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**ANTECEDENTS OF VISITORS' RESPONSIBLE BEHAVIOUR AND
WILLINGNESS TO CONSERVE IN BOROBUDUR TEMPLE, INDONESIA**

By

FIBAYANI ALIFAH FAIDURROHMAH

**Thesis Submitted to the School of Graduate Studies, Universiti Putra
Malaysia, in Fulfilment of the Requirements for the Degree of Master of
Science**

January 2022

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in
fulfilment of the requirement for the degree of Master of Science

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Chair : Professor Yuhanis binti Abdul Aziz, PhD
School : Business and Economics

Borobudur Temple is one of the World Heritage Sites in Indonesia categorised under cultural heritage sites by UNESCO. The Temple faces several issues regarding the over-visitation during the public holiday that reaches more than 50,000 visitors a day, while the carrying capacity of the temple is only 123 people at a time. Another issue faced by Borobudur Temple is the high visitors' irresponsible behaviour in the temple that damaged the temple stones. Therefore, the purpose of this study is to examine the antecedent of visitors' responsible behaviour in Borobudur Temple and its relationship with their willingness to conserve the heritage site. A self-administered survey was conducted to visitors of Borobudur Temple between 17 January 2020 to 21 January 2020, followed by an online survey until May 2020 due to the Covid-19 pandemic in Indonesia. In total, 360 respondents participated in the survey, which consisted of 306 Indonesian visitors and 54 international visitors selected using the purposive sampling method. The collected data was analysed using Structural Equation Modelling (SEM) in Partial Least Square (PLS) program. The findings of this study reveal that visitors' environmental knowledge, types of visitors, place attachment, and preferred management actions directly affect visitors' responsible behaviour in Borobudur Temple. Place attachment also mediates the relationship between visitors' environmental knowledge, psychological ownership, types of visitors, and visitors' responsible behaviour. Additionally, visitors' responsible behaviour directly affects visitors' willingness to conserve Borobudur Temple. These findings provide significant implications for the scientific and practical field in maintaining Borobudur Temple sustainability, especially in understanding the factors that affect visitors' responsible behaviour and preferred management actions in Borobudur Temple. Therefore, Borobudur Temple management could prepare a better plan to improve visitors' responsible behaviour and willingness to conserve Borobudur Temple.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia
Sebagai memenuhi keperluan untuk ijazah Master Sains

ANTESEDEN TERHADAP TINGKAHLAKU BERTANGGUNGJAWAB DAN KESEDIAAN MEMELIHARA PELAWAT DI CANDI BOROBODUR

Oleh

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Candi Borobudur adalah salah satu *World Heritage Site* di Indonesia yang dikategorikan sebagai tapak warisan budaya oleh UNESCO. Candi ini kini berhadapan dengan beberapa masalah seperti jumlah pelawat yang terlalu ramai sewaktu cuti umum yang mencapai 50,000 orang selama sehari sedangkan kapasiti candi hanya sejumlah 123 orang dalam satu waktu. Permasalahan lain yang dihadapi oleh Candi Borobudur adalah tingginya kes tingkah laku tidak bertanggungjawab yang dilakukan oleh pengunjung di lokasi tersebut yang menyebabkan kerosakan pada batuan candi. Untuk menyelesaikan masalah ini, kajian ini meneliti anteseden sikap bertanggungjawab pelawat (*visitors' responsible behaviour*) di Candi Borobudur dan hubungannya dengan kesediaan mereka untuk memelihara tapak warisan dengan menguji sepuluh hipotesis. Tinjauan luar talian telah dilakukan melibatkan pelawat Candi Borobudur antara 17 Januari 2020 hingga 21 Januari 2020 diikuti dengan tinjauan dalam talian hingga Mei 2020 kerana wabak Covid-19 di Indonesia. Secara keseluruhan, 360 responden telah mengambil bahagian dalam tinjauan ini, yang terdiri daripada 306 pelawat Indonesia dan 54 pelawat antarabangsa yang dipilih melalui kaedah pemilihan sampel bertujuan (*purposive sampling method*). Data yang dikumpulkan dianalisis menggunakan permodelan persamaan berstruktur (SEM) dalam program *Partial Least Square* (PLS). Hasil kajian ini menunjukkan bahawa *visitors' environmental knowledge* (*pengetahuan lingkungan pelawat*), *types of visitors* (*jenis pelawat*), *place attachment* (*perasaan suka kepada tempat*), dan *preferred management actions* (*pemilihan tindakan pengurusan*) mempunyai kesan langsung terhadap *visitors' responsible behaviour* (*sikap bertanggungjawab pelawat*) di Candi Borobudur. *Place attachment* (*perasaan suka kepada tempat*) juga didapati menjadi mediator hubungan antara *visitors' environmental knowledge* (*pengetahuan lingkungan pelawat*), *psychological ownership* (*psikologi pemilikan*), dan *types of visitors* (*jenis pelawat*), dengan *visitors' responsible behaviour* (*sikap bertanggungjawab pelawat*). Selain itu, *visitors' responsible behaviour* (*sikap bertanggungjawab pelawat*) didapati mempunyai hubungan secara langsung

dengan *willingness to conserve* (kesediaan untuk memelihara) tapak warisan Candi Borobudur. Penemuan ini memberikan implikasi yang signifikan terhadap bidang ilmiah dan praktikal dalam mengekalkan kesinambungan tapak warisan Candi Borobudur, terutamanya dalam memahami faktor-faktor yang mempengaruhi *visitors' responsible behaviour* dan *visitors' preferred management actions* di Candi Borobudur. Oleh itu, pengurusan Candi Borobudur dapat menyiapkan rancangan yang lebih baik untuk meningkatkan *visitors' responsible behaviour* dan *willingness to conserve* Candi Borobudur.



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LIST OF ABBREVIATIONS

AVE	Average Variance Extracted
BKB	Borobudur Conservation Centre
CTC	Committee of Tourism and Competitiveness
CBI	Committee of Tourism and Competitiveness, Centre for the Promotion of Imports from developing countries
CMV	Common Method Variance
CR	Composite Reliability
CVM	Contingent Valuation Method
f^2	Effect Size
ERB	Environmentally Responsible Behaviour
HTMT	Heterotrait-Monotrait Ratio of Correlations
ICOMOS	International Council on Monuments and Sites
JICA	Japanese International Cooperation Agency
MTRI	Ministry of Tourism Republic of Indonesia
MVA	Missing Values Analysis
Q^2	Predictive Relevance
Borobudur Park	PT Taman Wisata Candi Borobudur Prambanan dan Ratu Boko
R^2	R Square
SOC	State of Conservation
SEM	Structural Equation Modelling
TPB	Theory of Planned Behaviour
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNWTO	United Nations World Travel Organisation

UNS	Universitas Sebelas Maret
VIF	Variance Inflated Factors
VAF	Variant Accountant For
WHS	World Heritage Site



CHAPTER 1

INTRODUCTION

1.1 Chapter Overview

This chapter introduces the background of the study, providing information on the condition of the tourism industry in Indonesia and specifically on heritage tourism as the focus of the study. The current management and tourism industry in Borobudur Temple is discussed, followed by the problem statement section, discussing the study's research gaps, the antecedents of visitors' responsible behaviour, the mediating effect of place attachment, and the outcome variable. The research question and research objective are explained next. Then, the research scope, significance, and operational definition of the concepts are discussed consecutively. The last part of the chapter describes the organisation of the full thesis.

1.2 Background of Study

The tourism industry has a significant impact on the national economy in Indonesia mainly through the absorption of employees (13 million people), foreign exchange earnings (280 trillion rupiahs), and contribution to the Gross Domestic Products (5.5%) (Ministry of Tourism Republic of Indonesia-MTRI, 2019). In 2017 the industry received several international awards, including the top 20 fastest-growing travel destinations in the world from The Telegraph (MTRI, 2017), Borobudur Temple as top 3 in "World's Iconic Adventures Worth the Effort" from National Geographic (MTRI, 2018a), and branding award through its Wonderful Indonesia campaign (MTRI, 2017).

The tourism industry in Indonesia offers a wide variety of products, starting from natural beauties to cultural diversities (MTRI, 2018a). Therefore, to accommodate Indonesia's diversity in tourism products, the MTRI devised the 5 wonders of Indonesia scheme on the Indonesia Tourism website. These 5 wonders consist of nature, scenic landscape, and wildlife; culinary and wellness; arts, culture, and heritage; recreation and leisure; and adventures (MTRI, 2018a). The 5 wonders and their components are summarised in Table 1.1.

