

## DEVELOPING A MODEL OF BACKPACKERS' EXPLORATORY CURIOSITY

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### Abstract

**Purpose** – While curiosity is a critical factor in motivating human exploratory behaviors across domains, past studies are yet to explore the exploratory curiosity construct in the context of backpacking. This study aims to conceptualize backpackers' exploratory curiosity and, importantly, developing a scale for the construct.

**Design/Methodology** – A survey questionnaire is first designed on the basis of a literature review and in-depth interviews. Then, two surveys are conducted using sample sizes of 228 and 276. The scale, along with its four factors (i.e., excitement, new destinations, social contact, and new tourism events) and 18 items, was determined as reliable and valid by the implementation of a rigorous instrument development process.

**Approach** – This study identifies the characteristics of backpacker exploratory curiosity, and then generates fundamental constructs with detailed descriptions and explanations for a questionnaire. Subsequently, to understand the characteristics of such curiosity and how they can be applied to explain backpacker behaviors.

**Findings** – This study extended the application of the curiosity concept to the tourism industry, and offered a new perspective, namely, exploratory behaviour individuals display in response to novelty, excitement, and changes in their environment can be used as variables to measure their curiosity level, and then the BECS can be utilized by tourism management organizations to help increase the number of potential clients.

**Originality of the research** – The study contributed to a theoretical enhancement of the current level of knowledge on the existing literature on backpackers' exploratory behavior and developed a reliable and valid scale for measuring backpacker exploratory curiosity.

**Keywords** backpacker; exploratory behaviors; curiosity; measurement; travel behavior

### 1. INTRODUCTION

Backpacking has emerged not only as a unique form of travel among young people but also as a means for their personal development as they overcome obstacles in global destinations. Consequently, it has become a significant niche market for the tourism industry, which is thus highlighting the increasing role of backpackers in the sustainable development of local economies (Loker-Murphy and Pearce 1995, 819; Scheyvens 2002, 146). Backpackers are individuals who tend to promptly acquire knowledge and make unconventional choices while on a limited budget (Noy 2004, 119). For example, they seek unusual routes and adventure, explore and learn about cultures with a strong emphasis on travel, and generally arrange independent trips

(Pearce 2005, 241; Tsaur, Yen and Chen 2010, 1040). Thus, backpackers prioritize complexity, novelty, and diversity when selecting travel destinations and activities (Vogt 1976, 30). In other words, a key tenet of backpacking is exploration, particularly that of the self, new destinations, and perspectives.

There is growing academic interest in backpacking, although the literature is yet to thoroughly examine factors motivating backpackers. According to Mehmetoglu (2012), a factor that can potentially explain the cognitive, sensory, psychological, and situational effects on travel interest is curiosity. Psychologists believe that curiosity intrinsically motivates learning and exploration; however, assessments of its impact on exploratory processes tend to vary. Litman and Spielberger (2003) broadly define curiosity as the "desire to acquire new knowledge and new sensory experience that motivates exploratory behavior." Voss and Keller (1983) argue that curiosity is a motivational precondition of exploratory behavior. Curious individuals tend to proactively seek new information to satisfy their curiosity (Kashdan, Rose and Fincham 2004, 296; Park, Mahony and Kim 2011, 48). In sum, curiosity is considered a critical factor motivating human exploratory behaviors (Berlyne 1960, 35) and has been applied to domains including education, work, and recreation (Park, Mahony and Greenwell 2010, 439).

Several researchers argue for the inclusion of curiosity in research on backpacker behavior for the following reasons. First, backpacker behaviors are naturally exploratory: they search for new destinations, attend tourism events, interact with fellow backpackers, and learn and explore on the Internet (Murphy 2001, 54; Noy 2004, 119; Pearce and Foster 2007, 1288; Thyne, Davies and Nash 2005, 100). Some researchers state that exploratory motivations are stronger among individuals with high curiosity than those with low curiosity (Berlyne 1960, 40). Second, backpackers' curiosity may be evoked by the need to seek novelty, which is critical in tourist experiences (Petrick 2002, 388) and a central component in travel motivation (Jang and Feng 2007, 582). The behavioral science literature refers to novelty seeking as a factor driving curiosity, sensation seeking, and exploratory behavior (Berlyne 1960, 51). Finally, backpackers' curiosity may be piqued by the uncertainties of travel. Loewenstein (1994), for example, suggests that the pleasures of curiosity are derived from resolving ambiguity and uncertainty. Uncertainty, in particular, increases, maintains, and stimulates curiosity levels (Park et al. 2011, 48). In sum, backpacking can affect exploratory behavior and curiosity motivates backpackers and triggers related behaviors, which explains individuals' attraction toward and interest in backpacking.

Finally, to the best of our knowledge, no study has measured backpacker exploratory curiosity and assessed its impact on various backpacker behaviors. Although many scales exist for measuring exploratory curiosity, they measure exploratory curiosity in a general context, and not exploratory curiosity specific to the tourism context. For example, many people have high levels of exploratory curiosity; however, their curiosity trait will not be aroused easily by backpacking if they are not interested in backpacking. Thus, this study first identifies the characteristics of backpacker exploratory curiosity, and then generates fundamental constructs with detailed descriptions and explanations for a questionnaire. Second, to understand the

characteristics of such curiosity and how they can be applied to explain backpacker behaviors, this study develops a reliable and valid scale for measuring backpackers' exploratory curiosity.

## **2. LITERATURE**

### **2.1. Past backpacker studies**

Backpacker research was started by Cohen (1973), who established categories of tourist roles based on differences between institutionalized and non-institutionalized travel. For instance, institutionalized travel includes mass tourism, whereas non-institutionalized travel includes those who travel as explorers and drifters. Backpacking can be regarded as a form of non-institutionalized travel, and tourists who adopt this form also be called "backpackers" (Uriely, Yonay and Simchai 2002, 524). Non-institutionalized tourists actively seek adventure and are independent. They may take non-standard routes and travel for extensive periods without a definitive itinerary, but they do generally plan a return date (Cohen 1973, 91; Vogt 1976, 28). Backpackers are also characterized by their limited budget, which is why they often eat in value hotels, take public transportation, and sleep in mid-range or lower hotels (Cohen 1973, 92; Loker-Murphy and Pearce 1995, 819; Pearce 1990, 341; Vogt 1976, 30). Therefore, many scholars have recently defined some non-institutionalized tourists as backpackers (Loker-Murphy and Pearce 1995, 819; Murphy 2001, 54; Pearce 1990, 340).

