratt and Suntikul (2016) demonstrated how experiences within a dolphin-watching programme in Fiji resulted in a measurable increase in knowledge among tourists.

The booming of marine mammal tourism (Hoyt, 2018) and in particular SWDT has raised the question of whether the activities involved are sustainable and what the impacts are on species (O'Neill et al., 2004; Scarpaci et al., 2004; Wiener, 2013). Studies have observed negative direct and indirect impacts, such as disturbance of feeding and resting times by tourist vessels and tourists swimming with dolphins (Cecchetti et al., 2018; Heenehan et al., 2015; Shawky et al., 2019). These impacts have been hypothesised to result in dolphin population declines (Tyne et al., 2018). Additionally, SWDT can happen without a properly trained guide or have an unregulated number of tourists participating at a given time, resulting in bad conduct such as contact with dolphins (Rocha et al., 2023).

Given the potential of SWDT to support local economies and conservation, as well as the risk of this industry degenerating due to negative impacts and improper regulation, research is critical to improve management and minimise ecological harm. While several studies have focused on the biological and ecological impacts of marine mammal tourism and SWDT, limited attention has been paid to economic and social aspects, which are also important to steer proper management and development (Filby et al., 2015; Patroni et al., 2019; Pratt & Suntikul, 2016; Wiener et al., 2020). These aspects are worthy of consideration, especially in developing countries where the legislation for SWDT is still young and therefore is essential that the industry grows under the guidance of as good as possible regulations (Rocha et al., 2023; Sitar et al., 2017; Wiener, 2013).

One of the critical elements of social science research revolving around SWDT is the exploration of tourists' awareness and knowledge of dolphins as well as affective (e.g. affinity to dolphins), cognitive (e.g. beliefs concerning dolphin conservation and SWDT) and behavioural (e.g. behavioural intentions to support dolphin conservation and ethical SWDT) attitudes. An investigation of these dimensions and their relationship (e.g. whether affective elements influence behavioural intentions) can provide information on how to manage SWDT sustainably (Filby et al., 2015; Wiener, 2013). For example, research measuring one or more of these dimensions has shed light on the importance of ethical SWDT and training courses for operators to ensure that the right education and interpretation are delivered to tourists to facilitate responsible environmental behaviour (Filby et al., 2015; Wiener et al., 2020). Understanding tourists' perceptions can inform policy and management concerning choices and attitudes towards SWDT and marine conservation (Wiener, 2013).

This study evaluated awareness and knowledge of dolphins, fascination with and relatability to dolphins, and attitudes towards dolphin conservation and SWDT, and tested

influential relationships between these constructs. The case study selected was a developing country in Africa offering SWDT experiences in a marine reserve. This study considered three categories of marine tourists, namely tourists who partake in SWDT, scuba divers, and beach visitors. These groups were selected to enable a comparison in perceptions between active participants in SWDT and other potential participants within the marine tourism industry, to guide broad management and marketing plans for SWDT.

2. Background

2.1. Awareness and knowledge of dolphins

Awareness and knowledge of dolphins are important elements in studies related to SWDT (Amante-Helweg, 1996). In this paper, awareness is related to being conscious of dolphins and their presence in an area, whereas knowledge is related to facts and information about dolphins acquired through experience or education. The SWDT experience is instrumental in imparting or increasing the right knowledge of dolphins and the potential negative impacts of human activities on them, including tourism, resulting in intentions to embrace responsible dolphin-based tourism and engage in pro-environmental behaviours (Filby et al., 2015; Lück, 2015; Pratt & Suntikul, 2016; Rocha et al., 2020). Studies have also shown that tourists place great emphasis on education as part of the SWDT experience (Draheim et al., 2010; Filby et al., 2015; Lück, 2015; Lück & Porter, 2019; Rocha et al., 2020). Awareness and knowledge are known to influence affective, cognitive and behavioural attitudes which can ultimately shape responsible tourists' choices and behaviour. For example, they can influence tourists' attitudes towards dolphins including fascination and sympathy, intention and motivation to participate in SWDT, and behavioural intentions to contribute to dolphin and marine conservation (Amante-Helweg, 1996; Filby et al., 2015; Pratt & Suntikul, 2016). Given the central role of awareness and knowledge, this study proposed the following hypotheses:

H1: Awareness and knowledge of dolphins influence fascination with and relatability to dolphins.

H2: Awareness and knowledge of dolphins influence attitude towards dolphin conservation.

H3: Awareness and knowledge of dolphins influence attitude towards SWDT.

Additionally, this study hypothesised that tourists who partake in SWDT would have greater awareness and knowledge of dolphins compared with other tourist groups (H4).

