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## The Effect of National Park Mobile Apps on National Park Behavioral Intention: Taman Negara National Park

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### Abstract

National Park Mobile Apps (NPMA) is an interesting construct which might open new paradigm in tourism research in context of national parks. Although previous research investigated tourist behavioral intention in national parks, the effect of NPMA on National Park Behavioral Intention (NPBI) of tourists from developed countries is still lacking in literature. To address this gap, the current study developed a model which includes the effect of NPMA, as well as mediating effect of National Park Satisfaction (NPSat) on tourists' NPBI. The research hypotheses where NPMA, and NPSat have a significant effect on NPBI was examined. A self-administrated questionnaire was distributed among 500 tourists from developed countries visiting Taman Negara National Park (TNNP). The data was examined through deployment of structural equation modelling. The findings revealed that NPMA does not affect NPBI directly, however, NPMA has significant indirect effect on tourists' NPBI through mediation effect of NPSat. Furthermore, NPSat was a full mediator. Findings of this study had practical implication for sustainable NPBI in national parks.

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*Keywords:* NPMA; NPSat; NPBI; tourists from developed countries

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### 1. Introduction

In the last years, the tourism experience has been undergoing changes due to today's mobile apps expansion (Gretzel, 2010). Furthermore, mobile apps offer numerous means by which the tourist constructs the tourism experience by learning, understanding, and feeling the places visited and the cultures embedded in these places (Gretzel, Fesenmaier, & O'Leary, 2006).

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More recently, the emergence of social media enables enormous amount of mobile apps contents to be created by and shared among tourists (Xiang & Gretzel, 2010). As a result, in our daily environments including vacations, mobile apps usefulness consists of not only the decision-making aspects of the trip but also the information and communication needs resulting from tourists' everyday life. For instance, a tourist has needs for entertainment such as listening to music and watching sports games on the go as well as needs for staying current with business-related information (Lamsfus, Xiang, Sorzabal, & Martín, 2013).

However, there is a lack of research on the effect of NPMA on tourists' NPBI. In order to fill this gap, this study aims to develop a theoretical framework to investigate the effect of NPMA on tourists' NPBI, as well as the mediation effect of NPSat. By proposing and subsequently testing the hypothesized relationships among three constructs, this study intends to achieve the following objectives: (1) to investigate the effect of NPMA on NPSat, (2) to investigate the effect of NPMA on NPBI, (3) to investigate the mediation effect of NPSat between NPMA and NPBI, (4) to investigate the effect of NPSat on NPBI.

## 2. Literature Review

### 2.1 Overview of Tourism in Taman Negara National Park (TNNP)

TNNP is one of Malaysia's most famous national park which covers 434,300 hectares of rainforest and is also one of the world's oldest tropical rainforest (estimated to be 130 million years old) encompasses within its borders Tahan Mountain, peninsular Malaysia's highest peak at 2,187 meter above sea level. Although, TNNP is an important ecotourism site and it has noticeable contribution to Malaysia's economy, this national park is in dangerous of losing its attractiveness, since it is not properly managed and it has conservation issues (Daud & Rahman, 2011), thus if this trend continues it will have apparent negative effects on the natural environment which at the end leads to decrease in tourist arrivals (i.e., it may affect tourists' NPBI).

### 2.2 National Park Mobile Apps (NPMA)

The concept of mobile apps used in this study (known as NPMA) is taken from the Technology Acceptance Model (TAM) which was established in 1989 by Davis. TAM is one of the first models which explains technology acceptance and is regarded as main model for understanding individual reactions to technology (Venkatesh & Goyal, 2010). TAM observes usage behavior through behavioral intention (i.e., intention to use) construct which is described as "a predictor of system use" and is affected by two independent antecedents, namely perceived usefulness and perceived ease of use (Davis, 1989; Hsu & Lin, 2008).

TAM suggests that people will use a system or an application (app) if they perceive it to be useful in their work and help them to complete their work tasks better and faster, and therefore perceived usefulness (PEU) is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989; Lee, Yoon, & Lee, 2009). In addition, perceived ease of use (EOU) is defined as the degree to which an individual believes that interaction with a system or an application is free from effort (Davis, 1989; Chang & Tung, 2008). In this study, perceived usefulness defined as the degree to which an individual believed that using a mobile apps enhance his or her performance. Additionally, perceived ease of use was defined as the degree to which an individual believed that using mobile apps is free of effort.

