Flourishing through smart tourism: Experience patterns for co-designing technology-mediated traveller experiences

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Biography

Bruce WAN is an assistant professor in the School of Design at The Hong Kong Polytechnic University. He is interested in technology-mediated experience design that supports human flourishing. In particular, he addresses challenges that impede the design process in co-design practice. He is currently working on the co-design process for technology-mediated experiences in tourism, leisure and social design.

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Information and communication technologies are major drivers of tourism innovation. Smart tourism, which is supported by ubiquitous technology, has the potential to offer personalized, memorable and meaningful experiences (MMEs). A growing body of positive psychology research has recognized that MMEs can foster human flourishing when the experiences are related to the individual's implicit psychological needs and personality traits. However, little research has been conducted on the ways to incorporate MMEs into the co-design process of smart tourism innovation. To do so, researchers must identify the experiential factors that promote MMEs and then incorporate these factors into the innovation process. The goal of this project is to derive a set of "experience patterns" that encapsulate the experiential factors comprising individual cognitive, motivational, emotional and behavioural traits pertaining to MMEs. Using these patterns in the innovation process, co-design team members can consciously discuss and strategically integrate MMEs in smart tourism innovation.

Keywords: smart tourism innovation; co-design; memorable and meaningful experience; positive design; positive psychology; experience patterns; lingua franca

Introduction

Information and communication technologies have been supporting tourism development since the 1970s. Over time, the role of technology has shifted from being a neutral "intermediary" that facilitates operations and transactions between consumers and service providers (Buhalis 2003) to being an active 'mediator' of human experiences that influences behaviours and decisions (see Rosenberger, Verbeek, and Ihde 2015). As such, technology currently plays an active role in fostering individual wellbeing (see Brey 2015). To this end, the design of technologically mediated experiences must go beyond issues of productivity and usability and instead focus on innovations that take account of individual psychological needs, personality traits and

interests, and thereby promote the individual's sense of autonomy, relatedness and self-actualization (Calvo and Peters 2014; Gaggioli et al. 2017). Consistent with this transition is the concept of the smart tourism initiative (Gretzel et al. 2015), which is characterized by the widespread adoption of personal technologies, big data and networked devices in tourism setting. Scholars have recognized 'smartness' as having the potential to offer personalized, memorable and meaningful experiences to travellers (Gretzel and Jamal 2009; Tussyadiah 2017). Rooted in the field of positive psychology, this project posits that memorable and meaningful travel experiences (MMEs) can foster positive growth and flourishing (Wan, de Bont, and Hekkert 2016). However, little is known about what constitutes an MME and how MMEs can be integrated into smart tourism innovation. This study addresses this knowledge–practice gap in experience design by exploring the experiencescape of MMEs and its subsequent application to smart tourism innovation.

Connecting memorable and meaningful experiences with human flourishing

The field of positive psychology offers guidance for distinguishing between memorable and meaningful traveller experiences in the concepts of hedonia and eudaimonia. Hedonia refers to the attainment of well-being through pleasure-seeking and the avoidance of negative affect, whereas eudaimonia relates to the pursuit of the authentic self, a meaningful life, virtuous activities and personal growth in one's life (Waterman 2013). Although tourism studies have mainly focused on the hedonic benefits of vacation time (Knobloch, Robertson, and Aitken 2016), the degree of happiness realized via hedonia is mostly short-lived (Nawijn 2010). Therefore, eudaimonia has begun to garner interest in tourism research (Filep, Laing, and Csikszentmihalyi 2016) as it may offer a fuller picture of tourist wellbeing (Filep and Pearce 2013).

Furthermore, MMEs can be considered to be vivid and explicit autobiographical memories that arise from particular life events and activities in which people have engaged (Rubin 2006; Brown and Kulik 1977). These experiences are marked by higher emotional involvement and more frequent rehearsal (Talarico and Rubin 2003), which make them remarkable (i.e., memorable). Another way to generate this type of long-term episodic memory is through the creation of meaning. When pursuing meaningful travel experiences, some individuals deliberately seek negative emotions, undertake challenges and endure hardship during their leisure activities (e.g., in dark tourism or various forms of serious leisure; Nawijn and Fricke 2015; Reisinger 2013). Offering more than merely positive emotion, these experiences are characterized by their capability for triggering engagement, generating positive relationships and yielding a sense of achievement and purpose.