2.2. Fascination with and relatability to dolphins

The literature describes how people can perceive their relationship with animals and interpret their behaviour in light of their culture (Amante-Helweg, 1996). Dolphins, in particular, have been subjected to much public fascination and interest, for example, as a result of their morphological characteristics and social behaviour in the wild, resulting in these animals being considered charismatic and similar to humans (O'Neill et al., 2004; Patroni et al., 2019; Wiener, 2013). Studies on SWDT have confirmed that tourists can attribute several values to dolphins, such as spiritual, altruistic, socio-centric, and

generally anthropomorphic (Amante-Helweg, 1996; Draheim et al., 2010; Wiener, 2013). These values can greatly affect perceptions of dolphins and attitudes towards dolphin-based tourism and conservation, both negatively and positively. On the one hand, media portraits of dolphins can get mixed with scientific facts and result in misrepresentations of dolphin behaviour (e.g. dolphins being friendly and seeking human contact), which can have negative impacts on SWDT (e.g. touching dolphins) (Draheim et al., 2010; O'Neill et al., 2004; Wiener, 2013). On the other hand, spiritual and cultural attributions and connectedness to dolphins can result in compassion for dolphins and positive attitudes towards dolphin conservation and sustainable dolphin-based tourism (e.g. no contact with dolphins, supporting regulations and codes of conduct, seeing dolphins in the wild and not in captivity) (Draheim et al., 2010). Forestell and Kaufman (1990) and Wiener (2013) argued that after encountering dolphins in the wild, tourists become emotionally charged, which is the best time to stimulate positive behavioural intentions towards the environment and dolphin conservation. Based on these considerations, this study proposed the following hypotheses:

H5: Fascination with and relatability to dolphins influence attitude towards dolphin conservation.

H6: Fascination with and relatability to dolphins influence attitude towards SWDT.

Additionally, this study hypothesised that tourists who partake in SWDT would feel a greater connection with dolphins compared with other tourist groups (H7).

2.3. Attitude towards dolphin conservation and dolphin-based tourism

Attitudes towards dolphin conservation and dolphin-based tourism are worthy of investigation to ensure the suitable growth of SWDT (Patroni et al., 2019; Wiener, 2013). An understanding of attitudes can be used to create guidelines for the management of SWDT experiences, the creation and implementation of codes of conduct, education and interpretation, and increasing tourists' satisfaction (Lück, 2015; Patroni et al., 2019; Rocha et al., 2020; Wiener, 2013). Information on attitudes can also be used to enhance tourists' biocentric values and pro-environmental behaviours (Filby et al., 2015). Several studies have demonstrated the potential of assessing attitudes towards dolphin conservation and dolphin-based tourism to advance management recommendations. On the positive side, tourists can be concerned about SWDT exceeding carrying capacities, thus jeopardising the experience and harming dolphins (Wiener et al., 2020). Several authors found that following a SWDT experience, tourists become aware of and concerned about the potential harm posed by activities such as dolphin feeding, and their conservation attitudes towards dolphins increase (Filby et al., 2015; Lück & Porter, 2019; O'Neill et al., 2004; Pratt & Suntikul, 2016). Bach and Burton (2017) revealed that tourists were willing to accept decreased time and proximity during SWDT experiences if the benefits to dolphins were communicated. Work by Rocha et al. (2020) concluded that despite limited knowledge of the code of conduct, tourists partaking in SWDT still supported pro-conservation experiences (e.g. not touching dolphins) and regulations. A study by Draheim et al. (2010) showed that tourists were willing to pay between USD 30 and USD 60 to see dolphins in the wild provided that tour companies worked on local dolphin conservation issues, that the people running trips were properly trained

and that the trips would not disturb the dolphins. On the negative side, tourists' attitudes may be skewed by misunderstandings that SWDT is not damaging to dolphins (Amante-Helweg, 1996; Draheim et al., 2010; Filby et al., 2015; Wiener, 2013). Tourists may also remain confused about the potential harm of unethical actions (e.g. touching dolphins) even after being exposed to education about dolphin conservation and sustainable dolphin-based tourism (Pratt & Suntikul, 2016). The mixed results of research regarding tourists' attitudes towards dolphin conservation and dolphin-based tourism, coupled with the influence of several variables on these attitudes, call for continued research on these dimensions to ensure the sustainable development and management of SWDT. This study hypothesised that attitude towards dolphin conservation would influence attitude towards SWDT (H8). Additionally, this study hypothesised that tourists who partake in SWDT would have more positive attitudes towards dolphin conservation (H9) and SWDT (H10).

3. Study location

The Maputo National Park (MNP; Figure 1) is a vast national park located in southern Mozambique, which was proclaimed in December 2021. It incorporates the former Ponta do Ouro Partial Marine Reserve (PPMR) (678 km^2) which extends 86 km from the border with South Africa (Kosi Bay) to Maputo Bay, stretching up to three nautical miles offshore and 100 m inland. Declared in 2009 and facilitated by the Peace Parks Foundation (PPF), the former PPMR is part of the Lubombo Transfrontier Conservation Area (LTFCA), together with the former Maputo Special Reserve (MSR) in Mozambique (which is now also part of the MNP), and the Maputaland MPA and iSimangaliso Wetland Park in South Africa. The LTFCA was proposed and is managed by PPF as a facilitator of transfrontier conservation areas (TFCAs) across southern Africa (Symons, 2018). The MNP is under review by UNESCO for inclusion in its tentative