As one of the products included in the five wonders, cultural tourism received a certain level of attention from MTRI by including five cultural destinations in the 11 Priority Destinations program in 2019 (MTRI, 2019), which aims to improve these selected destinations' attractions, amenities, and accessibilities (MTRI, 2017). The five cultural and heritage tourism destinations included in the 11 Priority Destinations are Kota Tua, Mandalika, Borobudur Temple, Bromo Tengger Semeru, and Morotai. The list of the 11 Priority Destinations is

presented in Table 1.2. MTRI later launched another program named the five Super Priority Destinations that includes Danau Toba, Borobudur Temple, Mandalika, Labuan Bajo, and Likupang.

Table 1.1: List of Indonesian 5 Wonders

Products	Component
Nature, Scenic Landscape & Wildlife	Marine Life, Lakes, Rivers & Waterfalls, Beaches, Valley & Canyon, Mountains & Craters, Forests & Wildlife
Culinary & Wellness	Culinary, Entertainment, Spas, Hot Springs
Arts, Culture & Heritage	Arts & Cultures, Traditional Ceremonies, Museums, Temples, Heritages
Recreation & Leisure	City Life, Shopping
Adventures	Other Water Sports, Diving & Snorkelling, Other Sports, Surfing

[Source: MTRI (2018), Indonesia Travel website (2018)]

As a part of tourism products offered by Indonesia, cultural tourism is defined as an activity to enjoy different cultures, including the historical, architectural, and archaeological parts of a community (The Goss Agency, n.d.). The United Nations World Travel Organisation (UNWTO, 2018) mentions that cultural tourism will create admiration, pride, and rediscovery of the ancestor's achievements (The Goss Agency, n.d.). In the same topic, Csapó (2014) classifies cultural tourism into several types: heritage, cultural city and tours, tradition and ethnic tourism, event and religious festival, and creative culture. According to UNWTO (2018), cultural tourists had a steadier growth than the overall tourist's arrival, and 40% of international arrivals are considered cultural tourists. In Indonesia, heritage tourism such as Borobudur Temple, Prambanan Temple, and Ratu Boko Temple was visited by roughly 6.2 million people annually, with total foreign visitation of 400 thousand people.

The development of cultural tourism has created several niches in the industry (Richards, 2018), including heritage tourism (Asmelash & Kumar, 2019; Green, 2010; Richards, 2018) that is proliferating (Green, 2010) and has a significant contribution to the tourism industry in general (Garrod & Fyall, 2000; Green, 2010; Hoffman, Kwas, & Silverman, 2002). Heritage tourism itself has various definitions that range from a simple "tourism that centred on the inherited object" (Garrod & Fyall, 2000) to "a tourism activity that is deeper than simply visiting historical sites because it is a personal encounter with traditions, history, and culture" (Green, 2010). This wide range of definitions has made Richards (2018) concludes that there is little distinction between cultural and heritage tourism. The terms heritage tourism and cultural heritage tourism are also used interchangeably in the literature, showing that the two have a close connection (Hughes & Carlsen, 2010; Ismail, Masron, & Ahmad, 2014).

Table 1.2: List of Indonesia 11 Priority Destination

No	Priority Destination	Province	Type of Tourism Destination
1	Kota Tua - Kepulauan Seribu	DKI Jakarta	Heritage (Kota Tua), Natural (Kepulauan Seribu)
2	<i>Mandalika</i>	NTB	Cultural and Natural
3	Tanjung Lesung	Banten	Natural
4	<i>Borobudur</i>	Jawa Tengah	Heritage
5	<i>Danau Toba</i>	Sumatera Utara	Natural
6	Bromo Tengger Semeru	Jawa Timur	Cultural and Natural
7	Wakatobi	Sulawesi Tenggara	Natural
8	<i>Labuan Bajo</i>	NTT	Natural
9	Tanjung Kelayang	Bangka Belitung	Natural
10	Morotai	Maluku Utara	Cultural and Natural
11	<i>Likupang</i>	Minahasa Utara	Natural

[Source: MTRI (2019), name in *italic* are the Five Super Priority Destinations]

In general, heritage means something handed down from the past, which generally can be related to people, events, cultural landscapes, and objects considered significant for personal to the international level (Kelly, 2009). The United Nations Educational, Scientific and Cultural Organisation (UNESCO) in the Convention Concerning the Protection of The World Cultural and Natural Heritage categorised heritage into cultural and natural heritage. The cultural heritage consists of 1) monuments, 2) groups of buildings and 3) sites, whereas natural heritage consists of 1) natural features and 2) geological and physiographical formations, natural sites, or precisely delineated natural areas (UNESCO, 1972). Table 1.3 summarises the characteristics of cultural tourism and heritage tourism. Based on the characteristics of Borobudur Temple as a protected World Heritage Site, this study will focus on heritage tourism as a product or niche of cultural tourism.

The UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage 1972 encourages the identification, protection, and preservation of cultural and natural heritage worldwide, which has an outstanding value to humanity through its World Heritage Program. Borobudur Temple is a Buddhist temple and is one of the nine Heritage Sites in Indonesia registered in the UNESCO World Heritage programme. Five of these sites are classified under cultural heritage, which includes Borobudur Temple Compounds (listed in 1991), Prambanan Temple Compounds (listed in 1991), Sangiran Early Man Site (listed in 1996), Cultural Landscape of Bali Province: the *Subak* System as a Manifestation of the *Tri Hita Karana* Philosophy (listed in 2012), and Ombilin Coal Mining Heritage of Sawahlunto (listed in 2019), while the other four, are natural heritage: Komodo National Park (listed in 1991), Ujung Kulon National Park (listed in 1991), Lorentz National Park (listed in 1999), and Tropical Rainforest Heritage of Sumatra (listed in 2004) (UNESCO, n.d.).

Table 1.3: Cultural vs. Heritage Tourism

	Cultural Tourism	Heritage Tourism
Definition	An activity to enjoy different cultures, including the historical, architectural, and archaeological parts of a community (The Goss Agency, n.d.)	Tourism that centred on the inherited object (Garrod & Fyall, 2000) Tourism activity that is deeper than simply visiting historical sites because it is a personal encounter with traditions, history, and culture (Green, 2010)
Classification	Heritage, cultural city and tours, tradition and ethnic tourism, event, the religious festival, and creative culture (Csapó, 2014)	Natural and cultural heritage (UNESCO, 1972)
Scope	Broader scope with several niches (Richards, 2018)	Niche/subset of cultural tourism products (Asmelash & Kumar, 2019; Green, 2010; Richards, 2018)

Calver and Page (2013) argue that heritage attraction has been polarised between two types. The destinations that the main aim is to entertain and the destinations that the conservation and issues of authenticity are pre-eminent. Managing a heritage building as a tourism destination has challenges, such as finding a balance between providing services for visitors and conserving the building with limited capacity (Shackley, 1999: 69-81). Riddle (1994: 258-269) states that opening a building designed for a few privileged people that has been established for decades means posing it to the risk of vandalism, erosion problems, and minor damages that have to be addressed soon. This issue is especially true for Borobudur Temple, where the number of visitors exceeds the carrying capacity during holidays, and various damage has been detected due to the high number of visitors (Fitriana, 2017).

A various proposition has been made to address such problems through the use of clear orientation, code of conduct, prohibition, the *raison d'être* instead of direct confrontation with visitors (Riddle, 1994: 258-269), offering specific information on prices and facilities on the site (Shackley, 1999: 69-81; Riddle, 1994: 258-269), available services, geographical info, ground rules, activities, local info, and immediate info (Riddle, 1994: 258-269). However, the existing studies show that the current management actions have not changed visitors' behaviour during their visit (Chintia, 2017; Lestari, Pramitasari, & Saifullah, 2018). Besides this persisting phenomenon, a comprehensive study of the factors that affect visitors' responsible behaviour during their visit (Cheng & Wu, 2014) mainly focuses on natural destinations instead of cultural or heritage destinations (Cheng, Wang, Cao, Zhang, & Bai, 2018).

