

UNIVERSITI PUTRA MALAYSIA

VALUE BELIEF NORM APPROACH FOR DETERMINING PICKING UP LITTER BEHAVIOUR AMONG VISITORS AT PENANG NATIONAL PARK, MALAYSIA

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By

ZAMRU AJUHARI

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

June 2016

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

VALUE BELIEF NORM APPROACH FOR DETERMINING PICKING UP LITTER BEHAVIOUR AMONG VISITORS AT PENANG NATIONAL PARK, MALAYSIA

By

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June 2016

Chairman : Associate Professor Azlizam bin Aziz, PhD Faculty : Forestry

This study looks for an indirect management tool that can address the issue of visitors' depreciative behaviour at Penang National Park (PNP). Specifically, this study is objectify at determining visitors' salient beliefs, modal salient beliefs, and most important beliefs as measured through environmental beliefs (Awareness of consequences -AC, Environmental concern -EC, and Ascribed responsibility -AR) as outlined in Value Belief Norm Theory for the use of persuasive communication to encourage litter pick up thus redusing the amount of litter in the park. To answer the research questions and objectives, this study was divided to two phases: beliefs elicitation study and beliefs measurement phase. For both phases, litter were placed on the trail and visitors were observed by either picking up or not picking up the litter that has been placed earlier as they encountered onsite.

Result from content analysis for belief elicitation study shows that there were a total of 41 salient beliefs were elicited with the frequency of 175 for compliers and 156 for non-compliers. Furthermore, a total of 20 modal salient beliefs have been determined and carried out to the next phase of the study. For the second phase of the study, 20 modal salient beliefs were carried out including 8 items measuring personal norm (PN) into the fix-item questions by asking visitors to rate their agreement on each item in EC, AC, AR and PN to the scale of 1 to 5 (1 being strongly disagree while 5 being strongly agree). For that purpose, a total

of 276 visitors were systematically random sampled consisted of 138 compliers and 138 non-compliers.

Findings reveal that all beliefs (EC, AC and AR) were positively correlated to PN with EC (r=.81, p=.01) was highly positively correlated to PN as compared to AC (r=.73, p=.01) and AR (r=.62, p=.01). Moreover, multiple regression equation ($r^2=.69$, p=.01) showed that EC (B=.61, p=.01) had the most influence on PN as match up against AC (B=.19, p=.02) and AR (B=.26, p=.01). Based on the result, it can be assumed that persuasive messages that is intended to encourage visitor to pick litter in PNP can be enhanced through EC-beliefs spectrum. Therefore, independent t-test was conducted to determine beliefs with persuasion potential by distinguishing EC beliefs for both groups. Based on the analysis, there were two EC beliefs with persuasion potential: "I am concerned about the environmental problem that litter may bring because of the consequences for the plants and wild animals in the park" (M=4.40, SD=.84) and "I'm concerned about the environmental problem that litter may bring because of the consequences for the next generations" (M=4.56, SD=.71). Based on the finding, it could be useful for PNP to consider both of the beliefs above for persuasive communication intervention such as persuasive signage at PNP to reduce the amount of litter in the park. This paper adds to growing body of literature informing the use of theory-driven approaches to influence the leisure behaviour in the protected areas.

Abstrak tesis yang dikemukakan ke hadapan Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk ijazah Master Sains

PENDEKATAN NILAI, KEPERCAYAAN DAN NORMA UNTUK MENENTUKAN PERILAKU MENGUTIP SAMPAH DI KALANGAN PELAWAT DI TAMAN NEGARA PULAU PINANG, MALAYSIA

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Pengerusi : Profesor Madya Azlizam Aziz, PhD Fakulti : Perhutanan

Kajian ini merupakan menisfestasi kepada kaedah pengurusan secara tidak lansung untuk mengurus dan menangani perilaku pelawat yang bersifat tidak pro-alam semulajadi di Taman Negara Pulau Pinang (TNPP). Secara khususnya, kajian ini bertujuan untuk mengenalpasti tiga jenis kepercayaan pelawat terhadap perilaku mengutip sampah; kepercayaan penting, kepercayaan penting berfrekuensi tinggi (*modal*) dan kepercayaan yang mempunyai pengaruh tertinggi yang diukur melalui kepercayaan terhadap alam semuljadi (AC- kesedaran terhadap kesan, EC – kebimbangan terhadap kesan kerosakan alam semulajadi dan AR- rasa tanggungjawab untuk mengurangkan kerosakan alam semulajadi) yang digariskan di dalam Teori Nilai, Kepercayaan dan Norma (VBN) berkaitan perilaku yang bersifat pro-alam semulajadi bagi tujuan komunikasi persuasif untuk menggalakkan pelawat mengutip sampah di TNPP.