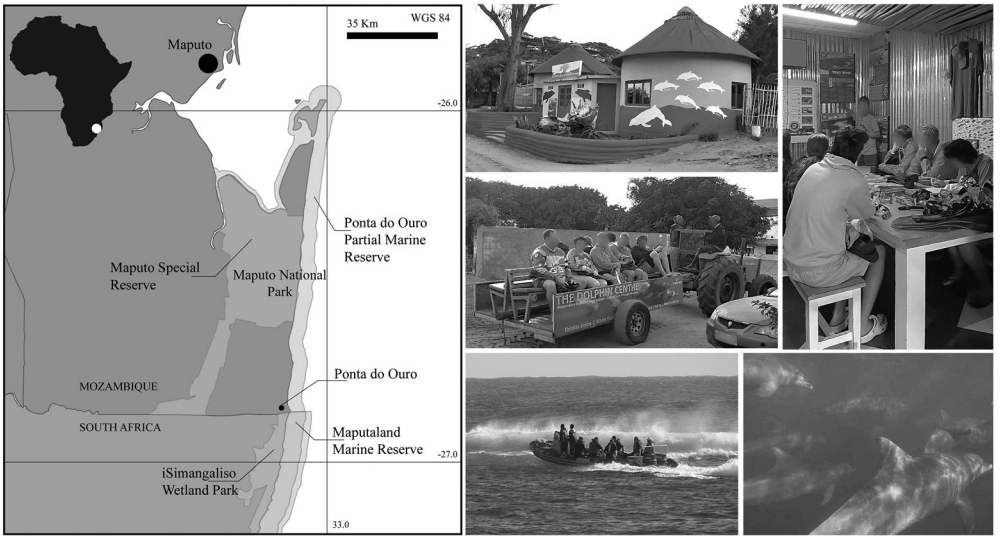

Figure 1. Map of the study location, Ponta do Ouro in the Maputo National Park (MNP), including images of the swim-with-dolphin operations.

list of properties to be considered for World Heritage site nomination. The vastness of the MNP hosts a diversity of marine ecosystems, from coral reefs and the pelagic zone to intertidal rocky shores, mangrove forests and sandy beaches. While the MNP touches many coastal communities, the focus of this study was on the village of Ponta do Ouro, which is the southernmost, most populated and best-developed coastal village in the MNP. Ponta do Ouro's economy primarily depends on tourism, particularly scuba diving, marine mammal tours, recreational fishing, surfing, and beach-based tourism and recreation (Lucrezi et al., 2019). The tourists mainly come from neighbouring South Africa (Rocha et al., 2020).

The LTFCA assists the conservation of migratory species including, among others, the bottlenose dolphin, humpback dolphin and spinner dolphin; this enables a thriving marine mammal tourism industry in the MNP alongside scuba diving tourism (Lucrezi et al., 2019; Rocha et al., 2022). Ponta do Ouro represents a location where tourists are allowed to partake in SWDT, a unique activity which is regulated by the MNP authority and the only two marine mammal tour operators present in the village (Rocha et al., 2020). The activity, which involves taking tourists to sight and swim with dolphins on semi-rigid inflatable boats for a two-hour trip, is particularly popular among tourists from South Africa where SWDT is not allowed (DFFE, 2008). According to Rocha et al. (2020), SWDT in what is known now as the MNP began in 1994 with a single company operating. In 1996, this company developed a voluntary code of conduct to regulate SWDT (Rocha et al., 2023). By 2008, there were three exclusive and nine non-exclusive companies offering SWDT. After the establishment of the former PPMR in 2009, regulations (including reducing the number of exclusive swim-with-dolphin operations to four) and a revised code of conduct for swim-with-dolphin operations were introduced as part of the management plan. In 2017, a high-season (Christmas and Easter) voluntary code of conduct was also introduced and implemented by the now four exclusive swim-with-dolphin operations, with emphasis on reducing the swim attempts with dolphins, groups of dolphins approached, and time spent in the water with the dolphins (Rocha et al., 2023). The management plan of the MNP and the code of conduct allow for more adaptability, since mandatory regulations cover activities at the national level, while the code of conduct adapts management to local specifications (Rocha et al., 2020).

Rocha et al. (2022) demonstrated that guide training and interpretation standards implemented at swim-with-dolphin operations within the MNP can have enormous benefits including better guide knowledge and conduct, potentially rendering SWDT more sustainable. Additionally, one of the SWDT operators in Ponta do Ouro offers alternative forms of tourism revolving around dolphins, including volunteer tourism where people can engage in participatory research and conservation activities (Cilliers, 2022).

Despite efforts to support sustainable SWDT in the MNP, the risk of unsustainable practices harming dolphin populations remains. For example, marine tourism operators who do not have a license to operate SWDT are still allowed to offer snorkelling trips that can result in dolphin encounters if the operators do not comply with the rules and there is a lack of enforcement (Rocha et al., 2020). Between 2007 and 2019, the number of swim-with-dolphin trips per year increased by 33% (with up to four boat launches per day for each operation during high season) and interactions with dolphins during SWDT were

disrupting activities like resting, travelling and feeding among dolphins (Rocha et al., 2023). Other activities in the MNP including private and commercial tourism vessels risk jeopardising the state of dolphin populations (Rocha et al., 2023). Rocha et al. (2020) also revealed that although SWDT in the MNP is educational and promotes pro-environmental behaviour as well as compliance with the code of conduct, knowledge of dolphins and regulations among tourists and operators in the MNP is still basic, offering room for improvement.