### 2.3 National Park Satisfaction (NPSat)

According to Oliver (1981) "satisfaction is a comparison between performance and expectations". However, this is a definition based on what the consumer does, and not on its psychological meaning, therefore, he defined satisfaction "as pleasurable fulfilment" (Oliver, 1997, 1999). That is, the consumer senses that consumption fulfils some desire, goal, need or so forth and that this fulfilment is pleasurable. This view point of satisfaction reflects on one hand its cognitive nature (exercise in comparing expectations and performance) and, on the other hand, its affective nature (associated feeling of pleasure). Other researchers (Alegre & Garau, 2010; Baker & Crompton, 2000) define satisfaction as the emotional condition of tourist after exposure of visiting a destination. In total, tourist's satisfaction can be defined as the outcome of a precise decision of service performance exceeding the expectations. For example, in the current study, NPSat refers to tourists' perception towards TNNP which compares their pre-purchase expectations and beliefs with post-purchase perception.

### 2.4 National Park Behavioral Intention (NPBI)

According to Chen and Tsai (2007) tourist behavior can be divided into three phase: pre-visitation, during-

visitation, and post-visitation. In more practical terms, these three phases refer to: choice of a destination, subsequent evaluation, and future behavioral intention. In tourism context, behavioral intention are often referred to as: plan to visit, repeat visit and recommending a destination (word-of-mouth). In the current study, NPBI are international tourists' intention towards visiting TNNP. Intention is the will to perform certain activities as Bandura (1986) pointed out, where Anderson (1998) defines it as the customer's (tourist's) intended behavior after a service encounter, including return, exist, switch, and engage in positive or negative word-of mouth communications about the business, while Oliver (2014) defines it as an affirmed likelihood to engage in a certain behavior. The theoretical framework of the study is an extension of Theory of Planned Behavior (TPB) by Ajzen (1985), including TAM (Davis, 1989) and expectation disconfirmation theory (Oliver, 1980, 2014) incorporating NPMA, NPSat and NPBI constructs.

### 2.5 Research Hypotheses and Proposed Theoretical Framework

Based on the review of the literature above, the following hypotheses are proposed:

H<sub>1</sub>: There is a significant relationship between NPMA and NPSat.

H<sub>2</sub>: There is a significant relationship between NPMA and NPBI.

H<sub>3</sub>: NPSat mediates the relationship between NPMA and NPBI.

H<sub>4</sub>: There is a significant relationship between NPSat and NPBI.

With the above hypotheses, this study proposes a theoretical framework (Figure 1). The theoretical framework displays the relationships among NPMA, NPSat, and NPBI.

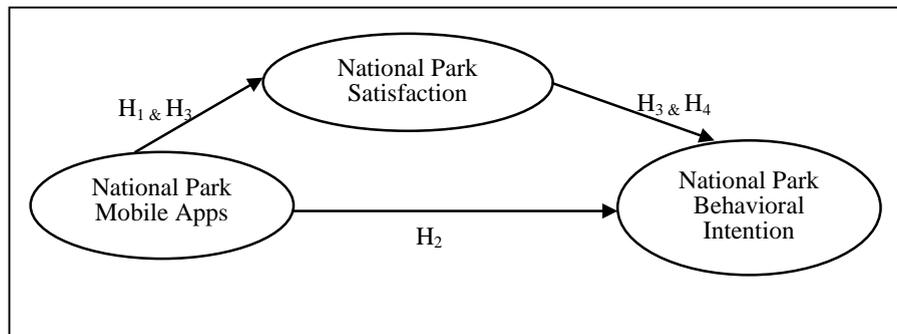


Fig. 1. Theoretical Framework

## 3. Methodology

To empirically test the current study hypotheses, multi-item scales used in previous studies were identified and modified to suit with the study setting. A questionnaire with three constructs was designed to capture tourists' NPBI in TNNP. The NPMA was operationalized as consisting of two dimensions. These dimensions of perceived ease of use and perceive usefulness were measured using previous studies (Ayeh, Au, & Law, 2013; Hopken, Fuchs, Zanker & Beer, 2010; Wang & Fesenmaier, 2013) established scales and has adjusted for the current study purpose. NPSat construct was measured following four items from previous research (Choi & Chu, 2000; Gill et al., 2007; Oliver, 1997). NPBI was measured using five items (Chen & Tsai, 2007; Gallarza & Saura, 2006; Gokovali, Bahar, & Kozak, 2007; Zeithaml, Berry, & Parasuraman, 1996). Each of the three constructs was measured using a 7 point Likert-scale: The items were rated on a 7-point Likert-scale ranging from strongly disagree (1) to strongly agree (7). This survey was conducted among international tourists from developed countries to evaluate their NPBI towards visiting TNNP. A total of 500 tourists were asked a series of questions related to their beliefs towards the NPMA, NPSat on their NPBI. After screening the data, only 384 samples were deemed usable.