Untuk menjawab persoalan dan mencapai objektif kajian, kajian ini dibahagikan kepada dua fasa; kajian elisitasi kepercayaan dan fasa pengukuran kepercayaan. Keputusan daripada fasa kajian elisitasi kepercayaan yang dilakukan secara anilisis kandungan menunjukan sebanyak 41 kepercayaan penting telah direkodkan dengan kekerapan sebanyak 175 untuk kumpulan pelawat yang mengutip sampahdan 156 bagi kumpulan yang tidak mengutip sampah. Seterusnya, sebanyak 20 kepercayaan penting berfrekuensi tinggi telah dikenalpasti dan dibawa ke fasa seterusnya dalam kajian ini.

Untuk fasa kedua kajian, 20 kepercayaan penting berfrekuensi tinggi dan sebanyak lapan penyataan yang digunakan untuk mengukur norma peribadi (PN) telah diukur di dalam soalan berbentuk tertutup dengan meminta pelawat untuk menentukan persetujuan mereka terhadap setiap penyataan yang telah digunakan untuk mengukur EC, AC, AR dan PN dengan skala 1 hingga 5 (1 adalah sangat tidak setuju manakala 5 adalah sangat setuju). Untuk tujuan tersebut, sampah sekali lagi telah diletakkan di atas laluan denai dan seramai 276 orang pelawat yang terdiri daripada 138 orang dari kumpulan pelawat yang mengutip sampah dan 138 orang dari kumpulan pelawat yang tidak mengutip sampah telah disampel secara sistematik. Kajian mendapati bahawa semua kepercayaan (EC, AC dan AR) adalah berkolerasi secara positif kepada PN di mana EC (r= .81, p= .01) telah didapati mempunyai kolerasi tertinggi dengan PN berbanding AC (r= .73, p= .01) dan AR (r= .62, p= .01).

Seterusnya, Persamaan Regresi Berganda (r²= .69, p= .01) menunjukkan bahawa EC (B= .61, p= .01) mempunyai regrasi tertinggi terhadap PN berbanding AC (B= .19, p =. 02) dan AR (B= .26, p= .01). Berdasarkan persamaan tersebut, komunikasi persuasif untuk menggalakan pelawat untuk mengutip sampah di TNPP boleh dipertingkatkan melalui kepercayaan yang terdapat di dalam EC. Dengan itu, Ujian-t bebas telah dijalankan untuk mengenalpasti kepercayaan yang mempunyai potensi persuasif dengan membezakan kepercayaan di dalam EC berdasarkan kedua-dua kumpulan pelawat. Berdasarkan analisis, terdapat dua kepercayaan EC yang mempunyai potensi persuasif: "Saya berasa bimbang akan kesan kerosakan alam semulajadi akibat kehadiran sampah kepada tumbuhan dan haiwan di dalam taman ini" (M= 4.40, SD= .84) dan "Saya berasa bimbang akan kesan kerosakan alam semulajadi akibat kehadiran sampah di taman ini untuk generasi akan datang " (M= 4.56, SD= .71). Berdasarkan hasil analisis tersebut, pihak TNPP dicadangkan untuk menggunakan kedua-dua kepercayaan tersebut sebagai salah satu inisiatif untuk mengurangkan jumlah sampah di taman negara.

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In the name of God, Most Gracious, Most Merciful, Read in the name of your Lord, Who created- Created man, out of a (mere) clot of congealed blood. Read! And thy Lord is Most honourable. He Who taught (the use of) the pen,-Taught man that which he knew not. Nay, but man doth transgress all bounds, In that he looketh upon himself as self-sufficient. Verily, to thy Lord is the return (of all).

> For all the trees had been stand tall beside me, My shade in the sun, shelter in rain, For all the trees, I breathe herein, And my big shady trees;

Late Father and beloved Mother, Brothers and sisters, Honourable teachers and admirable Guru, Love and Friends, With whom I live for the sun, And died for the light,

Penang National Park, the best place on the earth, The assistance, kind-hearted and for all the romanticized hospitality, Will not be forgotten,

It's been four years, And yet, it literally does not felt like years had melted down before me, And the lust for procrastinate, Always superior, for any of us,

> Keep asking Mr.Time Keeper How much time do we have? He said Who is really has the luxury of time? Times keep running out. Always and, Something will always be in the way.