4. Method

The data were collected using a self-administered structured questionnaire survey (Appendix A). The questionnaire contained a section covering demographic background, favourite animal to see in the MNP and influential sources of information regarding dolphins. The second section included 37 Likert-scale statements the participants had to indicate their level of agreement with (where 1 = strongly disagree and 5 = strongly agree). The statements covered aspects including awareness and knowledge of dolphins (eight statements); fascination with and relatability to dolphins (nine statements); attitude towards dolphin conservation (seven statements); and attitude towards SWDT (13 statements). These items were selected based on the analysis of literature according to the background section in this paper. The questionnaire was created by the author and validated by three scientists with expertise in tourism research, marine biology and statistics. The questionnaire was also evaluated by a scientific committee and ethics committee at the author's institution.

The population under investigation included visitors to the village of Ponta do Ouro, where two SWDT businesses are licensed to operate within the MNP. The visitors were divided for comparison into three main visitor categories, namely tourists partaking in SWDT, scuba divers, and regular visitors. Sampling was carried out from mid-March to mid-April 2023, including the Easter holidays. Daily during operational hours (05:30–15:00), the researcher and three trained fieldworkers randomly approached visitors at swim-with-dolphin centres, dive centres, accommodation establishments, restaurants, bars and the beach, using a convenience sampling approach. Visitors were invited to participate in a 10-minute questionnaire survey about dolphins. The visitors who agreed to participate were informed of the study's ethical considerations via an informed consent letter. Questionnaires were distributed in hard copy and collected immediately after completion. There are no available estimates for the number of people visiting the village of Ponta do Ouro during March-April, especially after the COVID-19 pandemic. Thus, a total of 250 questionnaires (95% confidence level and a 6.2% margin of error) were distributed and 245 were completed.

Questionnaire data were analysed using the software TIBCO Statistica (Version 14, 2020). The profile of the participants and their answers were first outlined using descriptive statistics (mean, standard deviation, standard error). Exploratory statistics including confirmatory exploratory factor analyses (CEFA) and reliability tests were performed on the data to assess whether and which of the factors in the research model had validity and internal consistency (Cronbach α) (Nunnally & Bernstein, 1994; Stevens, 2012). Cross-tabulations (Pearson's χ^2) and Analysis of Variance (ANOVA) with post hoc tests were used to compare factor scores and other variables between the three visitor

groups identified as part of the study. Spearman's Rank-Order Correlation (r_s) was performed to highlight significant correlations between factors, as well as correlations between demographic variables and factors. For this analysis, all data met the relevant assumptions (variables were binary, categorical or continuous and presented monotonic relationships) and only significant correlation coefficients were reported ($r_s > |0.15|$, $P < 0.05$). Multiple regression analysis was performed to test the main hypotheses (H1-H8) and establish whether factors were significantly influenced by other variables (e.g. dolphins being the participants' favourite animal). In this analysis, only variables that displayed significant r_s with the dependent variables were included as independent variables. Tolerance was calculated to check for multicollinearity between the independent variables, and whether this would affect the results of the regression analysis. Regression analysis followed the equation: $Y = b_0 + b_1X_1 + b_2X_2 + \ldots + b_pX_p$, where b_0 is the value of Y when all of the independent variables (X_1 through X_p) are equal to zero, and b_1 through b_p are the estimated regression coefficients.

4.1. Study limitations

This study has several limitations that must be considered in future research and given the results. First, while this study focused on evaluating the influence of knowledge of and fascination with dolphins on attitudes towards dolphin conservation and SWDT, other constructs and variables may have been more influential. Second, while the selection of the variables for this study was based on an analysis of the literature, it is still possible that some of the items in the questionnaire were improperly formulated and that other items would have been more effective in measuring perceptions. For example, this study evaluated self-reported knowledge without the possibility of assessing actual knowledge among the participants or a change of knowledge after the swim-with-dolphin experience. Third, while this study evaluated perceptions of dolphins and SWDT among different tourist groups, including tourists partaking in SWDT, an experimental comparison of perceptions before and after a SWDT experience may have yielded more informative results. Last, the recommendations stemming from this study apply to the context of the study location, however, a generalisation of these recommendations to other realities where SWDT takes place must be conducted with caution.

5. Results

The demographic profile of the participants in this study is presented in Table 1. A total of 75 tourists partaking in SWDT, 78 scuba divers and 92 general visitors completed the questionnaire survey. Tourists partaking in SWDT were female in a higher proportion (58%), while other visitors especially divers were male in a higher proportion (57–63%). Tourists partaking in SWDT were on average 43 years old, a few years older than the other groups. Their origin (56%) and that of divers (45%) was mainly South Africa followed by Mozambique and other countries, while beach visitors were mainly from Mozambique (45%), followed by South Africa and other countries. Tourists partaking in SWDT were the most educated with 72% having tertiary education qualifications. The remaining categories still had higher proportions of people with tertiary education compared with high school education. The favourite animal to see in the

Table 1. Participants' profile (N = 245). MNP = Maputo National Park.

Variable	Categories	Swim-with-dolphin tourists	Divers	Other visitors	Significance test
Gender (%)	Male	42	63	57	7.48*[a]
	Female	58	37	43	
Age (y)	Mean ± SD	43 ± 14	37 ± 12	39 ± 12	7.85*[b]
Origin (%)	South Africa	56	45	32	17.01**[a]
	Mozambique	20	26	45	
	Other	24	29	23	
Education (%)	School	28	37	44	6.54*[a]
	University	72	63	52	
Favourite animal in MNP (%)	Dolphins	35	13	13	72.02***[a]
	Other	65	87	87	
Learning about dolphins (%)	TV	45	46	64	–
	Internet	35	27	29	
	Social media	15	19	22	
	Word of mouth	17	17	14	
	Visits to MNP	17	8	10	

*$P \leq 0.05$, ** $P \leq 0.01$, *** $P \leq 0.001$.
[a]Pearson's χ^2 test, [b] Kruskal-Wallis test.