A number of positive psychology frameworks have been used to explore traveller wellbeing. For example, the PERMA model (Seligman 2002; Filep and Pearce 2013) delineates five ingredients that are necessary for flourishing: gaining positive emotion from pleasure seeking, achieving engagement by putting one's salient character strengths to good use; leading a meaningful life through pursuing purposeful goals, building relationship and striving for meaningfulness and accomplishment by virtue of one's character strengths. The term character strength has been defined as "a pre-existing capacity for a particular way of behaving, thinking or feeling that is authentic and energising to the user, and enables optimal functioning, development and performance" (Linley 2008, 9). As such, Peterson and Seligman (2004) recognized 24 character strengths (see Table 1) which can be considered as channels through which we generate positive experiences, find purpose and ultimately flourish (Corral-Verdugo, Tapia-Fonllem, and Ortiz-Valdez 2015).

Table 1. VIA Classification of character strengths and virtues (Peterson and Seligman 2004).

Virtues	***Character strengths***	***Virtues***	***Character strengths***
Wisdom	Creativity, Curiosity, Judgment, Love of learning, Perspective	Transcendence	Appreciation of beauty & excellence, Gratitude, Hope, Humour, Spirituality
Courage	Bravery, Perseverance, Honesty, Zest	Temperance	Forgiveness, Humility, Prudence, Self-regulation
Humanity	Love, Kindness, Social intelligence	Justice	Teamwork, Fairness, Leadership

A study conducted by this author and colleagues (Wan, de Bont, and Hekkert 2016) on travellers who participated in meaningful leisure experiences revealed that MMEs have a strong connection with an individual's character strengths and personal interests. This result suggests that by strategic and purposeful use, savouring, and development, these strengths and interests can lead to positive emotion, sustained fulfilment and personal growth (see also Coghlan and Filo 2016) (see Figure 2). These findings encouraged us to explore the ways in which individual character strengths can be incorporated into smart tourism innovation.

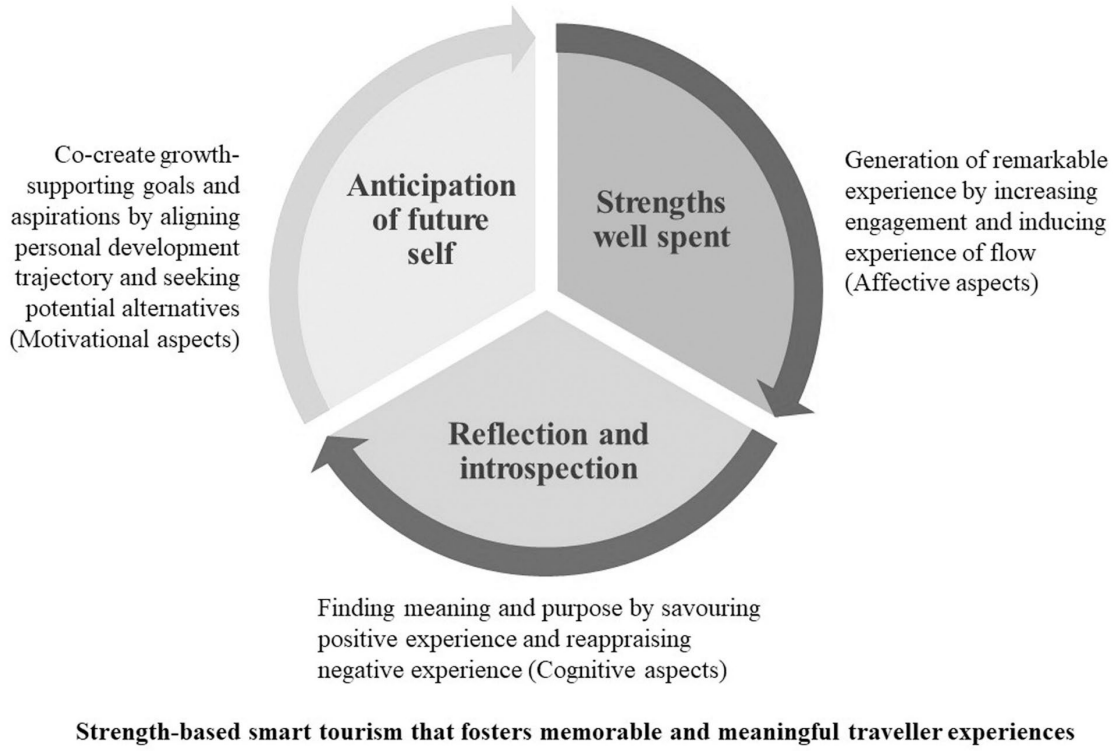

Figure 2. Strength-based smart tourism technology for MMEs (Adapted from Wan, de Bont, and Hekkert 2016)