This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the Master of Science. The members of the Supervisory Committee were as follows:

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LIST OF ABBREVIATIONS

PNP	Penang National Park
UNESCO	United Nation Educational, Scientific, and Cultural Organization
IUCN	International Union for Conservation of Nature
ELM	Elaboration Likelihood Model
VBN	Value Belief Norm Theory
AC	Awareness of consequences
EC	Environmental concern
AR	Ascribed responsibility
PN	Personal norm
ТРВ	Theory of Planned Behaviour

CHAPTER 1

INTRODUCTION

1.1 General Background

After 27 years since Ceballos-Lascurain (1987) first published one of the earliest definitions of ecotourism, Kiper (2013) stated that ecotourism is claimed to be the only sustainable tourism development that contributes to the minimal impacts towards the environment. Ecotourism is not just travelling to the different or unusual natural and wild environment but it focuses on the positive experiences that lead to environmental education, provide benefits to nature parks where they have been and are still being established to conserve the biodiversity and protect ecosystems for the current and future generation (Shoo & Songorwa, 2013; Baral, Stern, & Bhattarai, 2008; Benitez, 2001).

However, ecotourism cannot be succeeded in realizing its objectives without positive visitors' involvement since many of the common threats of the ecotourism resources are rooted back to the visitors' depreciative behaviours (Arias, 2015; Hammit, Cole & Monz, 2015; Gossling & Schumacher, 2010; Dwyler, Forsyth, Spurr & Hoque, 2010; Brown, Ham, & Hughes; 2010; Leung, Marion, & Farell, 2001). Among the examples of visitors' depreciative behaviours are including illegally collecting flora and fauna (Kim, Airey & Szivas, 2011; Chang, 2010), disturbing wildlife (Chen, 2011; Ballantyne, Packer, & Sutherland, 2011), polluting and littering (Rodríguez-Rodríguez, 2012; Logar, 2010; Brown *et al*, 2010), overcrowding (Dickinson & Robbins, 2008; Poitras & Getz, 2006) tree carving and creating new cutback trails (D'Antonio, Monz, Newman & Lawson, 2012).

Realising this, the so-called "stick" and "carrot" management approaches are implemented in the protected area management as the means of managing and minimising visitors' depreciative behaviours. The idiom of "carrot and stick" approaches have long been recognised in the management practice where it is characterised by offering a combination of reward and punishment in influencing employees' behaviour in certain corporation or organisation. "Carrot" refers to the indirect approach where rewards and incentives are offered to those who behave according to the management objectives. "Stick" refers to the direct management approach where punishment is given to those who are acted in the opposite way of management objectives. In the context of protected area, direct management approaches include regulation, fine, summonses, compound, establishment of barriers and other form of activities restraint as the means to control the visitors' depreciative behaviours. As examples, proper design of trails and barrier are established to minimise the short-cutting behaviour. Although direct management approaches are considered effective in managing visitors' depreciative behaviours, Ham, Brown, Curtis, Weiler & Poll (2009) argued that it does not work for most of time and are not a desirable way to influence behaviours because;

- 1. Policing of behaviours and enforcement of regulation required times and money (expensive).
- 2. Negative effects on visitors' overall experiences and their sense of freedom (volitional of control) in the park.
- 3. Direct management approaches that seek to control and limit behaviours may also raise issues in relation to political acceptability, community support and social injustice.

Thus, indirect "carrot" approach is suggested because it allows volitional of control, where it is suitable to the notion of leisure that typically associated with protected areas. Moreover, indirect approach directs visitors to comply voluntarily towards the desired behaviours in the protected area. Indirect approach refers to the condition where visitors are encouraged to act compliantly by providing information (persuasion) about the desired behaviour in the park (Ham *et al.*, 2009). Such implementation of indirect approaches in the protected area and ecotourism destination required an intervention process where it is defined as a process of influencing individuals' decisions and behaviours (Schultz, Bator, Large, Bruni & Tabanico, 2013; Clayton & Myres, 2009; Saunders, Brook, & Eugene Myers, 2006).