This study draws on the literature to contextualize and define backpackers. Tourism scholars characterize backpackers as a mobile and generally young market segment that prefers budget accommodation, interactions with other tourists, an independent and flexible travel schedule, long trips, and informal and participatory holiday activities (Pearce 1990, 339; Pearce and Foster 2007, 1286). Numerous perspectives have been established in the context of backpacking. Research has explored the cultural and societal aspects by examining backpackers' travel behavior, culture, and social interactions (Cohen 1973, 92; Maoz 2007, 126; Murphy 2001, 54; Noy 2004, 119; Vogt 1976, 30). In addition, scholars have addressed the impact of change including economic growth and local development (Loker-Murphy and Pearce 1995, 819; Scheyvens 2002, 146), customer satisfaction (Nash, Thyne and Davies 2006, 527), motivation (Maoz 2007, 126), perceived risks (Elsrud 2001, 600), and choice of destination (Reichel, Fuchs and Uriely 2009, 227). Further, an increasing number of studies are highlighting the educational benefits of backpacking such as learning (Pearce and Foster 2007, 1286), knowledge (Tsaour et al. 2010, 1039), and generic skills (Pearce and Foster 2007, 1286).

### **2.2. Curiosity background**

It is difficult to accurately define curiosity, although it can be largely described at the intuitive level. Curiosity serves as an impetus for human exploratory behavior (Loewenstein 1994, 79). According to the psychology literature, curiosity is the desire to acquire new knowledge and sensory experiences (Litman and Silvia 2006, 322). However, despite this agreed-upon definition, there is a lack of consensus regarding

how the origins of curiosity should be examined as a psychological construct (Mehmetoglu 2012, 97). Thus, exploring the theoretical accounts of curiosity and its various dimensions could offer further insight into the relationship between curiosity and exploratory behaviors.

Loewenstein (1994) elucidates the nature of curiosity on the basis of four theoretical perspectives. The first perspective of early accounts views curiosity and fear in tandem, where curiosity motivates individuals to explore new environments, while fear tempers the risks posed by such exploration. The second perspective is Berlyne's (1954) curiosity drive theory, which posits curiosity as the rewarding reduction of uncertainty. Berlyne's theory assumes that curiosity is a drive and produces an unpleasant sensation mitigated by exploratory behavior. However, it fails to explain why individuals seek curiosity even though it is unpleasant (Litman and Jimerson 2004, 150) or explore in the absence of novelty or complexity (Litman 2005, 795). The third perspective builds on incongruity theories that outline curiosity as the desire to close an information gap between a given reference point (i.e., desired knowledge) and existing information. Contrary to Berlyne's theory, incongruity theories describe curiosity as a natural human tendency to make sense of the world. Finally, according to the perspective of competence and intrinsic motivation, curiosity originates from the motivation to master one's environment and thus, cannot be viewed as a physiological drive such as hunger (Mehmetoglu 2012, 98).

Studies have applied these four perspectives to operationalize curiosity by determining its dimensions. Various models have been proposed in the recent decades to elucidate the dimensions of curiosity, although only Berlyne's (1954, 1960) operationalization model appears to be relevant to studies on tourism motivation (Mehmetoglu 2012, 98). The model defines the motivational states of curiosity and the types of exploratory behaviors (Table 1). In addition, it distinguishes between two curiosity dimensions, perceptual and epistemic. The perceptual dimension denotes sensory curiosity, which in turn, increases the perception of novel sensations and stimuli. On the other hand, the epistemic dimension represents cognitive curiosity (i.e., desire for knowledge) (Litman and Spielberger 2003, 77). While the former motivates individuals to explore new places, the latter is based on the interest to learn something new (Litman and Silvia 2006, 322).

Table 1: Definitions of motivational states and exploratory behavior

Motivational States	Exploratory Behavior
Berlyne (1954)	Berlyne (1960)
<p><b>Epistemic curiosity:</b> Desire for information induced by conceptual conflict, thus motivating exploratory behavior and knowledge acquisition</p> <p><b>Perceptual Curiosity:</b> Drive evoked by collative stimuli and diminished through continuous exposure to the stimuli</p>	<p><b>Specific Curiosity:</b> Increasing knowledge through openness to ideas, future orientation and enjoyment of problem solving</p> <p><b>Diversive curiosity:</b> Novelty seeking is positively related to courage and sociability but negatively to boredom</p>

Curiosity is a strong motivational driver that can compel individuals to act and explore new environments, increasing their understanding of different matters (Berlyne 1960, 51). It is an internal impulse that stimulates individuals to engage in observation, exploration, manipulation, and questioning. Through these actions, individuals gain an understanding of things and phenomena in their environment (Berlyne 1960, 52). Many studies have demonstrated that curious individuals in a surrounding involving cognition, sense, or thrill, will proactively seek new information to satisfy their curiosity (Kashdan et al. 2004, 295; Park et al. 2011, 49). Therefore, curiosity is the key factor motivating exploratory behavior (Voss and Keller 1983, 15), such that the concept has been applied to educational games and school activities (Berlyne 1954, 185; 1960, 51), as well as occupational and recreational studies (Loewenstein 1994, 79; Reio et al. 2006, 121).