MNP was the dolphin for 35% of tourists partaking in SWDT and 13% of divers and other visitors. Other favourite animals included elephants and sharks (mentioned mainly by the divers) among others. The participants learned about dolphins through TV programmes, followed by the internet, social media, word of mouth, and previous visits to the MNP.

The results of CEFA and reliability tests on the items in the questionnaire are given in Table 2. The factors extracted (awareness and knowledge of dolphins, fascination with and relatability to dolphins, attitude towards dolphin conservation, and attitude towards SWDT) had loadings exceeding the cut-off value of 0.40 in all instances except for three statements ('I feel that dolphins should not be kept in captivity', 'I contribute to the conservation of dolphins', 'I am aware of the value of dolphins as a tourist attraction'). The factors explained 30–41% of the variance in the data. Cronbach's alpha (α) values demonstrated good factors' reliability, above the threshold of 0.60 established by Nunnally and Bernstein (1994). Self-reported awareness and knowledge of dolphins were good (mean = 4.00, SD = 0.63), with no significant differences between the swim-with-dolphin tourists, divers and other visitors disconfirming H4 ($ANOVA_{(2,242)}$ MS = 0.71, F = 1.81, $P = 0.17$); the participants agreed they were aware of dolphins in the MNP, they could recognise them and understand some of their behaviour in the wild. Fascination with and relatability to dolphins had the second-highest factor score (mean = 4.08, SD = 0.62); the participants tended to perceive dolphins as unique, attractive and relatable to humans. Tourists partaking in SWDT displayed significantly greater fascination and relatability compared with the remaining participants' categories confirming H7 (mean = 4.24, $ANOVA_{(2,242)}$ MS = 1.94, F = 5.18, $P = 0.01$; Tukey HSD $P = 0.004$). Attitude towards dolphin conservation had the highest average score (mean = 4.39, SD = 0.51); the participants were sympathetic towards dolphins and favoured dolphin conservation efforts in general and in the MNP. Tourists partaking in SWDT had a more positive attitude towards dolphin conservation compared with the other participants' groups confirming H9 (mean = 4.59, $ANOVA_{(2,242)}$ MS = 2.30, F = 9.42, $P < 0.001$; Tukey HSD $P < 0.01$). Attitude towards SWDT was positive (mean = 4.01, SD = 0.56);

Table 2. Results of confirmatory exploratory factor analyses on perceived awareness and knowledge of dolphins; fascination with and relatability to dolphins; attitude towards dolphin conservation; and attitude towards SWDT (N = 245).

Factor[a]	Factor loading	Eigenvalue	Variance explained	Cronbach alpha (α)	Average factor score (mean ± SD)
Awareness and knowledge of dolphins		3.08	39%	0.76	4.00 ± 0.63
I am aware of the presence of dolphins in Maputo National Park	−0.53				
I am familiar with the different types of dolphin species	−0.68				
I am aware of how dolphins live and how they act in the marine environment	−0.76				
I can recognise dolphins amongst other marine animals	−0.42				
The ecological role of dolphins in nature is clear to me	−0.71				
I trust my knowledge of dolphins and their behaviour in the wild	−0.76				
Some exceptional characteristics of dolphins come to mind quickly	−0.57				
Dolphins are distinctive animals	−0.42				
Fascination with and relatability to dolphins		3.67	41%	0.81	4.08 ± 0.62
I feel that dolphins are an iconic species that represents freedom	−0.64				
I see dolphins as a natural animal	−0.44				
I find dolphins to be fascinating animals to engage with	−0.69				
I would post positive messages about dolphins on social media	−0.59				
Dolphins are a unique type of wildlife that gives me a sense of wonder and awe	−0.61				
Dolphins have a natural association with humans that I can identify with	−0.67				
On some level, dolphins reflect who I am and my personality	−0.67				
I feel an emotional connection with dolphins compared to other wild animals	−0.73				
Dolphins are very similar to people	−0.67				
Attitude towards dolphin conservation		2.77	40%	0.72	4.39 ± 0.51
I am sympathetic towards dolphins and their protection	−0.54				
I feel that dolphins should not be kept in captivity	−0.31				
The establishment of conservation areas for dolphins is important	−0.69				
Dolphin conservation increases my appreciation of Maputo National Park as a tourism destination	−0.83				
Increasing dolphin conservation areas would improve my familiarity with dolphins	−0.76				
I feel sad or angry about the threats to dolphins	−0.70				
I contribute to the conservation of dolphins	−0.39				
Attitude towards SWDT		3.94	30%	0.80	4.01 ± 0.56
I am aware of the value of dolphins as a tourist attraction	−0.38				
	−0.43				

(*Continued*)

Table 2. Continued.