In the protected area management, persuasion as indirect management approach is considered as the key elements in maintaining biodiversity of the protected areas and ecotourism destinations (Gossling & Schumacher, 2010; Dwyler *et al.*, 2010; Brown, Ham, & Hughes; 2010; Steg & Vlek, 2009; Abrahamse, Steg, Vlek, & Rothengatter, 2005, Lehman & Geller, 2005; Leung, Marrion, & Farell, 2001; Priskin, 2001; Schultz, Oskamp, & Mainieri, 1995). Persuasion often has been used as the ground premise to generate positive attitude towards particular behaviour and enhancing the potential for visitors to perform the desired behaviour in the protected areas (Curtis, Ham & Wieler, 2010; Ham *et al.*, 2009; Steg & Vlek, 2009; Marrion & Reid, 2007; Ham & Weiler, 2005). Moreover, it can be used to increase visitors' knowledge, awareness, perception, motivation and norms to increase the likelihood for visitors to perform the desired behaviour (Arias, 2015; Wynveen, Wynveen& Sutton, 2015). Besides that, the use persuasive communication allow visitors' volitional of control in ecotourism destination where it generates better experiential freedom for the visitors (Curtis *et al.*,2010) since it is well-suited with leisure activities which constituted the major products in ecotourism destination (Marrion & Reid, 2007; Ham & Weiler, 2005). Lehman & Geller (2005) and Ham (2009) stated that persuasive communication is effective especially when the target behaviour is easy to perform, the message is clearly defined, and it is displayed close proximity to the place where the target behaviours can be performed.

As examples, Burn & Winter (2008) stated that prompt and persuasive communication can be used to minimise the ignorance barriers to proenvironmental behaviours which occur when visitors are unaware of the negative consequences of their actions towards the environment. Other than that, Zinn & Manfredo (2000) underlined two reasons why it is important for ecotourism and protected area management to understand the responses of persuasion. First, in most of ecotourism and protected area, the presence of management is minimal, therefore, persuasion is considered feasible in modifying visitors' behaviours because it is less restricting and more direct visitor controls.

1.2 Problem statement

Previously known as PantaiAcheh Forest Reserve, Penang National Park (PNP) (Figure 1.1) was declared and gazetted under the National Park act 1980 on April 10, 2003. PNP located on the north-western part of Penang Island is consisted of 1181 hectares of forest and 1381 hectares of wetlands are managed by the Department of Wildlife and National Park (DWNP). DWNP which was established under the Wildlife Protection Act 1972 is the sole department responsible for the protection, management, preservation of wildlife and national park in Peninsular Malaysia. In line with that purposes, national park is established for the purpose of preservation, allowing and encouraging education, recreation and tourism purposes especially as ecotourism destination. However, the growth of visitors has led to concern on the negative environmental impact caused by visitors' depreciative behaviours in many ecotourism destinations all over the world (Brown *et al*, 2010; Leung, Marrion & Farell, 2001).

In this case, while the potentials of PNP as one of the ecotourism destinations in Malaysia is underlined through several strategic sustainable development initiatives by DWNP, detrimental impacts of recreation activities on the PNP's environment is inevitable due to exponential growth in number of visitation (Table 1.1) to PNP in recent years.



Figure 1.1: Penang National Park Source: <u>www.PulauPinang.com</u> (2016)

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Year	Total	-
2005	12,547	-
2006	27,484	
2007	31,300	
2008	55,762	
2009	69,667	
2010	86,664	
2011	88,443	
2012	108,278	
2013	115,915	

Table 1.1: Tourist arrivals in Penang National Park

Source: Penang National Park Administration (2013)

Environmental degradation of PNP has been reported in many previous studies including (Fallah, Makmom, Aziz, Bose, Abdullahi, Mazlina, Mande, Azadeh, Shadi, 2014; Hong & Chan, 2011; 2010; 2010; Hafizal, 2008; Chan, Zakaria & Ab Ghani, 2004) which mainly occurred due to the visitor depreciative behaviours such as vandalism, short-cutting, noise at the campsite, established undesignated trails, wood burning, trampling on natural trails, and vegetative clearing (Hafizal, 2008). As for the litter problems, cases of littering also has been reported by media and previous researches including popular travel website such as Trip advisor (Trip advisor, 2015), local newspaper (The Star, 2013) and (Hong & Chan, 2010; Chan, 2009; Hafizal, 2008) make it one of the major problem behaviours in PNP. With recent growth of social media, the park authority and tourism authority at large cannot simply ignoring littering problem at PNP.