Therefore, the topic of responsible behaviours in the heritage tourism context remains widely unexplored, and there is little attention regarding the topic (Asmelash & Kumar, 2019; Garrod & Fyall, 2000). In their study, Garrod and Fyall (2000) find that visitors to heritage destinations in the UK consider overcrowding, wear and tear, trampling, handling, pilfering, and graffiti as critical problems in heritage destinations. Similar issues were observed in Borobudur Temple with the exceeded carrying capacity during the public holidays (Fitriana,

2017; Wahyuningsih, 2010). The issues of the high number of visitations and high visitors' irresponsible behaviour were also addressed in the State of Conservation (SOC) report from the UNESCO World Heritage programme as the issues that require prompt actions from Borobudur Temple management (UNESCO World Heritage Centre, 2003, 2004, 2005, 2006, 2007, 2009). Therefore, further research on visitors' behaviour during their visit to Borobudur Temple is needed.

The current study examines the antecedents of visitors' responsible behaviour in Borobudur Temple as a proposition to solve the existing case in the temple. Visitors' environmental knowledge, psychological ownership, types of visitors, place attachment, and preferred management actions are proposed as the constructs that affect visitors' responsible behaviour in Borobudur Temple. From a theoretical perspective, the responsible behaviour concept is rarely implemented in the context of heritage tourism (Cheng *et al.*, 2018) and is mainly adopted in the context of the natural destination (Cheng & Wu, 2014; Gupta, Arora, Sharma, & Mishra, 2021; Sahabuddin, Tan, Hossain, Alam, & Nekmahmud, 2021).

The lack of study focusing on visitors' responsible behaviour in heritage destinations leads to the lack of examination of this construct's antecedents. Environmental knowledge is one of the most common factors that affect responsible behaviour (Cheng & Wu, 2014; King-Chan, Capistrano, & Lopez, 2021), followed by place attachment (Confente & Scarpi, 2021; Dlamini, Tesfamichael, & Mokhele, 2021). The psychological ownership concept has recently been adopted into responsible behaviour studies (Li, Wei, Qu, & Qiu, 2021; Liu, Qu, Meng, & Kou, 2021) but is still considered new and rarely examined. Types of visitors and preferred management actions are the following constructs examined as the antecedents of visitors' responsible behaviour in this study. Both have been rarely studied in the context of visitors' responsible behaviour and have only been used in determining visitors' preferences in management actions to protect a heritage site (Alazaizeh, Hallo, Backman, Norman, & Vogel, 2016). Lastly, this study will also look into the effect of visitors' responsible behaviour on visitors' willingness to conserve Borobudur Temple. The next section of this chapter introduces Borobudur Temple based on its history, architecture, current management, and the state of tourism activities.

1.2.1 Study Area: Borobudur Temple

Borobudur Temple is located in Jl. Badrawati, Borobudur Temple complex, Borobudur Village, Borobudur Subdistrict, Magelang District, Central Java Province (See Figure 1.1. and 1.2), northwest Yogyakarta, Indonesia. This Buddhist temple was built between 782-812 M by Syailendra Dynasty. It is 121.66 metres long, 121.38 metres wide, 35.40 metres tall, and is considered the most outstanding Buddhist monument globally (Borobudur Conservation Centre-BKB, 2014; UNESCO, n.d.).

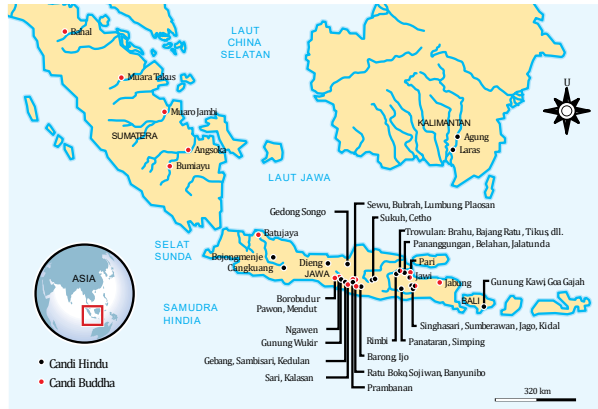


Figure 1.1: The Map Shows Indonesian Temples from Indonesia’s So-Called “Classical” Or Hindu-Buddhist Period (7th To 15th Century CE). Most Are Concentrated in Central and East Java. The Black Dot Represents Hindu Temples, And the Red Dot Represents Buddhist Temples. Borobudur Is Marked with A Red Dot, Indicating That It Is a Buddhist Temple

[Source: Gunawan Kartapranata (n.d.)]

Borobudur Temple is one of the 11 Priority Tourism Destinations and 5 Super Priority Destination programmes by the MTRI (see Table 1.2). In 2019, Borobudur Temple was visited by approximately 4 million visitors, higher than the other World Heritage Site (WHS), such as Prambanan Temple in Yogyakarta, with only 2.5 million visitors in 2019 (Borobudur Park, 2020). Table 1.4 shows the number of visitors to Borobudur Temple, Prambanan Temple, and Ratu Boko.



Figure 1.2: Map Showing the Location of Borobudur Temple (In Black Circle) and Prambanan and Ratu Boko Temple (Blue Circle) With Regards to Yogyakarta Province (Yellow Region)

[Source: <https://www.iojiaspace.com/peta-wisata-iojja/>]

Borobudur Temple has three levels, *Kamadhatu*, *Rupadhatu*, and *Arupadhatu*, representing the sphere of desires, the sphere of forms, the sphere of formless, respectively. The *Kamadhatu* is represented by the base or red colour in figure 1.3, the *Rupadhatu* by the five square terraces shown in orange in figure 1.3, and the *Arupadhatu* by the three circular platforms and the giant stupa represented with yellow in figure 1.3 (UNESCO, 2005). Figure 1.3. and 1.4. show the location of each level in Borobudur Temple.

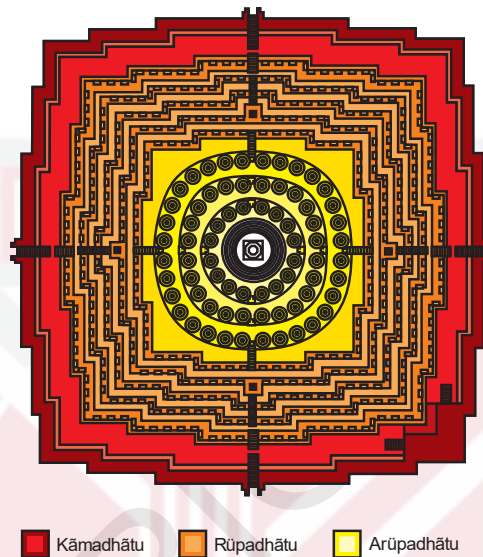


Figure 1.3: Borobudur Cross-section and Building Ratio
 Source: Kartapranata (2011)]

Borobudur Cross Section and Building Ratio
 Borobudur, Central Java, Indonesia

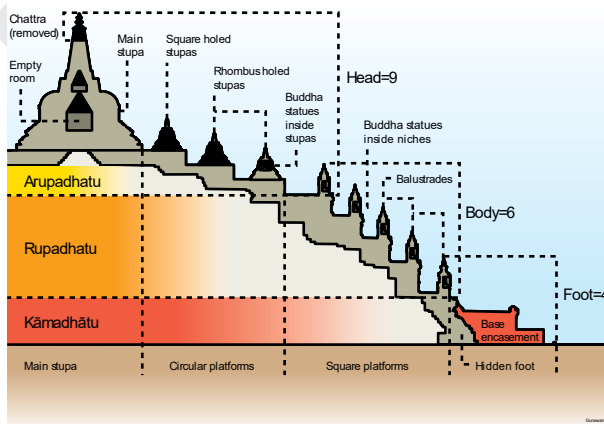


Figure 1.4: Borobudur Cross-section and Building Ratio
 [Source: Kartapranata (2011)]

The *Kamadhatu* level has 160 panels that tell the operation of karma, the law of cause and effect in reincarnation, heaven, and hell. However, this level is not observable by the visitor except at the southeast foot; therefore, it is widely referred to as 'the hidden foot' of Borobudur (UNESCO, 2005). The level was found buried under 12,750 cubic metres of stones and was not detected until the first restoration team performed drilling around the temple in 1885 (Dumarçay, 1978; UNESCO, 2005). The archaeologist wondered why the seven metres wide and four metres high broad platform encircling the temple was constructed. Soekmono, in 'The Restoration of Borobudur' (UNESCO, 2005), argues that the encasing wall acts as a supporting portion to prevent sliding in the temple foot and avoid a disastrous collapse of the construction in progress. This argument is supported by the hidden foot's unfinished carvings and chiselled sculptures. Figure 1.5 shows the exposed foot at the southeast corner of the temple, and the opened hidden foot.