Furthermore, Litman and Spielberger (2003) defined curiosity as motivation that prompts the desire to acquire knowledge and conduct exploratory behavior to seek new sensory experiences. That is, curiosity comes in two types: information-seeking curiosity (also called cognitive curiosity), cognitive curiosity, which stimulates individuals to seek information and engage in exploratory behavior; and sensory curiosity, which stimulates individuals to engage in sensation seeking and exploratory behavior (Reio et al. 2006, 121). Piaget (1952) contended that curiosity is imperative when constructing knowledge because curiosity stimulates individuals to seek new information and excitement (Ginsburg and Opper 1988, 23). This implies that knowledge constructed through information seeking, sensation seeking, and exploratory behavior can facilitate cognitive development. Furthermore, Gibson (1988) emphasized the critical roles that curiosity and evoked exploratory behavior play in cognitive learning and development. Gibson also argued that information-seeking curiosity may provide answers to certain things or questions, whereas sensory curiosity can motivate individuals to actively seek opportunities to seek sensation and conduct exploratory behavior.

### **2.3. Exploratory characteristic of curiosity and its measurement**

In the psychology field, curiosity is commonly regarded as a strong motivator; however, Reio et al. (2006) argued that curiosity is also a strong motivational driver in other disciplines as well. For example, Reio et al. (2006) maintained that in many general disciplines, such as education and sociology, curiosity drives exploratory behavior in individuals. In other words, certain individuals have exploratory curiosity as an intrinsic trait. As mentioned, scholars define curiosity as the desire for knowledge and sensory experiences that subsequently evoke exploratory behavior. Therefore, intuition suggests that curiosity and exploratory behavior are strongly correlated. Thus, curiosity research should be based on exploration as a fundamental element of curiosity (Park et al. 2010, 439; Park et al. 2011, 50).

Psychological research has found that curiosity often leads to such behaviors as exploration, reaction, and thrills seeking, and is an intrinsic driver of cognition. High curiosity makes individuals very perceptive of external information; these individuals readily react to new situations and changes, discover problems, attempt to find the root causes of problems, and adopt dynamic thinking. Thus, their desire to explore will be

evoked. Berlyne (1976) argued that in addition to actions and behaviors arising from physiological needs, individuals actively seek both sensory thrills and satisfaction. This behavior that seeks thrills and satisfaction, generally called exploratory behavior, typically makes people excited, prompting them to pursue novel experiences and new things, making them display diverse and varying desires, and encouraging them to satisfy their curiosity and other intrinsic motivations. Thus, exploratory behavior is an external characteristic individuals display when they are curious (Lee and Crompton 1992, 736).

Curiosity-related literature heavily emphasizes measuring curiosity. According to those studies, the dimension of curiosity is conceptually and distinctly separate from, but correlated with, other dimensions (Collins, Litman and Spielberger 2004, 1131; Kashdan et al. 2004, 300; Litman and Spielberger 2003, 79; Naylor 1981, 175; Reio et al. 2006, 121). Additionally, Litman and Spielberger (2003) posited that while scales for measuring curiosity have similar features and dimensions, their meanings and implications differ. Many studies define curiosity as a multidimensional construct that is a common latent concept (e.g., Ainley 1987, 55; Loewenstein 1994, 79; Reio et al. 2006, 121; Spielberger and Starr 1994, 51). Given the multifaceted and tangled nature of curiosity, as found during the research period of Berlyne (Loewenstein 1994), Berlyne first attempted to differentiate between the different of curiosity and exploratory behavior. Earlier, Berlyne (1954, 1965) referred to four exploratory or curious behavior types. Berlyne first discriminated between epistemic and perceptual curiosity, followed by further differentiation of perceptual curiosity into specific exploration and diversive exploration.

Novel and unexpected stimuli encourage exploration (Berlyne 1965, 115). More specifically, individuals react to stimuli with an exploratory response, and subsequently, gain further information that reduces curiosity (Berlyne 1965, 115). In other words, exploratory behavior is a response to novel stimuli and results in detailed investigations to acquire knowledge (Collins et al. 2004, 1131). Specific exploration entails information seeking and is stimulated by collative variables, which refers to stimulus attributes (e.g., novelty, change, surprise, incongruity, complexity, ambiguity, and indistinctness) (Berlyne 1965, 116). Specific curiosity compels backpackers to explore their interests or seek information to solve problems and understand specific events. Thus, backpackers often browse the Internet for festivals and activities at specific destinations.

Conversely, diversive exploration, resulting in external environments that are monotonous or boring and without a specific object, is achieved by various activities in which humans seek amusement, diversion or aesthetic experience (Berlyne 1965, 115). Such exploration occurs when individuals feel bored and search an environment for something of interest (Collins et al. 2004, 1131). For instance, diversive curiosity motivates backpackers to explore new destinations, undertake Internet-based research on various travel issues, and seek novelty and thrills, subsequently forming particular interests. Berlyne (1965) also suggested that informational properties of the stimulation heavily influence both of these forms of exploratory behavior. As a specific exploratory behavior is brought about by uncertainty regarding a particular stimulus, only information that derives from this stimulus can reduce this uncertainty. In contrast,

diversive exploratory behavior involves a situation in which a stimulus has the potential to reduce curiosity (Berlyne 1965, 118).

Since the wide application of Berlyne's four-type model, several other models have been developed. Reio et al. (2006), for example, highlight three types of curiosity: cognitive (i.e., desire for information and knowledge), physical, and social sensory (i.e., the primary objective is to experience new thrills and sensations). Kashdan et al. (2004) identify exploration (i.e., seeking novel or challenging situations) and absorption (i.e., fully engaging in a situation) as two factors of dispositional curiosity. The literature documents measure to evaluate curiosity in a general context; however, these may be inappropriate to determine exploratory curiosity specific to tourism and thus, there is a need for new measures. As mentioned, researchers have argued that a major line of curiosity measurement is based on diverse and specific curiosity, both of which influence exploratory behavior (Reio et al. 2006, 121). Thus, this study elucidates backpackers' exploratory curiosity on the basis of these two constructs in the context of backpacking.