Furthermore, Fallah *et al.*, (2014) stated that PNP needs to prioritize their management on the solid waste pollutions such as litter to ensure the conservation of the biodiversity and maintenance of the park's scenic beauty are treasured in future. Moreover, the presence of litter also poses several potential threats and detriment towards the recouces and visitors experience in the park. In term of health hazard, littering contributes to some serious threat to human health and wellbeing through exposure to infection and biological contaminants, odour nuisance, and an increased number of vermin (rodents and insects) which breed and act as disease factors such as *Leptospirosis*.For examples, a series of *Leptospirosis* cases were reported in five Malaysian recreational forests (Lim, Murugaiyah, Ramli, Rahman, Mohamed, Shamsudin & Tan (2011) in which had claimed several deaths. Similar hazard was also reported in PNP as its popular canopy walkway was closed for more than a year in 2011 due to the outbreak of *Leptospirosis* that was resulted from the litter problem in the park.

Moreover, with the sight of litter, it has the potential to affect other visitors' satisfaction (Reisinger & Turner, 2003) and this will affect their experience quality while spending their time in ecotourism area (Kao, Huang & Wu, 2008; McCool & Lime, 2001). In consequence, the feeling of dissatisfaction and low experience quality will affect visitors' destination loyalty thus affecting the destination image of the ecotourism destination of PNP in future. As stated by several authors, visitors' depreciaitve behaviours are mainly the products of naiveté or misconception rather than malicious intent (Ham, 2013; Ham et al., 2009, Ham, Weiler, Hughes, Brown, Curtis & Poll, 2008; Gramann & Vander Stoep, 1987; Vander Stoep & Gramann, 1987) make it suitable to be managed by adopting persuasive communication strategy. Therefore, adopting and encouraging pro-environmental behaviours in ecotourism destinations is consider as crucial in order to maintain the quality and authenticity of the ecotourism destination so it can still be relevant in future. Since many of the ecotourism areas are now is affected by the visitors' depreciative behaviours, this study was designed to focus at the littering behaviours by adopting the persuasive communication strategy to determine persuasive messages that can be implemented in PNP to address littering behaviours.

1.3 Justification of the study

As previously discussed, litter is one of the major negative impacts of tourism activities and it occurred in most of the protected areas in the world. The sight of litter often can be seen in the concentrated areas such as camping and picnic areas, trailheads, and rest areas. In fact, littering is the most obvious and everpresent depreciative behaviours that occurred in most of the protected areas around the world. Furthermore, it brings:

- Negative effects on the natural environment and visitors' experience (Brown *et al.*, 2010; Kaseva & Moirana, 2010; Buckley, Weaver & Pickering, 2003; Chin, Moore, Wallington & Dowling, 2000; Mathieson & Wall, 1982).
- 2. Litter poses social problems that lead to unlawful act (Keiser *et al.*, 2008).
- 3. Litter associated human health hazards, safety hazards, fire hazards, and indirect health hazards from bacteria, rodent, roaches and mosquitoes that are attracted to litter (Schultz *et al.*, 2009).

For this reason, with such potential threats that could occur due to the presence of litter, this so-called problem behaviours can be minimised by influencing visitors' depreciative behaviours towards pro-environmental actions (Schultz, 2011; Brown *et al.*, 2010; Steg & Vlek, 2009; Ham *et al.*, 2009; Clayton & Myres, 2009; Saunders, Brook, & Eugene Myers, 2006).

Influencing problem behaviours in the protected areas can be done by using persuasive communication where problem behaviours are identified and influenced towards the desired behaviours in the park. The term "influencing behaviours" refers to an act of reinforcing, changing or creating new behaviours depending on how it influenced the problem behaviours (Schultz, 2011; Clayton & Myres, 2009; Saunders, Brook, & Eugene Myers, 2006). Some visitors may already have the intention to comply with the rules and regulations, thus by influencing them could result in the reinforcing or strengthening their behaviours occurred because of the misconception, naiveté or ignorance, thus by influencing these behaviours could result in changing and creating new compliance behaviours in line withthe management objective (Curtis *et al.*, 2010).

Formative persuasive behavioural intervention approach refers to the intervention strategy that is designed to target specific problem behaviour by using specific persuasive messages where it has been designed to be appealing to the visitors. This is because, many of the persuasive communications that are designed to influence depreciative behaviours in the protected areas were based on park manager and researchers' own intuition and some of it were implied from previous studies that were assumed to target similar behaviours from different population (Curtis *et al.*, 2010; Fishbein & Middlestadt, 1995). Moreover, Brown *et al.*, (2010) stated that while previous studies are very useful for the situations in which they were conducted, most have not focused on identifying the cognitive determinants of the specific behaviour in a protected area, or on the clearly defined messages that might be successful in bringing about the behaviour.