The *Rupadhatu* level is five square terraces decorated with 1,300 panels of narrative carvings, which stretched up to 2,500 metres; 1,312 decorative panels; 1,500 metres of continuous carved frieze with the cornices embellished with 1,416 antefixes. Figure 1.6 shows the example of carvings at the *Rupadhatu* level. The upper part of this level consists of 432 niches alternating with decorative panels. Each niche has a seated Buddha statue inside and over, and above each niche, small solid stupas soar into the sky. There is a total of 1,472 solid stupas in *Rupadhatu* level alone (UNESCO, 2005) and 432 Dyani Buddha statues, 104 in the first terrace, 104 on the second terrace, 88 on the third terrace, 72 on the fourth terrace, and 64 in the fifth terrace; the higher the terrace, the smaller are the statues (Kasatriyanto, 2016).



Figure 1.5: Kamadhatu Level Upper Picture: Exposed *Kamadhatu* Level at Southeast Part of the Temple from Above; Middle Picture: Location of Carving Panel; Lower Picture: Carving Panel in *Kamadhatu* Level

[Source: Korea Herald; Balai Konservasi Borobudur (2014), Personal documentation (2018)]

There are four different Buddha statues with four different hand positions placed in *Rupadhatu* level (Kasatriyanto, 2016). *Dhyani Buddha Aksobya* statues with *Bhumisparsamudra* hand position are located in the Eastern terraces, *Dhyani Buddha Ratnasambhawa* statues with *Waramudra* hand position are located in the Southern terraces, *Dhyani Buddha Amoghasidha* statues with *Abhayamudra* hand position are located at the Northern terraces, and the last *Dhyani Buddha Wairocana* statues with *Witarkamudra* hand position are decorating the fifth level balustrades.



Figure 1.6: Carvings in *Rupadhatu* Level

[Source: Personal documentation (2018)]

Strikingly different from the *Rupadhatu* level, the highest level, *Arupadhatu*, has no decoration: no carving, no ornaments, no embellishments as a representation of the Sphere of Formlessness, when humans are no longer bound to name and form. This level consists of three circular platforms with the biggest solid stupa at its centre (UNESCO, 2005; Kasatriyanto, 2016). Figure 1.7 shows the three circular terraces at the *Arupadhatu* level filled with 72 stupas: 32 at the first platform, 24 on the second platform, and 16 on the third. Inside each stupa, there is a Dhyani *Buddha Vajrasattva* statue with *Dharmacakramudra* hand position (Kasatriyanto, 2016). The biggest stupa has a 12 metres base in diameter and a large lotus cushion half a metre thick, it has an inner space, but no entry was possible (UNESCO, 2005).



Figure 1.7: *Arupadhatu* Level

[Source: <https://www.indonesia.travel/gb/en/destinations/java/magelang-regency/borobudur>]

1.2.2 Management in Borobudur Temple

According to Presidential Decree No. 1 of 1992 (BKB, 2014) concerning The Management of Borobudur and Prambanan Archaeological Park and The Control of Surrounding Environment, Borobudur Temple is managed by a multi-institution scheme (See Figure 1.8). The preparation and management for the three zones around the temple are developed based on the Japanese International Cooperation Agency (JICA) masterplan.

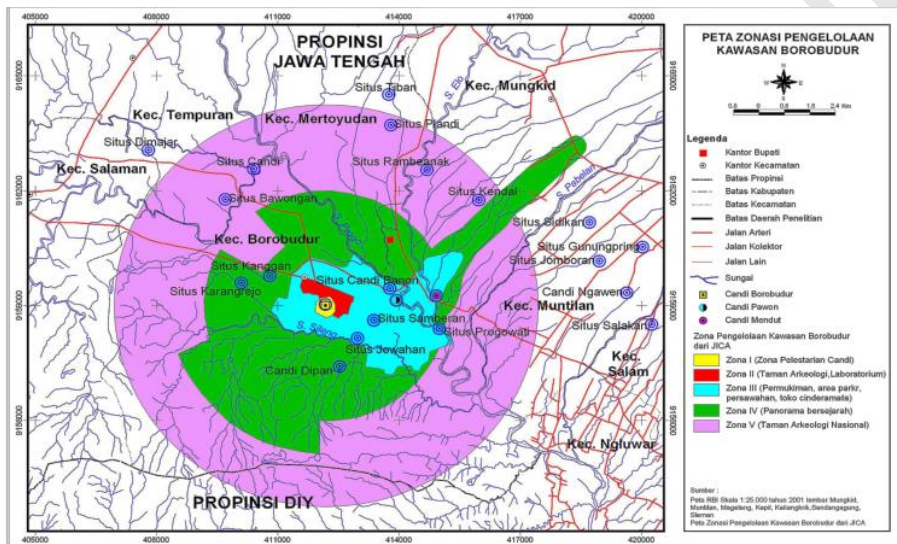


Figure 1.8: Map of Management Zoning in Borobudur Temple

[Source: BKB (2014)]

Notes:

- Yellow : Zone I (Sanctuary Area)
- Red : Zone II (Archaeological Park)
- Light green : Zone III (residential, parking area, paddy fields, souvenirs stalls)
- Dark green : Zone IV (historical panoramic scenery)
- Purple : Zone V (national archaeological zone)

Zone 1 is the archaeological zone designed to protect and maintain the sustainability of the Temple's physical environment. This area covers around 44.8 Ha has a round shape with the centre point on Temple's axles. BKB manages this Zone as a technical implementing unit of Kementerian Pendidikan dan Kebudayaan (Ministry of Education and Culture). This centre serves several functions: perform research on conservation (civil engineering, architecture, geology, biology, archaeology); protect, maintain, and restoration; develop and utilise the temple; conduct documentation and publication; develop a partnership in conservation and preservation of the temple; develop methods and techniques; and perform administrative duties of BKB (BKB, n.d.-b). The temples in this description refer to Borobudur, Mendhut, and Pawon.

Zone 2 is the area surrounding Zone 1 and is designed to develop the archaeological park for tourism activities, research, culture, and conservation of the temple's environment. Zone II is about 42.3 Ha. Zone 2 is managed by Borobudur Park by considering the prevailing regulations, including Local Government Taxes. Borobudur Park is also responsible for maintaining orderliness and cleanliness of Zone 1 and the temple, performing all arrangements needed for tourism activities in the Zone, providing and operating all facilities to support its business activities, grant and revoke permissions, set requirements, and retribution payment for all commercial activities in the Archaeological Park, set and collect entry ticket (legalised by the minister) and other collections for the utilisation of facilities they provide. All money collected from visitors and commercial activities belongs to Borobudur Park and is recorded as income. Borobudur Park is also responsible for maintaining security in Zone 1 and 2.

Zone 3 is the area outside Zone 2, designed for limited settlement, an agricultural area, a green area, and other facilities provided to guarantee the harmony and balance in Zone 1 in general and support the temple's sustainability and the function of Archaeological Park in particular. Zone 3 management falls under the local government of Magelang and follows the prevailing regulations with particular attention to ministerial consideration. Zone 3 covers an area of approximately 932 Ha. However, the development in this area does not follow the Japanese International Cooperation Agency (JICA) masterplan prepared in 1979, resulting in rampant and uncontrolled development (BKB, 2014: 184).

1.2.3 Tourism in Borobudur Temple

Borobudur Temple visitation from 2014 to 2018 grew around 4-9% annually, with a total of three million national visitors a year and 200 up to 300 thousand international visitors a year (see Figure 1.9) (Borobudur Park, 2015, 2016, 2017). In 2019, the Indonesian government targeted that there would be five million domestic visitors (Chintia, 2017) and two million international visitors to Borobudur Temple (Borobudur Park, 2017).