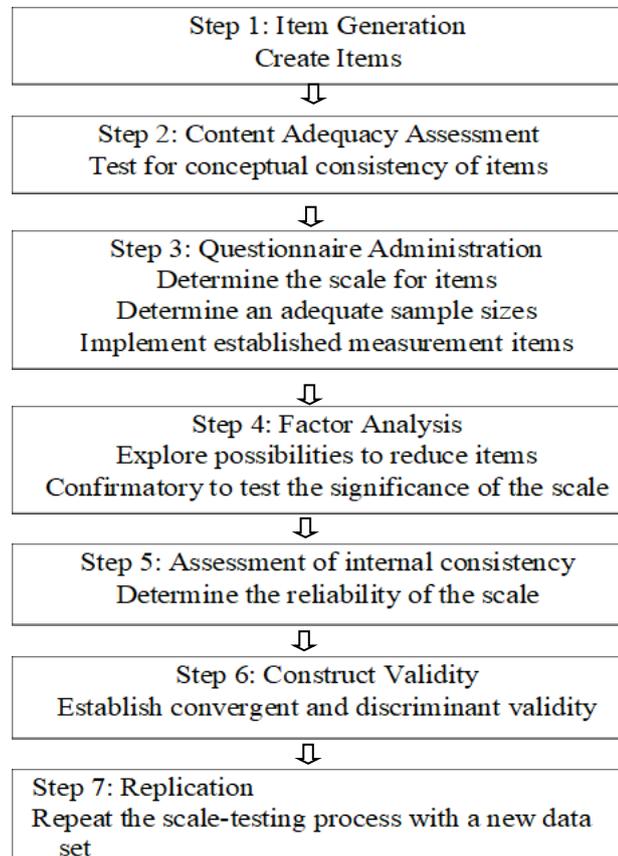
### **3. RESEARCH METHODOLOGY**

#### **3.1. Scale Development Procedure**

We develop the backpackers exploratory curiosity scale (BECS) to address the lack of an exploratory curiosity scale that is tailored to backpackers. We describe the development of the BECS as well as its properties and potential applications. The steps for the construction of the scale are largely based on DeVellis (1991) and Hinkin, Tracey and Enz's (1997) scale development guidelines. Figure 1 illustrates the steps followed to construct the scale.

When developing a measurement scale, one must first construct a sound conceptual specification of the construct being scaled (Churchill 1979, 66). Many studies have stated that the construct of exploratory curiosity is conceptually related to the various curiosity factors that evoke individuals' various exploratory behaviors (Park et al. 2010, 439). For example, Ainley's breadth vs. depth of interest conceptualization of curiosity (Ainley 1987, 55); boredom resulting from the frustration of exploratory behavior (Berlyne 1960, 121); the relationship between curiosity and exploratory behavior (Kashdan et al. 2004, 300); curiosity evoked by the difference between existing and desired knowledge (Loewenstein 1994, 79); curiosity displaying stable and prolonged characteristics (trait curiosity) (Naylor 1981, 176); novelty experience seeking (Pearson 1970, 200); experience seeking (Spielberger and Starr 1994, 121); and sensation seeking (thrill and adventure seeking and experience seeking) (Zuckerman 1979, 258). However, there has been no theory or previous study supporting and clarifying different domains of backpackers' exploratory curiosity. Therefore, before developing the BECS, the author first attempted to define backpacker exploratory curiosity and operationalize its construct. For this study, backpackers' exploratory curiosity is defined as seeking sensational and novel stimulation from backpacking, new destinations, new tourism events, or other backpackers that lead to engaging in various behaviors to explore new information about backpacking or related factors.

Figure 1: Guidelines for scale development and analysis



Source: Hinkin et al. (1997)

### 3.2. Item generation

The second step in developing the scale is generating an item pool. According to DeVellis (1991), an ideal item pool should be between 5 and 1.5 times the size of the final scale. We reference two sources to generate a large item pool. The first is the relevant literature that not only presents concepts and ideas on novelty, excitement, and exploratory curiosity in the context of tourism but also discusses items used to measure exploratory curiosity. The second is the collection of in-depth interviews with a focus group of backpackers in Taiwan.

## 4. RESULTS

First, the study adapted items from existing scales related to the concept of curiosity, which were considered appropriate for measuring backpackers' exploratory curiosity. The initial items included those from the two subscales of sensation seeking scale (SSS): thrill and adventures seeking scale and experience seeking (Zuckerman 1979, 178), novelty seeking scale (NSS) (Lee and Crompton 1992, 735), curiosity and exploration inventory (CEI) (Kashdan et al. 2004, 300), sport fan exploratory curiosity scale (SF ECS) (Park et al. 2010, 438), and the international tourism role scale (ITRS) (Mo, Howard and Havitz 1993, 323). The items were then reworded to fit the context of backpackers' exploratory behavior. In total, the item pool had 70 items. Additional items were then generated from in-depth interviews with one focus group of backpackers. Nine backpackers with at least three times backpacking experience were selected for the focus group. Analysis of data and information gathered from the focus group revealed that only 12 viewpoints went beyond the scope of past literature. Consequently, interview results were used to verify literature, and to rewrite instrument items. Another 12 items were added to the initial item pool, bringing total for preliminary items to 82.

While the items generated are somewhat redundant, DeVellis (1991) suggests that multiple and redundant items are important since their irrelevant idiosyncrasies cancel out during the process of scale purification (Chu and Murrmann 2006, 1186). Accordingly, the 82-item instrument was subjected to three phases of data collection and refinement to ensure it encompasses all issues associated with backpackers' exploratory curiosity. In the first phase, the instrument was condensed by retaining items capable of discriminating across respondents. The second phase examined the underlying factor structure. Then, the final phase, given its confirmatory nature, re-evaluated the factor structure by analyzing fresh data from various samples.

### 4.1. Phase 1: scale purification

In phase 1, we rewrote 82 items so that subjects could rate them on a seven-point Likert-type scale, where 1 denoted "extremely disagree" and 7 was "extremely agree." The questionnaire for the pilot study comprised these initial items. The objective of this process is to "confirm expectations regarding the psychometric properties of the new measure" (Hinkin et al. 1997, 105). A total of 140 subjects, of which 60 were senior tourism students with backpacking experience and 80 were backpackers, completed the pilot study questionnaire. We retained 116 responses after examining for missing values. Next, we conducted an exploratory factor analysis (EFA) using a varimax rotation to reduce the number of items. We applied an iterative scale purification procedure to develop a reduced and more parsimonious scale. As recommended by Churchill (1979), the purification of a measurement instrument should begin with computing coefficient  $\alpha$ . Then, items with a corrected item-to-total correlation of less than 0.30 were discarded. Finally, the  $\alpha$  values were recomputed for the remaining items and the new corrected item-to-total correlations were evaluated for further deletion.