Factor[a]	Factor loading	Eigenvalue	Variance explained	Cronbach alpha (α)	Average factor score (mean ± SD)
I associate dolphins with certain brands, products, services and activities (e.g. mammal tourism)					
It is important for me to swim/sight/ interact with dolphins	−0.64				
Dolphins are my first choice when considering which animals to view in Maputo National Park	−0.68				
I would like to see (or have seen) dolphins in person	−0.48				
I plan to purchase products/services associated with dolphins (e.g. swim-with-dolphin tours)	−0.64				
I recommend swim-with-dolphin tourism to others	−0.58				
When I engage in swim-with-dolphin tourism, I feel as if I am part of a unique group of people	−0.68				
I am aware of the negative impacts of poorly managed dolphin tourism	−0.49				
Dolphins are susceptible to noise pollution caused by tourism boats	−0.49				
I consider touching dolphins in the wild to be disrespectful	−0.41				
I believe that a code of conduct is important to protect dolphins and people in swim-with-dolphin tourism	−0.52				
Swim-with-dolphin tourism can be a sustainable dolphin conservation approach in Maputo National Park	−0.63				

[a]Based on scale of agreement: 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, and 5 = strongly agree.

specifically, the participants were interested in sustainable SWDT underpinned by codes of conduct, were unfavourable towards actions that would harm dolphins in tourism, such as touching dolphins, and agreed that SWDT could be a sustainable dolphin conservation approach in the MNP. Tourists partaking in SWDT held more positive attitudes towards SWDT compared with divers and other visitors confirming H10 (mean = 4.25, $ANOVA_{(2,242)}$ MS = 4.15, F = 14.68, $P < 0.001$; Tukey HSD $P < 0.05$).

Table 3. Spearman's Rank-Order Correlation (r_s) between factors, as well as between demographic variables and factors. Significant correlation coefficients ($r_s > |0.15|$, $P < 0.05$) are in bold.

Variables	Age	Education	Dolphin favourite animal	Awareness and knowledge	Fascination and relatability	Attitude – conservation
Education	**0.17**					
Dolphin favourite animal	−0.03	0.06				
Awareness and knowledge	**0.18**	0.04	0.13			
Fascination and relatability	0.08	−0.03	**0.22**	**0.46**		
Attitude – conservation	**0.16**	0.04	**0.22**	**0.48**	**0.50**	
Attitude – SWDT	0.08	−0.05	**0.29**	**0.48**	**0.67**	**0.61**

Spearman's Rank-Order Correlation (r_s) results are displayed in Table 3. All factors extracted through CEFA were positively correlated ($r_s = |0.46–0.67|$). Additionally, dolphins being the favourite animals to see in the MNP was positively correlated with fascination with and relatability to dolphins, attitude towards dolphin conservation, and attitude towards SWDT ($r_s = |0.22–0.29|$). Participants' age was positively correlated with awareness and knowledge of dolphins and attitude towards dolphin conservation ($r_s = |0.16–0.18|$). The results of multiple regressions are displayed in Table 4. Tolerance values ranged between 0.74 and 1.00, well above the threshold of 0.2 (Tabachnick et al., 2007). A total of four models were tested. Model 1 confirmed that age had a positive influence on awareness and knowledge. For Model 2, favouring dolphins and awareness and knowledge had a positive influence on fascination and relatability (confirming H1). Model 3 confirmed that awareness and knowledge, as well as fascination and relatability, had a positive influence on attitude towards dolphin conservation (confirming H2 and H5). For Model 4, favouring dolphins, fascination and relatability, and attitude towards dolphin conservation had a positive influence on attitude towards SWDT (confirming H6 and H8).

6. Discussion

The demographic data on tourists partaking in SWDT corresponds with previous accounts at the study location and other SWDT destinations. The market of well-educated, female South African tourists partaking in SWDT in their early forties is confirmed by Rocha et al. (2023) for Ponta do Ouro and several authors for countries like New Zealand and Australia, although these authors have reported this type of tourists to be younger (in their twenties or thirties) (Amante-Helweg, 1996; Filby et al., 2015; Lück, 2015; Lück & Porter, 2019; O'Neill et al., 2004).

Table 4. Results of multiple regression analyses identifying influential variables in awareness and knowledge of dolphins; fascination with and relatability to dolphins; attitude towards dolphin conservation; and attitude towards SWDT.

Outcome variable	Independent variable	Regression weight	SE	t-stat	*P*	Hypothesis confirmed
Model 1						
Awareness and knowledge	Age	0.16	0.06	2.59	*	NA
Model 2						
Fascination and relatability	Dolphin favourite animal	0.18	0.06	3.01	**	NA
Fascination and relatability	Awareness and knowledge	0.43	0.06	7.14	***	H1
Model 3						
Attitude – conservation	Awareness and knowledge	0.30	0.06	4.89	***	H2
Attitude – conservation	Fascination and relatability	0.33	0.06	5.37	***	H5
Model 4						
Attitude – SWDT	Dolphin favourite animal	0.10	0.05	2.23	*	NA
Attitude – SWDT	Fascination and relatability	0.54	0.05	10.54	***	H6
Attitude – SWDT	Attitude – conservation	0.31	0.05	6.07	***	H8