Therefore, this study is intended to comply with those upbringings by focusing on determining the underlying factors of the problems behaviour(reason to perform the behaviour) for persuasive communication intervention to reduce the amount of litter in PNP. While there is no persuasive signage was used for the purpose of this study, the result can be a useful insight for the park authority in reducing litter in the park. In doing so, this study relies on the principle that has been developed by Ham and colleagues such as Ham & Sewing, (1988), Ham, (1992; 1999), Ham & Krumpe (1996), Weiler & Ham (2001), Powell & Ham (2008), and Ham &Weiler (2012) to name a few where persuasive communication is effective when:

- 1. Select the behaviour to be changed,
- 2. Identified factors that caused the behaviour (reason to perform behaviour)
- 3. Select intervention and design persuasive communication
- 4. Evaluation of the persuasive communication and its effect towards the objectives.

1.4 Conceptual Framework

Based on the principle that has been developed by the previous researchers, the first step in developing persuasive messages that are intended to address the depreciative behaviour in the park is by selecting the behaviour that needed to be changed. It refers to the process of identifying the problem behaviours that have to be influenced towards the needs of the management objective. Problem behaviour is referring to the depreciative action that has the potentials to bring the negative effect towards the natural resources in a given environment. Determination of the problem behaviour can be done based careful observation on how frequently it happens or which of it has the most potential for negative consequences towards the environment. Besides frequency and potential effects, secondary information that can be collected from the previous studies can be a useful tool as an added value in understanding the nature of the problem behaviours.

In the literature of minimising littering behaviour, Brown et al., (2010) stated that such efforts can be done by reducing the incidence of littering behaviour and encouraging visitors to pick up litters that were improperly disposed of previously by other visitors. In the case of littering, the previous study has shown that visitors tend to litter in the area which litters can be seen (Kaiser, Lindenberg & Steg, 2008; Cialdini, Kallgren & Reno, 1991; Cialdini, Reno & Kallgren, 1990). It happened due to a number of reasons such as social norms within that area is allowing (it is right to do so or no one care about that action) such action (dropping rubbish or improperly dispose of waste) to happen (Burn & Winter, 2008). Litter problem also occurred due to the fewer bins can be found in that area and visitors are intentionally disposing of litter anywhere they wanted because their inner side is telling them (psychological states) that it is a wrong thing to do. Thus, it can be concluded that littering behaviour occurred due to the misconception, naiveté, and ignorance of the visitor that has made it feasible to be influenced by using persuasive communication that is targeted at the problem behaviour and encourage visitors to act towards proenvironmental behaviour (Ham et al., 2009).

In the protected areas, Brown *et al.*, (2010) stressed that encouraging visitors to pick up litter instead of reducing litter incident may be a feasible option in reducing litter because of several reasons;

- 1. Visitors in the protected areas have the tendency to pick up the existing litter other than to properly deposit their own.
- 2. Pro-environmental moral obligations (personal norms) are more accessible in a natural setting, thereby activating altruistic behaviour such as picking up litter.
- 3. Picking up litter allowed visitors to have more enjoyable experience in the area they visited.
- 4. Encouraging little pick up using persuasive communication has shown positive results on both adult and children in the protected areas.

Thus, it can be said that encouraging the visitor to pick up litter could be a feasible option for PNP in minimising the negative consequences as well as reducing the potential threads that litter may bring to PNP in the future. Therefore, by following the principles that have been developed by Ham and colleagues, this study was designed focusing on the littering behaviour that is specifying at using persuasive communication to encourage visitors to pick up litter in the PNP. The implementation of persuasive communication in encouraging pro-environmental behaviours in protected area needs to be tailor-made to the setting and its users. Thus, theory-driven approach are suggested in designing persuasive messages where it is designed based on specific persuasive messages that are appealing to the visitors and targeting at specific behaviour. This is because the reason to perform behaviour varies from population to population where it is much affected by the cultural values and norms of a certain area.