We excluded 61 items after four rounds of coefficient  $\alpha$  calculations. The estimated coefficient  $\alpha$  for the remaining items was 0.90, meeting the suggested threshold. We retained the remaining 21 items for a further examination for unidimensionality. We also performed an EFA to explore the underlying factor structure of the items and further reduced the number of items. To determine whether the items overlapped factors, we conducted a principal component analysis with varimax rotation. A total of 18 items remained following an iterative deletion of a small number of items. The EFA results confirmed that excitement, new destinations, social contact, and new tourism events are factors underlying the BECS and explain 81.93% of the variance, whereas the factor loading of all other items was greater than 0.50.

#### **4.2. Phase 2: scale property examination**

In the second phase of development, we evaluated the robustness of the scale. We measured the exploratory curiosity of backpackers using an 18-item scale. Given that a majority of the backpackers in Taiwan are young and use the Internet to gather information (Tsaor et al. 2010, 1040), the survey was conducted online considering backpackers' habits and respondent convenience. The questionnaire was hosted on the Web Questionnaire Wizard website (qqq.cht.com.tw and my3q.com.tw) and on other notable Taiwanese backpacker websites (i.e., backpackers.com.tw, tw01.com, eurotravel.idv.tw, anyway.com.tw, and bbs://ptt.cc). We excluded cases with missing values, repeated cases and those with no backpacking experience, and retained 228 responses for the analysis. A majority of the respondents were female (57%) and aged between 20 and 29 years (36.4%). The average number of backpacking experiences per respondent was 7.71 times. The earliest backpacking experience among the respondents was in 1974 and the latest was in 2012.

Similar to the first phase, principal component factor analysis extracted four factors. Table 2 shows factor analysis results for the remaining 18 items. The four-factor solution accounted for 83.21% of total variance: excitement (23.91%), new destinations (22.66), social contact (18.71%), and new tourism events (17.94%). As expected, all items had loadings exceeding 0.50 and loaded well onto their corresponding dimensions. Cronbach's  $\alpha$  for the reliability test was 0.96 for excitement (five items), 0.94 for new destinations (five items), 0.94 for social contact (four items), and 0.92 for new tourism events (four items). These analytical results demonstrate very good internal consistency among items, such that we preliminarily concluded that the BECS was satisfactorily developed.

Table 2: Results of second EFA (n=228) and CFA (n=276)

Factor/Item	Exploratory factor analysis			Confirmatory factor analysis		
	Factor loading	Cronbach's $\alpha$	Explained variance(%)	SFL <sup>a</sup>	CR <sup>a</sup>	AVE <sup>a</sup>
<b>Excitement</b>		<b>0.96</b>	<b>23.91</b>	<b>0.42*</b>	<b>0.96</b>	<b>0.81</b>
I like to participate in events that can make me feel excited or on edge.	0.92			0.91*		
During my travels, I experience strong urges to explore unfamiliar things.	0.91			0.91*		
I seek a sense of adventure and thrill during my travels.	0.91			0.89*		
I sometimes take actions purely for the purpose of seeking excitement.	0.91			0.89*		
I wish to travel and lead a dynamic and varied lifestyle.	0.91			0.91*		
<b>new destinations</b>		<b>0.94</b>	<b>22.66</b>	<b>0.61*</b>	<b>0.95</b>	<b>0.79</b>
When I learn about a new destination from the media or on the Internet I have the desire to visit it.	0.90			0.89*		
I like to try and discover myself in a place where I can explore new things.	0.89			0.90*		
I like to explore and learn about the infrastructure (transportation system, water resources, electric power sources, drainage system, and communications systems) of the destination and travel to destinations dissimilar to my country.	0.88			0.88*		
I often have the impulse to explore destinations I have not previously visited.	0.88			0.90*		
I want to explore destinations with different customs and cultures to my normal living environment.	0.87			0.89*		
<b>social contact</b>		<b>0.94</b>	<b>18.71</b>	<b>0.45*</b>	<b>0.94</b>	<b>0.81</b>
I like to make friends with people who are exciting and unexpected.	0.92			0.89*		
I like to interact with local people or other backpackers as it is exciting and novel.	0.91			0.90*		
I strive for maximum social interaction with local people during my travels.	0.91			0.91*		

Factor/Item	Exploratory factor analysis			Confirmatory factor analysis		
	Factor loading	Cronbach's $\alpha$	Explained variance(%)	SFL <sup>a</sup>	CR <sup>a</sup>	AVE <sup>a</sup>
Through becoming a member of Internet community or societies dedicated to backpacking, I hope to realize my goal to travel and satisfy my curiosity.	0.90			0.89*		
<b>new tourism events</b>		<b>0.92</b>	<b>17.94</b>	<b>0.37*</b>	<b>0.93</b>	<b>0.77</b>
My curiosity is evoked by participating in novel or exciting tourism events which are unfamiliar to me (such as sport events, carnivals, cultural activities and festivals).	0.9			0.87*		
My ideal travel experience is one in which I can participate in tourism events I have never participated in before (such as sport events, carnivals, cultural activities and festivals).	0.90			0.90*		
I am constantly searching for new and novel tourism events (such as sport events, carnivals, cultural activities and festivals) regardless of when or where they are.	0.89			0.87*		
I forget about time easily when I am participating in a new tourism event that I have never previously experienced (such as sport events, carnivals, cultural activities and festivals).	0.88			0.87*		
Cronbach's $\alpha$		0.87		$\chi^2 / df = 1.15$ ;		
Variance explained (%)		83.21%		$\chi^2(129) = 150.88$ ;		
Kaiser-Meyer-Olkin measure of sampling adequacy		0.89		p>0.05		
Bartlett's test of sphericity (significance level)		0.00		GFI = 0.946, CFI = 0.996, SRMR = 0.033		

### 4.3. Phase 3: confirmatory factor structure

In the final phase, we re-evaluated the factor structure of the BECS by performing a confirmatory factor analysis (CFA). In addition, we examined the convergent and discriminant validity of the scale. A second round of data collection was conducted using the 18-item BECS; however, the backpacker group differed from that surveyed during the first and second phases. A total of 276 valid questionnaires were analyzed. Here as well, most respondents were female (58.0%) and aged 20–29 years (35.9%). The average number of backpacking experiences was 9.32 times. The earliest backpacking experience for this group was in 1973 and the latest was in 2012.