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

Among all participants in this study, who included also scuba divers and beach visitors, there was a similar level of self-reported awareness and knowledge of dolphins. However, tourists partaking in SWDT stood out in terms of preference for dolphins, fascination with and relatability to dolphins, and attitude towards dolphin conservation and SWDT. Generally, these findings suggest that tourists may be drawn to partake in dolphin encounters by an emotional connection with dolphins (Amante-Helweg, 1996; Draheim et al., 2010; O'Neill et al., 2004; Patroni et al., 2019; Wiener, 2013) and pre-existing knowledge of dolphins may be secondary in determining participation. For example, Amante-Helweg (1996) argued that people seek experiences with dolphins to gain emotional fulfilment, which can strengthen feelings of commitment to environmental issues. Similarly, Patroni et al. (2019) described how marine mammal tourists including swim-with-dolphin tourists are pulled to experiences with dolphins by desire for a psychological benefit and emotional connection with these animals. However, the similar scores in awareness and knowledge of dolphins between the different tourist groups also suggest that tourists partaking in SWDT may have not acquired more knowledge after their experience (although this was not measured in this study), as previously reported for the study location (Rocha et al., 2020) and in other research showing that tourists only gain marginal additional knowledge after dolphin encounters (Pratt & Suntikul, 2016).

The results of the correlations and regression models show that the participants' awareness and knowledge of dolphins positively influenced fascination with and relatability to dolphins as well as attitude towards dolphin conservation, supporting the outcomes of previous studies (Amante-Helweg, 1996; Filby et al., 2015; Pratt & Suntikul, 2016). Curtin and Wilkes (2007) argued that people tend to possess 'anticipatory knowledge and expectations' based on educational dolphin portrayals in the media (also referred to as 'virtual capital) which results in fascination with dolphins. Pratt and Suntikul (2016) also demonstrated that dolphin-watching tourists with better knowledge of dolphins are more inclined to engage in pro-environmental behaviours related to ocean conservation. In this study, fascination and relatability also positively influenced attitudes towards dolphin conservation and SWDT, confirming how dolphin affinity can be a strong driver of other perceptions including a desire to support conservation and to partake in dolphin encounters (Draheim et al., 2010). Finally, attitude towards dolphin conservation positively influenced attitude towards SWDT. It must be noted that the items underpinning attitude towards SWDT included statements which made it clear that the participants favoured sustainable dolphin encounters with no contact and with codes of conduct. Therefore, the results suggest that tourists supported SWDT provided that it was ethically managed, as highlighted in other studies of swim-with-dolphin tourists' perceptions (Bach & Burton, 2017; Draheim et al., 2010; Rocha et al., 2020; Wiener et al., 2020). These observations could offer important insights into experience design regarding regulation and ethical behaviour.

In this study, awareness and knowledge did not influence attitude towards SWDT. The reason may be that the participants included not only tourists partaking in SWDT but also scuba divers and beach visitors who, despite having similar knowledge of dolphins to tourists partaking in SWDT, were not necessarily interested in SWDT but preferred other activities. Notably, preferring dolphins among other animals played

an important role in influencing fascination and relatability as well as attitudes. This, together with the results of the other regression models, suggests that dolphin affinity may be a more important predictor of attitudes towards dolphin conservation and SWDT compared with knowledge, as also hinted by the results on the comparison between tourists partaking in SWDT and other tourist groups.

6.1. Study implications

The results of this study have several implications for the management of SWDT at the study locations and beyond. First, they emphasise the importance of education and interpretation as part of the SWDT experience, since these can trigger positive attitudes towards dolphin conservation and sustainable SWDT, as well as positive behaviour during and after the SWDT experience. Changes in awareness, knowledge and attitude may offer useful insights into changes in behaviour. For example, if awareness and knowledge do not change, interpretation may not influence behaviour. Lück (2015) and Lück and Porter (2019) pointed out how tourists partaking in SWDT appreciate and expect education and interpretation as part of their experience; in particular, they want to know more about dolphin ecology, wider marine environmental issues, and marine conservation. The acquisition of more and better knowledge about dolphins is also instrumental in demystifying the behaviour of dolphins and rectifying misperceptions that could lead to bad behaviour (e.g. touching dolphins). Concerning the study location (MNP), Rocha et al. (2020) concluded that the educational section of the SWDT experience is still inefficient and requires more attention.

Various authors have structured the phases (from three to six) of interpretation that should characterise a swim-with-dolphin tour, starting with the pre-contact phase, where various information is provided, and ending with the post-contact phase, where the focus shifts more towards encouraging positive behaviour (e.g. signing petitions, making donations) (Forestell & Kaufman, 1990; Lück, 2016; Orams, 1997). In the MNP, these phases can be effectively incorporated into the SWDT experience, however, care must be taken to ensure that different information and interpretation are introduced at the right time and that the post-contact phase is not rushed nor underestimated. Based on the author's observation of the tours, the pre-contact phase, characterised by a verbal and video briefing on safety, dolphin behaviour and code of conduct, seems to be the only time in which the tourists are sitting and concentrating on relevant information regarding the experience. It is therefore essential that during this time, the briefing remains well-structured and comprehensive, and that the tourists do not find themselves distracted by other activities (e.g. compiling indemnity forms or trying equipment) while listening to it.