Currently, Borobudur Park manages three temples: Borobudur Temple, Prambanan Temple, and Ratu Boko Temple. Compared to these temples, Borobudur has the highest number of national and international visitors (Borobudur Park, 2015, 2016, 2017, 2018, 2019, 2020). As another temple listed in World Heritage List, Prambanan Temple had a total of 2.5 million visitors in 2017, while Ratu Boko, a smaller complex of temples near Prambanan Temple, had a total of 280 thousand visitors in 2019 (Borobudur Park, 2020) showing that Borobudur is the most visited temple around Yogyakarta. This data emphasises that Borobudur is the most visited temple around Yogyakarta. The number of visitations to the three temples is summarised in Table 1.4.

Table 1.4: Comparison of Visitors to Borobudur and Two Other Heritage Sites

	Year	Borobudur	Prambanan	Ratu Boko
National	2014	3,159,744	1,407,825	186,767
	2015	3,302,328	1,722,762	239,878
	2016	3,616,775	1,887,038	349,879
	2017	3,579,617	1,976,024	352,079
	2018	3,699,893	2,216,760	297,458
	2019	3,789,225	2,326,122	283,658
International	2014	268,664	206,830	8,739
	2015	256,362	198,490	9,884
	2016	276,141	208,090	13,996
	2017	321,060	229,488	14,192
	2018	308,784	222,373	8,880
	2019	249,928	183,553	6,172

[Source: Borobudur Park (2015, 2016, 2017, 2018, 2019, 2020)]

The daily visitation to Borobudur Temple of around 5,000-6,000 people during weekdays and around 56,000 during public holidays (Fitriana, 2017) raises a concern about the sustainability of the temple in the long run. The impact of the high level of visitations on Borobudur Temple will be discussed further in the problem statement, while the following sub-chapter will discuss the existing research on Borobudur Temple.

1.3 Research in Borobudur Temple

After introducing the Borobudur Temple condition based on its area, management, and the state of tourism, this section aims to look further at the existing research on Borobudur Temple. As a WHS, Borobudur Temple attracts researchers from Indonesia and international institutes. The topics covered by the existing research range from the physical conservation of the temple (Lestari, 2006) to the tourism-related topic such as visitor satisfaction and intention to revisit (Canny & Hidayat, 2014; Purnamasari & Budiarmo, 2019; Putri, Farida, & Dewi, 2012; Wiyono, 2019). The international researchers on Borobudur Temple mainly focus on the conservation and restoration of the temple (Lestari, 2006; Nagaoka, 2011), management (Kausar, Nishikawa, & Nishimura, 2011; Nagaoka, 2015, 2016; Taylor, 2003), and the socio-economic aspect of the tourism in Borobudur Temple (Hampton, 2005; Kausar, 2011; Tanudirjo, 2013; Wall & Black, 2004), while the Indonesian researchers mainly focus on the tourism-related topic, with a few focus on the visitors' behaviour during their visit (Chintia, 2017; Lestari *et al.*, 2018).

According to Tanudirjo (2013), BKB is considered the only part of the management with a strong concern on Borobudur Temple research by publishing a journal on conservation in Borobudur Temple and other heritage sites in Indonesia (Kementerian Pendidikan dan Kebudayaan-Kemdikbud, n.d.). The journal had published articles on the carrying capacity of Borobudur Temple (Wahyuningsih, 2010), the effect of global warming on Borobudur Temple stones (Kasiyati & Brahmantara, 2010), and local community support on the tourism

activities in Borobudur Temple (Ardiyansyah, 2010). Therefore, a limited number of studies had addressed the visitor's behaviour during their visit to Borobudur Temple. The problems addressed in this study will be discussed in the following section.

1.4 Problem Statement

According to the existing studies, the carrying capacity of Borobudur Temple is 123 people at a time, the temple yard is 528 people, and the Archaeological Park is 10,308 people (Fitriana, 2017; Wahyuningsih, 2010). Although the Borobudur Temple visitors is still far from the carrying capacity, with around 5,000-6,000 visitations during the weekdays (Fitriana, 2017; Wahyuningsih, 2010), it could reach up to 56,000 people a day during public holidays (Fitriana, 2017), with around 70% - 90% of visitors are estimated to climb the temple (Chintia, 2017; Wahyuningsih, 2010). Therefore, it appears that the number of visitations to Borobudur Temple has exceeded the carrying capacity of the temple structure and yard, especially during public holidays.

The carrying capacity can be defined as the room visitors need to enjoy a destination (Wahyuningsih, 2010) or the limit of a destination to absorb visitation before the negative impact of visitation affects the destination (O'Reilly, 1986). Therefore, during public holidays Borobudur Temple visitors do not have enough space to enjoy the temple as a heritage site or Buddhist pilgrimage site (Wahyuningsih, 2010) and causes adverse effects on the temple due to over visitations. These issues have caused obsolescence on the floor or the edge of the stupa terrace due to friction between temple stones and sands from visitors' footwear, vandalism cases in which visitors write on temple stones, and broken carvings because visitors touch the stones (Lestari *et al.*, 2018).

Lestari *et al.* (2018) also analysed visitors' obedience to Borobudur Temple visitors' code of conduct and found a high number of violations. Table 1.5 summarises the violation of the visitor's code of conduct found by Lestari *et al.* (2018). The most common violation committed by visitors is sitting on the stupa, touching the Buddha statue outside the stupa, and climbing the stupa. The myth that touching Buddha statues inside the stupa will bring good luck (Kompas Cyber Media, 2019) made visitors climb or sit on the stupa to do such damaging acts. Touching the temple stone or protected objects was prohibited in many settings, including Borobudur Temple. This prohibition is mainly implemented because human sweat contains substances like sodium or salt that could damage a statue, stone, or any protected object (Tempo.co, 2019). Some stupas in Borobudur Temple had lost their ornaments because visitors often climbed and touched them (Tanjung, 2016).

Lestari *et al.* (2018) study strongly indicated that Borobudur Temple experienced a problem concerning visitors' responsible behaviour, therefore, emphasising the need for further research in this matter. The need for a study regarding visitors'

responsible behaviour in Borobudur Temple is also amplified by a large number of responsible behaviours research in natural or wildlife-related destinations such as islands (Cheng & Wu, 2014; King-Chan, Capistrano, & Lopez, 2021), marine parks (Abdullah, Samdin, Ho, Ng, & Phuah, 2019), national parks (Chiu, Lee, & Chen, 2014), camping sites (Kil, Holland, & Stein, 2014), and mountain (He, Hu, Swanson, Su, & Chen, 2018), while similar studies in cultural and heritage tourism contexts (Cheng *et al.*, 2018; Zhao, Wang, & Ji, 2020), such as Borobudur Temple is relatively rare is relatively rare.

Table 1.5: List of Visitor Code of Conducts Violation

No	Visitor Code of Conduct	Violations	Frequencies	%
1	Do not sit and stand on stupa and balustrade	Sitting on stupa	33	11.3
		Sitting on balustrade	24	8.2
		Standing on stupa	21	7.2
		Standing on balustrade	23	7.8
2	Inserting hand into the stupa	Inserting hand into the stupa	28	9.6
		Touching Buddha statue inside the stupa	24	8.2
		Touching Buddha statue outside the stupa	54	18.4
		Climbing stupa	56	19.1
3	Do not climb	Climbing balustrade	19	6.5
		Riding the ornamental lion	11	3.8

[Source: Lestari *et al.* (2018)]

As discussed in section 1.3, there have been limited studies that focus on the visitor's behaviour in Borobudur Temple (Chintia, 2017; Lestari *et al.*, 2018). Lestari *et al.* (2018) study focuses on the types of visitors' irresponsible behaviours during their visit, while Chintia (2017) study focuses on the effect of Borobudur Temple physical elements, such as the walking tracks leading to and out of the temple, the plants surrounding the temple, availability of signages, chairs, and other supporting facilities, that affect visitor behaviours during their visit. However, both have not marvelled into the factors that could explain visitors' behaviour in Borobudur Temple.

The studies on Environmentally Responsible Behaviour (ERB) have found several antecedents that significantly affect this construct, such as environmental knowledge (Cheng & Wu, 2014), place attachment (Buonincontri *et al.*, 2017; Cheng *et al.*, 2018), environmental attitude (Kil *et al.*, 2014; Li *et al.*, 2012), experience (Buonincontri *et al.*, 2017; Chubchuwong, Beise-zee, & Speece, 2015), and satisfaction (Cheng *et al.*, 2018; He *et al.*, 2018). In the broad environmental context, knowledge has been found to directly affect people's pro-environmental or responsible behaviour (Braun & Dierkes, 2017; Frick, Kaiser, & Wilson, 2004) and indirectly affect ERB in the island tourism context mediated by environmental sensitivity and place attachment (Cheng & Wu, 2014). Even though the study concerning responsible behaviour in cultural and heritage tourism context is limited, Cheng *et al.* (2018) have found that interpretive service, satisfaction, and place attachment affect a tourist's responsible behaviour during a visit to a heritage destination.