## 4. Findings and Analysis

### 4.1 Tourist Profile

The female respondents (59.7%) were slightly more as compared to male respondents (40.3%). The respondents were mainly between 25 to 34 years old (53.8%). Of the sample, 62.5% were single, 37.5% were married. The majority of the respondents were from UK, Germany, France, and Spain. In terms of revisit most of them (99.3%)

was first time visitors and only few were repeat visitors. Almost more than half (58.7%) of the respondents had university education, 35.1% has some college education, and 2% had a high school education or less. Occupation of respondents are diverse, however, employed (86.5%), student (9.3%) and unemployed (4.2%) represents majority of them. Majority of the respondents (57.2%) earned more than USD 2,500 monthly but less than USD 5,000.

#### 4.2 Descriptive Statistics and EFA Results for NPMA

Table 1 shows the descriptive statistics and EFA results for NPMA. Mean score indicated that for tourists visiting TNNP it is easy to get mobile apps to do what they want it to do among perceived ease of use (EOU) items ( $M = 5.78$ ,  $SD = 1.09$ ) and By mobile apps they can go around the national park without tour guide ( $M = 5.89$ ,  $SD = 1.02$ ) among perceived usefulness (PEU) items has high importance. The Results of EFA generated NPMA with two-factor solution with eigenvalues greater than one. Total variance explained by the two-factors accounted to more than 87%. Hair, Black, Babin, and Anderson (2010) stated that factor solution that accounts for 60% or more of the total variance is regarded as satisfactory. NPMA with ten items identified that EOU and PEU enhances tourism experience by providing flexibility and convenience to tourists anytime and anywhere while visiting TNNP. These findings is in line with a study by Minghetti and Buhalis (2010) were they stated that advanced communications technologies such as mobile apps brings benefits to both national parks and tourists, since it provides communication networks between stakeholders (e.g., exchange information on environmental conservation issues) and allows tourists to access to wider information about national parks before and during vacation.

Table 1. Descriptive statistics and EFA results for NPMA

National Park Mobile Apps Items	Mean	SD	Factor loading
Mobile apps is easy to use	5.57	1.39	0.69
Mobile apps is easy to learn to access the information about national park	5.62	1.25	0.81
Mobile apps is clear and understandable to interact with to find the information about national park	5.41	1.53	0.92
I find it easy to get mobile apps to do what I want it to do	5.78	1.09	0.88
By mobile apps I can explore and learn more about national park in my native language more quickly	4.82	1.82	0.78
By mobile apps I can share every moments of my trip with family and friends back home while visiting national park	5.53	1.42	0.82
By mobile apps my travel planning improves while visiting national park	4.51	1.87	0.93
By mobile apps I can check the weather condition while visiting national park	5.03	1.37	0.90
By mobile apps I can go around the national park without tour guide	5.89	1.02	0.71

#### 4.3 Descriptive Statistics and EFA for NPSat

Table 2 shows the descriptive statistics and EFA results for NPSat. The Results of EFA generated NPMA with one-factor solution with eigenvalues greater than one. NPSat explains tourists' perception towards TNNP which compares their pre-purchase expectations and beliefs with post-purchase perception. Total variance explained was 85%. Based on the results tourists' perception towards TNNP shows that it is not worthwhile visiting it. Furthermore, other determinants of NPSat had low evaluation among tourists. If TNNP wants to provide satisfactory experiences to tourists it has to create outstanding values which can boost their NPSat perception.

Table 2. Descriptive statistics and factor analysis results for NPSat

National Park Satisfaction Items	Mean	SD	Factor Loading
I am satisfied with my decision to visit this national park	3.25	1.62	0.93
My choice to visit this national park was a wise one	3.70	1.53	0.90
I am sure it was the right thing to visit this national park	3.58	1.68	0.88

Visiting this national park is worthwhile	2.49	1.39	0.78
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#### 4.4 Descriptive Statistics and Factor Analysis for NPBI

Table 3 shows the descriptive statistics and EFA results for NPBI. Mean score indicated that the item were tourists visit this national park again in future had low outcome ( $M = 3.01$ ,  $SD = 1.23$ ). The Results of EFA generated NPBI with one-factor solution with eigenvalues greater than one. The findings indicated that tourists will not recommend this national park to family and friends, which will have negative effect on tourist arrivals.