The factor structure of the BECS was examined by performing a CFA with a maximum likelihood estimation conducted using Amos 6.0. To construct the measurement model, we applied the factor structure acquired during the previous EFA as the basis and then tested the model for its goodness of fit to the data by performing a CFA with the following criteria: the ratio of  $\chi^2$  to the degree of freedom ( $\chi^2/df$ ) should be less than 5.0; the adjusted goodness-of-fit index (AGFI) must be greater than 0.8; the goodness-of-fit index (GFI), normed fit index (NFI), and comparative fit index (CFI) must be greater than 0.9; and the standardized root mean square residual (SRMR) must be less than 0.08 (Bagozzi and Yi 1988, 78).

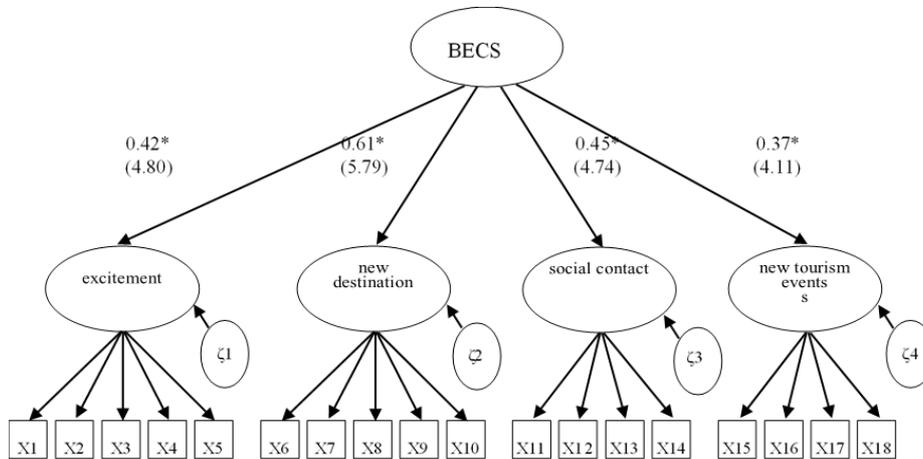
#### 4.3.1. Model comparison

Following Brakus, Schmitt and Zarantonello (2009), we analyzed three competing models to identify the measurement model that best fits the data. The first or baseline model assumes all items are loaded on a single construct (i.e., one-factor model). The second model operationalizes the BECS as a four-factor model (i.e., excitement, new destinations, social contact, and new tourism events). The third model defines the BECS as a second-order construct with the four aforementioned first-order factors as sub-dimensions (Fig. 2). Table 3 presents the analytical results and reveals that the second-order BECS model produces the best fit statistics and thus, is the most desirable: GFI = 0.946, CFI = 0.996, and SRMR = 0.033;  $\chi^2(129) = 150.88$ ,  $p > 0.05$ ; and  $\chi^2 / df = 1.152$ . Akaike's information criterion (AIC), used to select the competing models, is estimated at 230.88, (Hu and Bentler 1995, 80). Thus, the third model is the most accurate and parsimonious given its lowest AIC value.

Table 3: Summary of model comparisons

Model	$\chi^2$	df	$\chi^2 / df$	P	SRMR	GFI	CFI	AIC	$\Delta\chi^2$	$\Delta df$	Sig.
One factor	3339.91	135	24.740	0.000	0.263	0.379	0.326	3411.91			
Four factor	148.99	129	1.155	0.110	0.027	0.947	0.996	232.99	3190.92	6	0.000
One second-order factor with four first-order factor	150.88	131	1.152	0.113	0.033	0.946	0.996	230.88	3189.03	4	0.000

Figure 2: Propose measurement model for BECS



Note: The figure within the parenthesis () is t-value, \* denote  $p < 0.001$

#### 4.3.2. Reliability and validity test

The reliability of an instrument is the degree to which it is free from random error. To estimate the reliability of the BECS, this study applied composite reliability (CR) tests to examine the internal consistency of indicators (items) that measured each CFA factor. It has advantages over Cronbach's  $\alpha$  when the measures are not Tau-equivalent (Yanga et al. 2005). The composite reliability of the four factors of excitement, new destinations, social contact, and new tourism events, which was computed using the Amos output, was 0.96, 0.95, 0.94, and 0.93, respectively (Table 2). Thus, the reliability of the scale was acceptable (Bagozzi and Yi 1988, 78).

We assess convergent validity by determining the significance of all factor loadings (Bagozzi and Yi 1988, 80). Table 2 shows the EFA and CFA results, and the consistently large t-values indicate that all factor loadings significantly differ from zero. In addition, the average variance extracted (AVE) values (0.77–0.81) exceed 0.5 for each dimension, thus supporting convergent validity (Fornell and Larcker 1981, 45). Therefore, the CFA results evidence the convergent validity of the constructs. Further, following Fornell and Larcker (1981), we examine the discriminant validity of the four-dimensional scale. For any pair of constructs, the AVE value for each construct should be greater than the squared correlation coefficient between the two constructs. Table 4 lists the analytical results and demonstrates that the AVE value for each construct ranges between 0.77 and 0.81. In other words, all AVE values were larger than the squared correlation coefficient between the two constructs (0.01–0.07). These results support the discriminant validity of all constructs. In sum, as demonstrated by the reliability in internal consistency and the convergent and discriminant validity of the construct, the BECS is satisfactorily developed.