The existing studies in Borobudur Temple focus on visitors' satisfaction and revisit intentions. A few studies have examined the antecedents of visitors' responsible behaviours or Borobudur Temple sustainability in general, except for Untoro, Sawitri, Risgiyanti, Sunaryo, and Aziz (2021), who study the attitudinal factors that affect Borobudur Temple sustainability. Therefore, a preliminary inquiry was conducted to map the existing condition in Borobudur Temple regarding the antecedents of visitors' responsible behaviour in Borobudur Temple, which has not received considerable research attention.

The preliminary analysis shows that visitors are Borobudur Temple stakeholders most closely related to the temple protection. The high number of visitors and irresponsible behaviours have a significant role in the temple's damage, therefore underlining the need to study visitors' responsible behaviour in Borobudur Temple. Visitors participating in the preliminary inquiry also showed different levels of feeling of ownership towards the temple. National visitors demonstrated a higher feeling of ownership towards Borobudur Temple, indicated by their statements: 'this is our temple,' 'this is our heritage,' and 'we need to protect this temple for the future generation' that were not implied by the international visitors. The information provided by participants indicates their psychological ownership or a feeling of ownership toward a particular object, in this case, Borobudur Temple, even though no legal claim existed (Vandewalle, Dyne, & Kostova, 1995). However, the preliminary inquiry also indicates that most visitors who behaved irresponsibly in Borobudur Temple are national visitors (Fitriana, 2017; Lestari *et al.*, 2018). This phenomenon justifies the need to examine the role of psychological ownership in forming visitors' responsible behaviour in Borobudur Temple. Psychological ownership has been found to mediate local people's support towards tourism development (Sau-Ching Yim, 2021), civilised behaviour (Qu, Cao, Ge, & Liu, 2021), perceived justice, and tourist's ERB (Liu *et al.*, 2021) in the existing studies.

The participants of the preliminary analysis demonstrated different reasons to visit Borobudur Temple. Most of the participants stated that they want to learn about the culture and heritage in Borobudur Temple and educate their children and students about their heritage. The reasons to visit and the importance of learning are two bases used by McKercher in classifying cultural tourists in his study. Therefore, the preliminary analysis result indicates that there are several types of visitors in Borobudur Temple following McKercher's typology. Visitors also emphasised the packed conditions in the temple with a high number of visitors and the irresponsible behaviours they witnessed during their visit. Thus, supporting the problems identified in the current study regarding the exceeded carrying capacity in the temple. The reasons to visit Borobudur Temple and visitors' willingness to learn about heritage and culture as the parts of McKercher's cultural tourist's typology have been found to affect visitors' preferred management actions in Petra Archaeological park (Alazaizeh *et al.*, 2016). Therefore, types of visitors are expected to affect how visitors act during their visitation.

Another finding from the preliminary inquiry shows that Borobudur Temple management has implemented various actions to reduce and prevent visitors' irresponsible behaviour in the temple. However, some of these actions went unnoticed by preliminary inquiry participants or had not successfully prevented irresponsible behaviour (Lestari *et al.*, 2018). Participants also showed particular preferences towards the management actions, such as information provided through the loudspeakers or directions from the security guards around the temple. Therefore, this study is interested in examining the effect of visitors' preferred management actions on their responsible behaviours in Borobudur Temple. The participants generally agree with the current management actions implemented in Borobudur Temple; however, they also think more actions are needed, especially during the peak season when the number of visitors filled the temple and its yard. Accordingly, the current study will examine the factors affecting visitors' preferred management actions and their role in shaping visitors' responsible behaviour during a visit to Borobudur Temple.

Place attachment is the connection between a place and visitors' identity, the uniqueness of the place that fulfil visitors' visitation goals, the affective link between a place and visitors, and a connection that develop interpersonal relationships and fosters a sense of belonging (Ramkissoon, Smith, & Weiler, 2013). Many preliminary inquiry participants visited Borobudur Temple with their family members, friends, or their neighbours. Most of the visitors also visited in a group that ranged from 2 up to more than 20 people. However, although visitation in a large group indicates visitors' attachment toward Borobudur Temple in developing interpersonal relationships and fostering a sense of belonging, Chintia (2017) study finds that large-sized visitor groups tend to disobey the regulation more and disregard the warning or signage placed around the temple. Therefore, this finding raises a question on the role of place attachment as the antecedent of visitors' responsible behaviours in Borobudur Temple because place attachment has been found to affect responsible behaviours (Cheng *et al.*, 2018; Cheng & Wu, 2014; Cheng *et al.*, 2013).

Willingness to conserve a heritage building has received low attention from researchers, with most of the conservation-related research are conducted on natural objects such as forests (Chen, 2015), lakes (Palanca-Tan, 2020), rivers (Jin, Juan, Choi, & Lee, 2019), and endangered animals (Wilson, 2005, 2007; Jimenez, 2015). Lwoga (2016) studies residents' willingness to conserve a heritage building in Tanzania using the Theory of Planned Behaviour (TPB) and Attachment Theory. However, the study has not tested the variable in an integrated framework as the current study did. Most studies on willingness to conserve also measure public willingness to conserve a particular object through their willingness to pay (Chen & Nakama, 2015; Jin *et al.*, 2019; Palanca-Tan, 2020; Sherif, 2019) and has not explored different measurements and the factors affecting willingness to conserve as this study plans to do.

After considering these gaps, this study examines the direct relationship between visitors' environmental knowledge, place attachment, types of visitors, and preferred management action on visitors' responsible behaviour in

Borobudur Temple. This study also examines the relationship between visitors' responsible behaviour and their willingness to conserve Borobudur Temple. In addition to these, the study will include place attachment as a mediating variable between visitors' environmental knowledge, psychological ownership, types of visitors, and responsible behaviour during their visitation. Place attachment has been widely tested as a mediating variable in Visitors' Responsible Behaviour studies, and there has been a vast number of studies that find the mediating role of place attachment in the ERB model (Buonincontri *et al.*, 2017; Cheng & Wu, 2014; Cheng *et al.*, 2013; Tsaur, Wang, Liu, & Huang, 2019). However, place attachment also has been studied as an independent variable in heritage destination (Ram, Bjork, & Weidenfeld, 2016) and national park (Ramkissoon & Mavondo, 2017; Ramkissoon *et al.*, 2013), as well as a dependent variable in national park destination (Ramkissoon, David, Smith, & Kneebone, 2014; Ramkissoon & Mavondo, 2015). Therefore, it is essential to retest the mediating role of place attachment in the responsible behaviour model in a heritage tourism context.

The following section, 1.5, will describe the study's objective and the questions answered through the current study.

1.5 Research Objectives

The objectives of this study can be classified into general and specific objectives. The general objective of this study is to examine the antecedents of visitors' responsible behaviour in Borobudur Temple and its effect on willingness to conserve. The specific objectives of this study are:

RO1: To examine the direct relationship between the visitors' environmental knowledge, place attachment, types of visitors, preferred management action, and the visitors' responsible behaviour.

RO2: To investigate the direct relationship between visitors' environmental knowledge, psychological ownership, types of visitors, and place attachment.

RO3: To investigate the direct relationship between types of visitors and preferred management action.

RO4: To evaluate the role of place attachment as a mediator between visitors' environmental knowledge, psychological ownership, types of visitors, and visitors' responsible behaviour.

RO5: To examine the direct relationship between visitors' responsible behaviour and willingness to conserve.

1.6 Research Questions

The finding of this study will answer the following research questions:

RQ1: Is there a direct relationship between the visitors' environmental knowledge, place attachment, types of visitors, preferred management action, and visitors' responsible behaviour?

RQ2: Is there a direct relationship between visitors' environmental knowledge, psychological ownership, types of visitors, and place attachment?

RQ3: Is there a direct relationship between types of visitors and preferred management action?

RQ4: Does place attachment play a role as a mediator between visitors' environmental knowledge, psychological ownership, types of visitors, and visitors' responsible behaviour?