As an example, Curtis *et al.*, (2010), found that the underlying factors of visitors to perform the same behaviour in two different locations in the two Australian national parks are different. Therefore, better understanding on how behaviour is performed and determines the factors that are amenable to persuasion is crucial in implementing effective persuasive communication strategy. The rationale of this approach lies in the Elaboration Likelihood Model (ELM) by Petty & Cacippo (1986). Model of persuasion such ELM, a well-known and most tested model on persuasion (Cheng & Loi, 2014) postulates that people are influenced through two paths of persuasion (central and peripheral routes).The central route refers to thoughtful consideration of a message or its arguments. It is considered as the main goal in the behavioural change intervention studies since it is assumed to produce lasting shifts in attitudes and behaviour.

In contrast, the peripheral route is the results of simple attention in persuasive message processing cues where it produces short or no shift in behaviour and attitude. In the context of protected area, both of the routes to persuasion are important to the park manager in minimising the depreciative behaviour since it resulted in the shift of behaviour in the park regardless which routes it takes. Central route and peripheral route are the results of elaboration condition which refers to the conditionof processing the persuasive messages. ELM postulates that the degree and nature of the elaboration condition depend on an individual's motivations and abilities to process that message. Motivations and abilities are said to be the core determinants in determining the effect of one particular persuasive message.

As stated in many of the previous studies including (Milne & Adams, 2012; Brown *et al.*, 2010; Clements, John, Nielsen, An, Tan & Milner-Gulland, 2010; Oreg & Katz-Gerro, 2006; Boldero, 1995), greatest success in influencing people's behaviour is coming from understanding what people think about a particular behaviour. Theory of pro-environmental behaviour such as Value-Belief Norm theory (VBN theory) developed by Stern and his colleagues (Stern, 2000) has provided a framework in understanding the underlying factors of pro-environmental behaviour. According to VBN theory, pro-environmental behaviours are the result of the activation of personal norms (PN) that are activated by beliefs about the awareness of consequences (AC), environmental concern (EC), and ascribed responsibility to act (AR) that are guided by values orientations about oneself (egoistic), other human (social altruistic) and biospheric (non-human living organism).

Beliefs (AC, EC and AR) played a major role in activating the personal norms that will result in pro-environmental actions. Therefore, with a combination of ELM and VBN theory, persuasive communication can be designed based on visitors' personal relevance (beliefs as outlined in the VBN theory) to encourage them to pick up litter in PNP. Ham et al., (2009) stated that visitors' beliefs with persuasion potential (personal relevance) about a particular behaviour can be determined using belief elicitation study. Belief elicitation study refers to the process of the identification of the visitors' salient belief (most noticeable and importance beliefs) about the desired behaviour. Visitors' salient beliefs are collected through a series of open-ended questions and evaluated based on its percentage (frequently mentioned). The rationale of this process is visitors may have different beliefs for different kind of behaviours. Thus by determining visitors' salient beliefs to perform a behaviour as a group, modal salient (most frequently mentioned beliefs) can be determined and treated as the "personal relevance" that representing the whole population in the given area.

Moreover, it is crucial to distinguish between the compliers and non-compliers during the beliefs elicitation study. In protected area, visitors who behave according to management objectives are known as "compliers". In contrast, visitors who are performing in the opposite way of protected area management's objective are known as "non-compliers". By understanding what compliers' reasons to perform such target behaviour, persuasive messages can be constructed and targeted it at the non-compliers (Curtis et al., 2010). For the purpose of this study, visitors' salient beliefs based on beliefs as outlined in the VBN theory about picking up litter were collected to determine the salient andmodal salient beliefs. Visitors' modal salient beliefs about picking up litter behaviour in PNP was then measured based on its importance. Comparison of the importance of each modal salient belief between compliers and non-compliers will result in the identification of the beliefs with persuasion potentialto be included in the persuasive communication.

Since VBN theory states that behaviour is activated by personal norms where it is influenced by beliefs (AC, EC, and AR) about oneself, others and biosphere, the most importance beliefs can be determined by measuring their influenced on personal norms. Figure 1.2 below showed the conceptual of this study where it is divided to two phases: beliefs elicitation study and beliefs measurement phase to determine the beliefs with persuasion potential to encourage litterto pick up that can be suggested to PNP as the mean to minimise the amount of litter in the park.



Figure 1.2: Conceptual framework of the study

1.5 Research Questions

Therefore, for the context of this study, in order to encourage visitors to pick up litter in PNP, there are several research questions that needed to be answered in which later have become the objectives of this study. The questions are:

- 1. What are the visitors' salient beliefs (AC, EC and AR) on picking up litter behaviour in PNP?
- 2. What are the visitors' modal salient beliefs (AC, EC and AR) on picking up litter behaviour in PNP?
- 3. Which are the most visitors' importance beliefs (AC, EC and AR) on picking up litter behaviour in PNP?
- 4. What are the visitors' beliefs with persuasion potential on picking litter behaviour in PNP?