Table 4: Matrix of correlation coefficients between constructs

construct	items	correlation coefficients			
		A. excitement	B. new destinations	C. social contact	D. new tourism events
A. excitement	5	<b>0.90<sup>a</sup></b>			
B. new destinations	5	0.26*	<b>0.89</b>		
C. social contact	4	0.16*	0.25*	<b>0.90</b>	
D. new tourism events	4	0.10	0.21*	0.20*	<b>0.88</b>

a Diagonal elements(bold) are the square root of AVE between the constructs and their measures. Off-diagonal elements are correlations between constructs.

\* P < 0:001

#### 4.3.3. Measurement invariance test

In this study, we employ a multi-group CFA to examine for measurement invariance in the 18-item BECS across samples (groups) compiled during the second and third phases (the sample sizes are 228 and 276) while focusing on Model 1. Here, we specify the same factor structure (i.e., same pattern of fixed and free factor loadings) for each group and do not impose an equality constraint on the model's parameters across samples. The fit indices ( $\chi^2/df = 1.108$ ,  $p > 0.05$ , SRMR = 0.037, CFI = 0.997) show the same number of factors and factor-loading pattern across both groups and thus, the model fits the data well (Table 5).

Table 5: Summary of fit statistics for testing measurement invariance

Model	$\chi^2$	df	P	SRMR	CFI	Model Comparison	$\Delta CF I$	$\Delta \chi^2$	$\Delta df$	P
Model 1 Configural invariance	285.86	258	0.112	0.037	0.997	—	—	—	—	—
Model 2 Metric invariance	295.56	272	0.156	0.037	0.997	2 vs. 1	0.000	9.70	14	0.784
Model 3 Scalar invariance	301.65	282	0.201	0.046	0.998	3 vs. 2	0.001	6.09	10	0.807

We constrained the factor loadings as equal to test for factor loading invariance (metric invariance) between the two groups (Model 2). This model requires factor loadings for like items to be equal across groups. We applied the chi-square difference ( $\Delta \chi^2$ ) test and degree of freedom difference ( $\Delta df$ ) to compare the fit of the nested models (Bentler and Bonett 1980). If the chi-square difference test result is significant, the constraints on the more restricted model may be excessively strict. In other words, the more restricted model failed the test of measurement invariance across groups. Further, when testing for measurement invariance, Cheung and Rensvold (2002) suggest that a

difference greater than 0.01 for the CFI denotes a significant change in model fit. Thus, this study applies both the chi-square difference test and change in CFI value ( $\Delta CFI$ ) to evaluate model fit. We obtained insignificant results for the chi-square test ( $\Delta\chi^2$  ( $\Delta df = 14$ ) = 9.70, and  $\Delta CFI = 0.000$ ), implying the factor loadings were invariant across groups (metric invariance).

Finally, in addition to the constrained parameters in Model 2, item intercepts and covariances of latent variables were also constrained to be the same across the groups (Model 3, scalar equivalence). The chi-square test result for the difference between Model 3 and Model 2 was insignificant ( $\Delta\chi^2$  ( $\Delta df = 10$ ) = 6.09, and  $\Delta CFI = 0.001$ ). These findings support the equivalence of item intercepts and covariances of latent variables across groups, and also support a conclusion of scalar invariance. These analytical results verify that the BECS has the same factor pattern, factor loadings, and structure covariance for different backpacker subjects. This implies that different backpacker scores within the same population obtained by the BECS demonstrate measurement invariance, and that the scale offers cross-sample validity and is robust.

## 5. DISCUSSION

### 5.1. Excitement

The first component, excitement, had five items correspond to this component, which aim to measure the level of exploratory curiosity backpackers display in seeking exciting experiences. The excitement dimension reflects a backpacker's desire to seek thrilling and exciting experiences, and their desire to change their routine. While items for the excitement dimension described the excitement backpackers seek when backpacking, the items were developed based on the SSS (Zuckerman 1979, 180), and NSS (Lee and Crompton 1992, 736). The finding is congruent with analytical results obtained by Mayo and Jarvis (1981). According to Iso-Ahola (1982), tourist motivations are influenced by their desire to change routines and seek new experiences. Accordingly, this study considered exciting experiences and change of routine as one dimension, and subsequently developed the factor "excitement". The excitement stimuli can measure the level of curiosity that evokes exploratory behavior.

Moreover, past studies have verified that certain components of sensation seeking scale (Zuckerman 1979, 280), such as thrill seeking and adventure seeking, correlate with exploratory behavior (Collins et al. 2004, 1135; Litman and Spielberger 2003, 83); the exploratory behavior of backpackers is what the BECS predicts. A logical explanation for this issue is that the SSS and NSS have a strong connection, and the scales described are the sources of the BECS. The proposed BECS also fits with the opinions of many behavioral psychologists, including those of Berlyne (1963), who regards exploratory behavior as curiosity behavior an individual displays in response to novel excitement or changes in the environment. The exploratory behavior individuals show in response to novelty, thrill, and changes in the environment, such as paying attention, observing, and making contact, can be used as key variables to measuring their curiosity level and type (Berlyne 1963, 287).

## **5.2. New destination**

The second component is new destinations. This dimension had five items to measure the level of desire to explore new destinations to satisfy the need to experience excitement or depart from an ordinary environment. All items in this dimension are related to the exploratory behavior backpackers display when they seek novelty. These items, which were based on the ITRS (Mo et al. 1993, 332), NSS (Lee and Crompton 1992, 747), SFECS (Park et al. 2010, 452), and in-depth interviews, assess the exploratory behavior backpackers engage when they desire to change their environment or situation, and experience excitement by exploring the novelty of new destinations. The act of experiencing novelty in destinations is regarded as a motivating factor of tourist behavior (Cohen 1973, 100; Crompton 1979, 420; Lee and Crompton 1992, 747; Yuan and MacDonald 1990, 43).