Interpretation focusing on enhancing a better understanding of the value of sustainable SWDT and positive behavioural intentions to support dolphin conservation should be delivered during and after the experience. This may be challenged by the limited time available, especially after the trip when a group of tourists is to be quickly replaced by another group, leaving little or no time for reflective post-contact engagement. Therefore, operators should consider creating opportunities to make time for this essential aspect of the experience, possibly by introducing a

10-minute post-contact debriefing to be delivered to the tourists while new groups are being catered for by other members of staff, thus ensuring that the tourists' turnaround timeline is not compromised. The post-contact phase is also a time when tourists can provide feedback to the operators regarding their experience, satisfaction levels and recommendations for the future. Operators should consider collaborating with researchers to ensure that tourists' feedback is properly captured to evaluate not only satisfaction levels but also whether the experience resulted in increased levels of knowledge and awareness (e.g. of dolphin ecology, conservation and codes of conduct in swim-with-dolphin operations). This type of feedback is instrumental to improve the tourism experience and help operators focus on the aspects of the experience requiring more attention. Additionally, monitoring the profile of tourists and their feedback can be useful in understanding the evolution of the market over time, as previous research has revealed how SWDT destinations becoming more popular can result in a shift of tourist profiles from small groups of exploratory users to large groups of generalists, calling for more attention towards operational management to ensure sustainable growth (Amante-Helweg, 1996).

Authors have advocated for the use by operators of various other techniques to inform and engage tourists before and after the SWDT experience (Pratt & Suntikul, 2016; Rocha et al., 2020). Examples include expanding the web presence of operators to include detailed and explicit information about swimming with dolphins and dolphin conservation; 'triggers' to encourage immediate action after the experience such as in the form of souvenirs with pro-environmental messages; and audiovisual tools (e.g. videos, infographics) located at the tourist centre. The study location also offers alternative tourist experiences including volunteer tourism, which can be a valuable way to engage tourists differently by providing more educational and hands-on conservation experiences.

In light of the above, tour operators should continue to focus on compulsory staff training, especially at the study location where the turnaround of staff has been reported to be frequent (Rocha et al., 2022). The training should follow steps similar to those listed by O'Neill et al. (2004), namely 'define, develop, deliver, evaluate, and support'. It should include aspects of dolphin ecology and conservation, rules and regulations within marine protected areas related to marine mammal tourism activities, codes of conduct for operators and tourists, the importance of education and interpretation as part of the tour, communication skills to maximise the impact of education and interpretation, and tourists' profiles and general expectations from SWDT. Specifically, available information on tourists' profiles, perceptions and behaviour can assist staff not only in delivering a quality experience but also in anticipating any potential negative behaviour (not only by tourists, such as contact behaviour but also by staff, such as boat speeding or dolphin pod chasing) to be mitigated or avoided. The results of this study on the participants' attitude towards SWDT also suggest that tourists will support SWDT provided that it is ethically managed. Therefore, considering both the case study and other SWDT destinations, operators are encouraged to understand that managing experiences with a conservation-oriented perspective will be beneficial not only for the dolphins but also for the industry, as tourists are known to show concern for the way dolphin encounters are managed and favour experiences that minimise harm to the dolphins (Bach & Burton, 2017; Draheim et al., 2010; Rocha et al., 2020; Wiener et al., 2020).

The results of this study show that an affinity to dolphins, here measured as a preference for dolphins and fascination with and relatability to dolphins, appear to be central in determining various attitudes towards dolphin conservation and SWDT. That is, tourists who feel a connection with dolphins, who in this study were mainly characterised by tourists partaking in SWDT, will have more positive attitudes towards dolphin conservation and sustainable SWDT. These results emphasise the importance not only for marketers of SWDT to play on this connection to attract tourists but also for conservationists, marine area managers and scientists to use the same connection to foster a positive attitude towards SWDT. At the same time, care must be taken to ensure that messages directed at the public to generate sympathy and emotional affinity, for example through documentaries and movies, are not based on stereotypes and myths but remain as factual as possible without compromising the charismatic image of dolphins that people tend to create in their minds. The results of this study also provide valuable information regarding the potential to generate public interest in other marine animals that are known to suffer from myths and misinformation normally generating the opposite effect to what happens with dolphins, such as sharks. Empathic feelings towards species and their vulnerable conservation status can result in strong feelings of support for the conservation of these species and positive behavioural intentions to participate in tourism experiences that can support conservation and turn the tide on negative myths.

7. Conclusion

With the growing popularity of SWDT, it has become paramount to find a balance between minimising ecological impacts and maximising benefits to the industry. Ways to do that include ensuring that the industry is regulated through laws and codes of conduct and that tourists understand the value but also the impacts of SWDT, through education and interpretation that can endorse positive attitudes and behaviours. Studies on tourists' perceptions of dolphins and SWDT can assist in designing strategies to promote ethically sound SWDT operations, provide tourists with meaningful, engaging and educational experiences, and ensure the sustainable development of SWDT. This study highlighted the importance of awareness and relatability to dolphins and determined sources of dolphin knowledge from participants in SWDT. Based on the results, it is clear that phased education and interpretation during the SWDT experience cannot be compromised. Additionally, stimulating public interest in dolphins can have positive outcomes in terms of attitudes towards dolphin conservation and SWDT. However, care must be taken to ensure that information about dolphins divulged through the media is not falsified as this could have detrimental consequences on the SWDT industry. Operators at the study location, which is in a marine reserve, strive for an ethically sound approach to managing tourists' encounters with dolphins. However, here and at other popular destinations worldwide, the SWDT industry remains a delicate and complex subject calling for continuous monitoring and multidisciplinary research to guide the sustainable management of operations and safeguard the integrity of dolphin populations.

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No potential conflict of interest was reported by the author.

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