Table 3. Descriptive statistics and EFA for NPBI

National Park Behavioral Intention Items	Mean	SD	Factor Loading
Will visit this national park again in the future	3.01	1.23	0.91
Will say positive things about this national park	3.27	1.29	0.87
Will recommend this national park to family & friends	3.59	1.37	0.86
Will choose this national park as my first choice compared to other national parks	2.61	1.35	0.84
Will stay longer in the next visit to this national park	2.87	1.47	0.89

## 5. Results and Discussion

In order to estimate the measurement model by verifying the underlying structure of constructs, this study deployed CFA with a maximum likelihood. This study also checked unidimensionality, reliabilities and validities of the constructs in the measurement model before testing the structural model (Table 4). The level of internal consistency in each dimension and construct was acceptable, with Cronbach's alpha estimates ranging from 0.87 to 0.94 (Nunnally, 1978). All of the composite reliabilities of the constructs were over the cut-off value of 0.70, ensuring adequate internal consistency of multiple items for each construct (Hair et al., 2010). Convergent validity was satisfied in that all confirmatory factor loadings exceeded the cut-off value of 0.60 and was significant at 0.01 (Byrne, 2013). In addition, the average variance extracted (AVE) of all constructs exceeded the minimum criterion of 0.50, indicating a large portion of the variance was explained by the constructs (Hair et al., 2010; J. V. Chen, Yen, & K. Chen, 2009).

H<sub>1</sub>, which hypothesized there is a significant relationship between NPMA and NPSat, was supported. H<sub>2</sub> for predicting the significant relationship between NPMA and NPBI, was not supported. H<sub>3</sub> were NPSat mediates the relationship between NPMA and NPBI, was supported. Finally, H<sub>4</sub> were NPSat has a significant relationship with NPBI, was supported.

The findings for H<sub>1</sub> provides support for the effect of NPMA on tourists' NPSat, which convincingly argues the significance of deploying NPMA in TNNP in creating a positive attitude toward NPSat. However, the result of H<sub>2</sub> revealed that NPMA has not a significant effect on NPBI. This shows that EOU and PEU cannot directly affect tourists' NPBI, which means that there is a need for another factor to create the path among these constructs. H<sub>3</sub> which predicted that NPSat mediates the relationship between NPMA and NPBI was supported and congruent with the hypothesized direction. This adds value to empirical results in tourism literature. Similarly, H<sub>4</sub> which predicted the effect of NPSat on NPBI has also produced statistically significant result at  $p < 0.001$  significance level. Furthermore, amongst predictors of NPBI, NPSat was found as the strongest influential factor, with the standardized estimate of 0.49.

Table 4. Reliabilities and confirmatory factor analysis (CFA) Results

Construct	Cronbach's alpha	Composite reliability	Items	Standardized factor loading
NPMA	0.83	0.86	eou1	0.93
			eou2	0.85
			eou3	0.81
			eou4	0.75
			peu1	0.69
			peu2	0.77
			peu3	0.72

			peu4	0.86
			peu5	0.85
			peu6	0.93
NPSat	0.85	0.90	npsat1	0.91
			npsat2	0.73
			npsat3	0.78
			npsat4	0.93
NPBI	0.91	0.82	npbi1	0.65
			npbi2	0.75
			npbi3	0.72
			npbi4	0.87
			npbi5	0.90

NPMA - National Park Mobile Apps

NPSat - National Park Satisfaction

NPBI - National Park Behavioral Intention

## 6. Conclusion and Recommendation for Future Study

The study provides an insight into the understanding of tourists' NPBI towards the appreciation of ecotourism in TNNP by including the effect of NPMA and NPSat. The need to understand tourists' NPBI assists in managing TNNP in a responsible path, which can have tremendous benefits for the tourism destination national park. One of the greatest challenges tourism authorities face in an ever growing tourism market especially in national parks is the change that has brought by NPMA which enhances tourism experience and it also motivates self-actualization needs.

The results of the study are limited to tourists' NPBI from developed countries in TNNP, the results maybe differ in other national parks in Malaysia, such as Kinabalu National Park, and Gunung Mulu National Park which both has quiet salient number of tourists from developed countries compare to TNNP. Regarding the measurements of the constructs, the hypothesized framework for this study was not designed to include all possible aspects of NPBI. The focus of the study was limited to the NPMA, NPSat, and NPBI variables. Whilst these variables were able to explain certain percentages of the variance in NPBI, there might be some other variables which can explain more strong effect on NPBI of tourists; such as National Park attractiveness (NPA), National Park Green Practices (NPGP), and National Park Sustainability (NPSus). Future studies can examine the relevance of these other constructs in national park context explaining tourists' NPBI.

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