RQ5: Is there a direct relationship between visitors' responsible behaviour and willingness to conserve?

Table 1.6 summarises the research gap, research objective, and questions and significance of the study.

1.7 Significance of the Study

This study examines the antecedents of visitors' responsible behaviour in Borobudur Temple and its effect on willingness to conserve. The result of the current research will have academics and practical significance as follow:

1.7.1 Academic Significance

The study will be significant to the tourism literature by first testing the direct relationship between visitors' knowledge, place attachment, and visitors' responsible behaviour in the ERB model proposed by Cheng and Wu (2014) and implementing it in the heritage tourism context. Even though the relationship between environmental knowledge and responsible behaviour has been tested in natural environment studies (Arcury, 1990; Casaló, Escario, & Rodriguez-sanchez, 2019; Geiger, Geiger, & Wilhelm, 2019), the relationship in the heritage destination is understudied.

Secondly, the current study will extend the ERB model developed by Cheng and Wu (2014) by adding psychological ownership, types of visitors, and management actions. Psychological ownership and types of visitors have not

been tested as the antecedents of responsible behaviour in the heritage tourism context. According to McKercher (2002), there are five types of cultural visitors based on their reason for visiting a destination and the depth of experience developed from the visitation. The purposeful visitor who visits a cultural destination for its cultural and heritage values develops a deep knowledge of the destination. In contrast, incidental visitors visited a cultural or heritage destination not for its values and developed a shallow understanding of the destination they visited (McKercher, 2002).

Based on this classification, it is possible that different types of visitors may have different preferences for management actions and behave differently during their visitation. A limited study has examined heritage sites visitors, especially Borobudur Temple, and how this classification affects their visit behaviour.

Third, the existing studies on the types of visitors are more focussed on developing a robust classification of cultural visitors (Artal-tur, Villena-navarro, & Alamá-sabater, 2017; Lopez-guzman *et al.*, 2018; Ramires, Brandão, & Cristina, 2016) with a few studies trying to include the classification as the independent variable (Alazaizeh *et al.*, 2016). The relationship between preferred management actions and visitors' responsible behaviour in Borobudur Temple will be examined in this study.

With the limited studies on the factors that affect visitors' preferred management action (Daniels & Marion, 2006; Martin, Marsolais, & Rolloff, 2009) that mainly focuses on natural destinations (Borrie, Freimund, & Davenport, 2002; Daniels & Marion, 2006; Mason, 2005; Needham & Szuster, 2011; Semeniuk *et al.*, 2009) and the limited studies that focus on the heritage context (Alazaizeh *et al.*, 2016; Enseñat-soberanis *et al.*, 2018), this study will contribute in expanding the knowledge by applying types of visitors as the factor affecting preferred management action and visitors' responsible behaviour, which has not been tested in the previous studies.

Theoretically, this study will add evidence and literature in the consumer behaviour body of knowledge by examining the antecedents of visitors' responsible behaviour in the context of heritage sites in an integrated model. Specifically, this study added psychological ownership, types of visitors, and preferred management actions as the antecedents of visitors' responsible behaviour, and examined visitors' responsible behaviour effect on willingness to conserve Borobudur Temple.

Finally, this study aims to extend the psychological ownership theory and ERB model by examining the compatibility of the responsible behaviour model and psychological ownership theory on heritage destinations which is rarely done in tourism research. The model and theory expansion will also be done by examining the relationship between visitors' responsible behaviour and their willingness to conserve Borobudur Temple, which has never been tested in an integrated model such as the one proposed in this study.

Table 1.6: Research Gap, Objective, and Significance

Academic Gap	Research Objective	Research Question	Significance	Source	
<p>The concept of responsible behaviour is rarely implemented in heritage destinations. Therefore, some variables have seldom been tested as the antecedent of responsible behaviour. Psychological ownership is usually used in the human resource field and has rarely been implemented in tourism-related studies.</p> <p>Types of visitors have not been tested as an antecedent of responsible behaviour in a heritage site.</p> <p>The majority of management actions studies focuses on the type of preferred management action, and there is a lack of studies on the factors that are affected by the preferences (Alazaizeh <i>et al.</i>, 2016; Enseñat-soberanis, Frausto-martínez, & Gándara-Vázquez, 2018; Mason, 2005; Semeniuk, Haider, Beardmore, & Rothley, 2009; Wanner, Pröbstl-Haider, & Feilhammer, 2021).</p> <p>Place attachment has been widely used as a mediating variable between the independent variables and responsible behaviour (Buoincontri <i>et al.</i>, 2017; Cheng <i>et al.</i>, 2018; Cheng & Wu, 2014; Cheng <i>et al.</i>, 2013).</p> <p>The majority of management actions studies focuses on the type of preferred management action, and there is a lack of studies on the factors that affect preferred management actions (Alazaizeh <i>et al.</i>, 2016; Enseñat-soberanis <i>et al.</i>, 2018; Mason, 2005; Semeniuk <i>et al.</i>, 2009; Wanner <i>et al.</i>, 2021).</p>	<p>RO1: To examine the direct relationship between the visitors' environmental knowledge, place attachment, types of visitors, preferred management action, and the visitors' responsible behaviour (H1, H2, H3, H4)</p>	<p>RQ1: Is there a direct relationship between the visitors' environmental knowledge, place attachment, types of visitors, preferred management action, and the visitors' responsible behaviour? (H1, H2, H3, H4)</p>	<p>This study unveils the untested direct relationship between visitors' environmental knowledge, place attachment, types of visitors, preferred management action, and the visitors' responsible behaviour in heritage tourism destination.</p>	<p>Alazaizeh <i>et al.</i> (2016), Cheng <i>et al.</i> (2018), and Zhao <i>et al.</i> (2016)</p>	
		<p>RO2: To investigate the direct relationship between visitors' environmental knowledge, types of visitors, and place attachment (H5, H6, H7)</p> <p>RO3: To investigate the direct relationship between types of visitors and preferred management action (H8)</p>	<p>RQ2: Is there a direct relationship between visitors' environmental knowledge, psychological ownership, types of visitors, and place attachment? (H5, H6, H7)</p> <p>RQ3: Is there a direct relationship between types of visitors with the preferred management action? (H8)</p>	<p>This result provides new evidence on the factors affecting place attachment in heritage tourism destination</p> <p>The result of this study will provide evidence on the relationship between types of visitors and preferred management actions in heritage tourism destination</p>	<p>Buoincontri <i>et al.</i> (2017), Cheng and Wu (2014), Cheng <i>et al.</i> (2013), and Tsaur <i>et al.</i> (2019)</p> <p>Alazaizeh <i>et al.</i> (2016)</p>

Table 1.6: Continued

<p>The mediating effect of place attachment on the relationship between psychological ownership, types of visitors, and responsible behaviour has not been tested before</p>	<p>RO4: To evaluate the role of place attachment as a mediator on the relationship between visitors' environmental knowledge, psychological ownership, types of visitors, and visitors' responsible behaviour (H9- H9a, H9b, H9c)</p>	<p>RO4: Does place attachment play a role as a mediator on the relationship between visitors' environmental knowledge, psychological ownership, types of visitors, and visitors' responsible behaviour? (H9- H9a, H9b, H9c)</p>	<p>The finding of this study will strengthen the existing finding of place attachment as a mediating variable on the relationship between the visitors' environmental knowledge and visitors' Responsible Behaviour.</p>	<p>Buoincontri <i>et al.</i> (2017), Cheng and Wu (2014), Cheng <i>et al.</i> (2013), and Tsaur <i>et al.</i> (2019)</p>
<p>Willingness to conserve is a willingness to spend money, teach, report irresponsible behaviour to protect the heritage site and to make a heritage site a better place.</p>	<p>RO5: To examine the direct relationship between visitors' responsible behaviour and willingness to conserve (H10)</p>	<p>RO5: Is there a direct relationship between visitors' responsible behaviour and their willingness to conserve? (H10)</p>	<p>This study adds types of visitors and psychological ownership as the variables mediated by place attachment that has not been tested in heritage destinations context.</p>	<p>Apps, Dimmock, and Huveneers (2018), Lwoga and Ota, Sakurai, Uehara, and Nakagami (2016)</p>
<p>The majority of studies on the willingness to conserve use willingness to pay to measure the willingness to conserve (Chen & Nakama, 2015; Jin <i>et al.</i>, 2019; Palanca-Tan, 2020; Sherif, 2019) and did not test the relationship between this construct and visitors' responsible behaviour.</p>		<p>This study will provide evidence on the relationship between visitors' willingness to conserve the heritage site and visitors' responsible behaviour. The willingness to conserve construct in this study has a broader coverage than previous studies, which generally used willingness to pay to measure visitors' willingness to conserve.</p>		

1.7.2 Practical Significance

Visitors' responsible behaviour is essential for Borobudur Temple physical sustainability. Previous studies have found that visitors do not obey the code of conduct and management actions in the temple (Lestari *et al.*, 2018). Therefore, understanding the factors that affect visitors' responsible behaviour during their visit to Borobudur Temple will be necessary for policymakers in deciding future regulations for managing visitors. Including management actions into the proposed model will reveal visitors' preferred management actions in Borobudur Temple and assist Borobudur Park and BKB to prepare management action that matches Borobudur visitors' preferences and improve visitors' responsible behaviour during visitation.