1.6 Research objective

The general objective of this study is to determine the visitors' beliefs with persuasion potential on picking up litter behaviour at Penang National Park. In order to achieve the general objective of the study, several specific objectives have been outlined as below:

- 1. To determine visitors' salient beliefs on picking up litter behaviour at PNP as measured through beliefs as outlined in the VBN theory of proenvironmental behaviour,
- 2. To determine visitors' modal salient beliefs on picking up litter behaviour at PNP,
- 3. To determine visitors' most importance belief on picking up litter behaviour at PNP.

1.7 Definition and measurement of key terms

- a. Persuasive communication is the use of communication or symbol (sometimes accompany by image) by social actors for changing another social actors' opinion or behaviour (Dillard, 2010; Yan, Dillard & Shen, 2010). Persuasive communication used in this study was based on visitors' beliefs according to Value-Belief Norm (VBN) theory (awareness of consequences, environmental concern, and ascribed responsibility to act) that have been measured to have the most persuasion potential during the beliefs elicitation and measurement phase.
- b. Pro-environmental behaviour: refer to behaviour that minimally damaging the environment or even profit the environment (Steg & Vlek, 2009). Also known as "environmentally significant behaviour", "environmentalism" and "act environmentally". In this study, pro-environmental behaviour refers to the picking up litter behaviour in PNP.
- c. Awareness of consequences (AC) is defined as the state of one is aware of the consequences of not acting prosocially (pro-environmental behaviour) towards others or other things that one's value (Ryan &Spash, 2012). For the purpose of this study, AC is defined as the state of one is aware of the consequences of picking up the litter in PNP towards other things one's values (egoistic, social-altruistic, biospheric).
- d. Environmental concern (EC) refers to an attitude towards environmental issues (Ryan & Spash, 2012; Fransson & Gärling, 1999; Schultz & Zelezny, 1999; Thompson & Barton 1994), which is an evaluation (Eagly & Chaiken, 1998). In this study, EC is defined as the f one's concern of picking up or not picking up the litter in PNP towards other things one's value (egoistic, social-altruistic, biospheric).
- e. Ascribed responsibility (AR) is defined as about whether there are individual actions that could alleviate threats to valued persons or things (Stern, 2000). In this study, AR is defined as the perceived responsibility one's hold to alleviate the threads of litter to valued persons or things (egoistic, social-altruistic, biospheric).

- f. Personal norms (PN) are defined as a moral obligation to act towards environmentalism (De Groot & Steg, 2009). In this study, PNrefers to the visitors' moral obligation to pick up litter in PNP. PN is the most predicator of pro-environmental behaviour which it is influenced by the beliefs (AC, EC and AR) of egoistic, social-altruistic and biospheric, whereas the higher the beliefs and values will result in the higher moral obligation to pick up the litter in PNP.
- g. According to Epton, Norman, Harris, Webb, Snowsill & Sheeran (2014) and Sutton, French, Hennings, Mitchell, Wareham, Griffin, & Kinmonth, 2003).
- h. Salient beliefs are beliefs that first came to the individuals' mind about a particular behaviour (Epton, Norman, Harris, Webb, Snowsill & Sheeran, 2014; Sutton, French, Hennings, Mitchess, Wareham, Griffin & Kinmonth, 2003). Therefore, in this study salient beliefs refer to the visitors 'importance beliefs (AC, EC and AR) about picking and not picking up litter in PNP. Both of the beliefs about the behaviour under investigation (picking and not picking up litter) were examined through beliefs elicitation study to determine which of the beliefs (AC, EC and AR) that have the most influenced over PN.
- i. Belief with persuasion potentialisdefined as the comparison of the most importance modal salient beliefs between compliers and non-compliers (Ham *et al.*, 2009). In this study, discriminating beliefs refer interchangeably as beliefs with persuasion potential and reason to perform the behaviour. It was measured by distinguishing (statistically significant difference) the modal salient beliefs of the compliers and non-compliers in PNP.
- j. Complier is referring to the visitors who are performing the desired behaviour that is in line with the management objective (Ham *et al.*, 2009). In this study, compliersare defined as those (visitors) who picking up the litter in PNP. It was determined through careful observation that took place at the area of investigation.
- k. Non-complier: vice versa to complier

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