Crompton (1979) argued that the desire to seek novelty can explain why tourists choose a destination. Similarly, the study by Etzel and Wahlers (1985), based on Berlyne's (1960) concept of the optimal stimulation level, revealed that travelling to a new environment can offer the thrill and excitement lacking in one's everyday life. The process of selecting a tourism destination is influenced by the desire to seek novel experiences (Lee and Crompton 1992 747). People who have a strong desire to seek novelty prefer experiences that are unusual, adventurous, different, and exciting; these people are not afraid to break rules and take risks, and they have a longing for completely new environments and opportunities to interact with local people. Conversely, people with a relatively lower inclination to seek novelty prefer familiar and well-planned itineraries for well-traveled destinations (Cohen 1973, 100; Mo et al. 1993, 333). Consequently, new destinations can arouse curiosity, which subsequently evokes exploratory behavior.

## **5.3. Social contact**

The third component in the BECS is social contact. This dimension has four items, which were based on the items in the SSS (Zuckerman 1979, 235), ITRS (Mo et al. 1993, 333), and in-depth interview results. The social contact dimension reflects the mutual benefits from social and emotional interaction among and between backpackers, as well as local people, which can stimulate curiosity and evoke exploratory behavior.

This finding is supported by those in a number of other studies, including those by Fodness (1994), Hallberg (2003), and Pollard, Kirk and Cade (2002). This finding implies that the desire for social contact is manifested as the desire individuals have to spend time with others, and their need to move outside their social circles and interact with strangers. Shim, Gehrt and Siek (2005) argued that social contact can be realized through travel, which by its nature, is an activity that can bring people with similar interests together; therefore, social contact is an important motivation to engage in travel activities. In summary, travel offers opportunities to interact with others and for deep and fundamental self-improvement and self-satisfaction through interactive experiences, exploring and understanding local ways of life and thinking, and exchanging knowledge and skills with fellow backpackers. Social contact can thus be regarded as a factors that can arouse curiosity, which can lead to exploratory behavior.

#### **5.4. New tourism events**

The fourth and final component is new tourism events. As suggested by Getz (2008), new tourism events, such as sports events, cultural activities, and festivals, are key motivators in the tourism industry. This study proved that new tourism events comprise a factor that evokes the exploratory behavior of backpackers. This dimension has four items, which measure the level of desire backpackers have for new tourism events. That is, all items are related to the exploratory behavior backpackers display as a result of their desire to experience novelty by participating in tourism events.

The items were developed based on the CEI (Kashdan et al. 2004, 300), NSS (Lee and Crompton 1992, 747), and SFECS (Park et al. 2010, 452). This dimension reflects the backpackers' preference to search for, participate in, and pay attention to, tourism-related events as a means of searching for meaningful experiences. This finding resembles that obtained by Park, Andrew and Mahony (2008), revealing that curiosity individuals display is strongly correlated with their behavior is seeking novelty and thrill in new events. Furthermore, Li and Petrick (2006) argued that the seeking and escaping theory, proposed by Iso-Ahola (1980, 1983), can account for the motivations of tourist decisions to participate in tourism events, meaning that the intrinsic motivation for participating in tourism events is related to novelty seeking and desires to escape a current situation. Therefore, new tourism events resemble novelty stimuli in that they can arouse curiosity, subsequently evoking the exploratory behavior of backpackers.

#### **5.5. Implication and future research**

Several implications can be derived from the present research. First, this study extended the application of the curiosity concept to the tourism industry. The BECS is an adequate theoretical tool researchers can further develop and apply in future studies about the effects of exploratory curiosity in the tourism industry. Second, this study offered a new perspective, namely, exploratory behavior individuals display in response to novelty, excitement, and changes in their environment can be used as variables to measure their curiosity level. Third, the BECS can be utilized by tourism management organizations to help increase the number of potential clients. From this perspective, the BECS can indicate whether backpackers have high or low exploratory curiosity, which can help them reach new clients. Finally, tourism manager can utilize findings acquired by the BECS for market segmentation to tailor marketing strategies and advertising to tourists with high exploratory curiosity. Studies have already discovered that people with high exploratory curiosity react differently to advertising (Park et al. 2008, 297). Accordingly, tourism manager can focus on the development of advertisement strategies and tailor their marketing to target people with high exploratory curiosity.

## 6. CONCLUSION

The study developed an efficient, reliable, and valid instrument for measuring the exploratory curiosity of backpackers to understand the role curiosity plays in the tourism industry. Exploratory curiosity of backpackers is evoked by the desire for new experiences, thrills, and excitement that are related to fellow backpackers, tourism events, and destinations. The BECS comprises of four components, excitement, new destinations, social contact, and new tourism events, and 18 items in total.

This study has several limitations. First, we recommend that future studies discuss the varying levels of exploratory curiosity associated with personality differences or personality traits variables, and further research the correlation between exploratory curiosity and backpacker behavior. Second, we suggest that the BECS be adopted by future studies to investigate correlations between other variables, such as basic psychological need satisfaction, subjective well-being, positive subjective experiences, personal growth opportunities, travel interest, travel satisfaction, flow, and so on.

On the other hand, Mikulić (2018) mentioned that if using reflective approach might decrease the reliability and indeed the future studies should consider to apply formative approach to investigate the curiosity and findings may address different meanings. In empirical research, a great deal of past literature confirmed that measurement models were often mis-specified (Jarvis et al. 2003, 200; MacKenzie et al. 2005, 399; Podsakoff, Shen and Podsakoff 2006, 202). These phenomena may be due to the fact that researchers are unfamiliar with formative models (Diamantopoulos 2008, 1201; Bollen and Davis 2009, 502). Besides, Bollen and Davis (2009) pointed out that although the formative model has attracted much scholarly attention, due to the lack in discussion of the practical use and the recommendation of the formative model, the relevant systematic research is insufficient, and there are still many problems to be explored in depth.

Finally, although the character of curiosity is unlikely to change, change is possible over the long term. Therefore, future studies should provide solutions to dynamic issues by conducting a comprehensive study, involving analyses of various stimuli at intervals in a period to understand how they fluctuate, develop, and interact; how curiosity affects exploratory behavior; how exploratory behavior satisfies curiosity; and which type of stimulus influences exploratory behavior most at different stages.

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