The findings regarding types of visitors in Borobudur Temple will also help Borobudur Park and BKB to understand their visitors and prepare further action to increase visitors' responsible behaviour and willingness to conserve the temple. Similarly, the psychological ownership role finding will provide a reference for management in preparing appropriate actions considering visitors' psychological ownership because Borobudur Temple is visited by national and international visitors who may have a different sense of ownership towards the temple.

Willingness to conserve an object is generally defined as people's willingness to spend more money, teach, report others who disobey the conservation-related regulation, and making time to make a site better (Apps *et al.*, 2018; Lwoga, 2016; Sakurai *et al.*, 2016). Therefore, the factors that affect this construct will benefit the stakeholders to devise a long-term plan to protect Borobudur Temple. With a willingness to conserve, the management of Borobudur Temple could protect the temple while generating income and educating people on the conservation-related agenda.

1.8 Scope of the Study

The study aims to examine the antecedents of visitors' responsible behaviour in Borobudur Temple. Previous studies on visitors' responsible behaviour have found that environmental knowledge and place attachment affect visitors' responsible behaviour, directly and indirectly (Cheng & Wu, 2014; Cheng, Wu, & Huang, 2013; Li *et al.*, 2012). The existing studies have also found the relationship between types of visitors and their preferred management actions in the heritage tourism context (Alazaizeh *et al.*, 2016) as a vital strategy in protecting a heritage site. However, the relationship between these variables and visitors' responsible behaviour in heritage tourism has not been tested in the previous studies. Using McKercher's typology of cultural tourists, this study looks into the relationship between different types of visitors, based on their motivation to visit Borobudur Temple and their depth of experience, and their responsible behaviour. Visitors' environmental knowledge, types of visitors, psychological

ownership, and preferred management actions will be used to explain their responsible behaviour in Borobudur Temple.

Borobudur Temple is selected because this Buddhist Temple is valuable both for local and international visitors, marked by its high number of visitations. There have been reports on the threat to the temple from the irresponsible visitor's behaviour, which is why it is essential to conduct a study on visitors' responsible behaviour in this temple. The population of this study is the national and international visitors who have been visiting Borobudur Temple to reveal their behaviour during their visit. Visitors are selected because they directly impact Borobudur Temple's physical sustainability through their irresponsible behaviour during visitations. Lestari *et al.* (2018) find that visitation poses a significant threat to the temple. Even though management actions have been implemented to reduce the threat, visitors still behave irresponsibly by violating the visitor's code of conduct in Borobudur Temple. Therefore, visitors are the most related stakeholders regarding Borobudur Temple's physical sustainability.

1.9 Operational Definition

The definition of each variable was adopted from previous existing studies. The operational definition and conceptualisation of the construct used in this study are summarised in Table 1.7.

Table 1.7: Construct Definition and Conceptualisation

Construct	Description	Source
Heritage Tourism	Tourism centred on what was inherited and motivated by the heritage attributes of the destination	Poria, Butler, and Airey (2001, 2003), and Yale (1991)
Visitors' environmental knowledge	The ability to recognize the environmental problem, the causes, and the consequences of the issues	Cheng and Wu (2014) and Haron, Paim, and Yahaya (2005)
Types of Visitors	People who visit the historic site (Borobudur Temple), regardless of the main reason for travelling, are categorized based on the importance of heritage site in travel decision and their depth of experience with the heritage site	McKercher (2002)
Psychological Ownership	A sense of possessiveness toward a target of ownership even though there is no legal proof exist to back up the claim of ownership	Vandewalle <i>et al.</i> (1995)
Place Attachment	Place dependence Visitor's functional attachment to a place and awareness of its uniqueness that fulfils their visitation goals Place identity The connection between place and a visitor's identity that contains both cognitive and affective element Place affect Affective link developed by a visitor through a sentiment of the destination Place social bonding A connection developed because a destination facilitates interpersonal relationships and fosters a sense of belonging <i>Direct management actions</i> Controlling visitor behaviour through the enforcement of regulations and limiting activities or use <i>Indirect management actions</i> Controlling visitor behaviour by changing the decision factors may include educating and informing visitors about the appropriate behaviour at a site Actions that represent visitors' concern toward the object and voluntarily performing actions to minimise the impact of their visit On-site behaviour Actions during visitation General behaviour	Ramkissoon <i>et al.</i> (2013)
Preferred Management Action		Alazaizeh <i>et al.</i> (2016)
Visitors' Responsible Behaviour		Cheng <i>et al.</i> (2018)
Willingness to Conserve Heritage	General actions that are performed to minimise the impact The decision to engage in conservation through spending, informing others, reporting vandalism on the built heritage, and trying to make the site a better place	Lwoga (2016), Sakurai <i>et al.</i> (2016)

1.10 Organisation of the Thesis

This thesis is divided into six chapters, the introduction, literature review, conceptual framework and hypothesis development, methodology, analysis and results, and discussion, contribution, limitation, recommendation, and conclusion. The first chapter is an introductory chapter that provides a general description of the background of the study. The study area subsection describes the location and physical attributes of Borobudur Temple, the current management, tourism, and research that have been conducted. The problem statement explains the detailed industrial and academic gaps in the study area, followed by the study's objectives and research questions. The scope of the study and the justification is explained. The academic and practical significance of the study is described in the research significance subsection. Finally, the last two subsections describe the operational definition of variables and explain the organisation of the thesis.

The second chapter is the literature review. It discusses the existing literature on cultural and heritage tourism followed by the existing research on the research variables: ERB, environmental knowledge, psychological ownership, types of visitors, place attachment, preferred management actions, Visitors' Responsible Behaviour, and willingness to conserve. Each sub-section explained each variable's definition, dimensions, and conceptualisation, followed by a chapter summary.

The third chapter explains the theories used in developing the theoretical frameworks and hypothesis development. The underpinning model from the existing studies, the modification, and the fundamental theories are described in theoretical framework development. The following section, hypothesis development, discusses the hypothesised relationship between the variables. The fourth chapter describes the methods used to answer the research questions. The research design, approach, and strategy to answer the research questions are discussed in this chapter. Next, the target population, samples, sampling technique, and justifications are described, followed by the instrument development, data collection procedures, and how the collected data were processed to test the proposed hypothesis.

Chapter five discusses the results and analysis of the collected data. This chapter explained the survey's response rate followed by all preliminary analysis steps: response rate, missing values analysis (MVA), outlier analysis, Common Method Variance (CMV), descriptive statistics, and normality test. Structural Equation Modelling (SEM) results on the hypotheses are also discussed in this chapter, including the measurement model assessment, structural model assessment, and mediation relationship analysis. The chapter is concluded with a summary of the main findings.

Chapter six contains the discussion on the findings and contribution of each result in theoretical and practical fields. This chapter also discusses the limitation of the study and direction for future research, concluded with a research conclusion.

1.11 Chapter Summary

This chapter introduces the background of the research, the area of research, and the formulation of the problems. The objectives and questions of the study are explained together with research significance, scope, and definition of the variables. The last sub-chapter introduces the organisation of the thesis. This chapter also explains the detail of the study area: Borobudur Temple, its management, tourism condition, and the existing problems and research that focuses on this WHS. The next chapter will discuss the review of the current literature to determine the definition, dimension, and conceptualisation of each research variable. Previous studies on each variable and the factors affecting each variable are also discussed in the next chapter.

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