Challenges of smart tourism innovations for MMEs

Current literature in smart tourism recognizes several aspects of technology mediation that may enrich traveller experiences, for example, through experience co-creation (Neuhofer 2016), gamification (Xu, Weber, and Buhalis 2013), context-aware services (Lamsfus et al. 2015) and augmented reality (Disztinger, Schlögl, and Groth 2017), to name a few. However, smart tourism should offer more than merely utilitarian features or "delivering a *tiny* behavioural intervention" (emphasis in original Tussyadiah 2017, 182). Scholars in computer science (Calvo & Peters, 2014; Leitner, 2015) have also stated that smartness should respect individual psychological needs and virtues (i.e., promote behaviours for the common good) and foster personal goals to enable individuals to achieve a life characterized by thriving.

Integrating MMEs in smart tourism innovation is highly valuable to both tourists and the tourism industry because these experiences can foster tourist flourishing (Filep, Laing, and Csikszentmihalyi 2016), which is the best predictor of repeat purchase (Wirtz et al. 2003). However, a few obstacles remain that impede the integration of MMEs into smart tourism innovation. Central to these challenges is the "asymmetry of knowledge" (Fischer 2000) in co-design practice, which is considered to be a prerequisite for tourism innovation (Hoarau 2016; Tussyadiah 2014). Design teams are often composed of stakeholders from diverse backgrounds, which can lead to miscommunication among team members (Fischer 2000), although their expertise is highly valuable to the design process (Neuhofer 2016). Therefore, Muller and Druin (2003) proposed to achieve knowledge symmetry by introducing symmetry of learning and participation. In other words, the authors recommended that the design team members be enabled to build consensus through constructive discussion and collaboration via a mutual learning and discovery process.

For MMEs to be (1) consciously discussed and (2) strategically integrated into smart tourism innovation, an explicit and holistic appreciation of the experiential factors that contribute to MMEs is necessary. These experiential factors can be understood as part of an inter-subjective sense-making process that involves internal psychological functioning (for example, innate psychological needs, values, motivations and personal traits) and external stimuli (for example, people, places and artefacts). However, the current body of knowledge offers only a fragmented understanding of MMEs for enabling co-design team members to establish symmetry of knowledge. Thus, the goal of this study is to propose a frame of reference that allows design team members to consider MMEs holistically and thereby enable them to engage in design processes that promote the fostering of MMEs for travellers.

Using experience patterns and a *lingua franca* as a frame of reference for supporting co-design process

To establish this frame of reference, a pattern-based approach to design (Alexander 1979) can be used as an example. First identified by Christopher Alexander, pattern-based design is a collection of repeatable solutions to commonly occurring problems encountered in design practice. While it is often applied during the final stages of development and delivery, Hassenzahl (2010) proposed an experience pattern that could be used in earlier stages to inspire and guide creative thinking. This pattern comprises a set of insights that connects higher-order psychological needs, related character strengths and plausible behaviours and activities that generate positive and meaningful experiences. It encapsulates complex cognitive, motivational, emotional and behavioural traits into a concise set of crucial insights for producing MMEs for travellers. The purpose of the experience pattern is to provide a blueprint for a co-design team to strategically integrate MMEs into tourism innovation. Complementary to experience patterns is a *lingua franca* (Muller and Druin 2003), which translates scientific jargon (e.g., hedonia, eudaimonia, character strengths, etc.) into common vernacular. This *lingua franca* allows design team members to consciously discuss MMEs so that the values and purpose of design investigation are made explicit (Steen and van de Poel 2012).

The effective use of these two resources could inspire and guide design teams to conduct field studies (e.g., ethnographic research), generate sensible propositions (e.g., concept generation) and implement subsequent evaluations (e.g., measurement) that are essential to the co-design process. Presumably, those propositions can be presented in a variety of forms, including personas, scenarios, vision statements, experience mapping, service touch-points, prototyping and other techniques employed in user experience and

service design (see Tussyadiah 2017).

Research Question, Methodology and Methods

The authors of this study opted for a pragmatic approach because co-design values a democratic process that leads to workable solutions. The pragmatic approach to knowledge-making with respect to problem-solving (as in Dewey's pragmatist philosophy; Dalsgaard 2014) is reflected in the hybrid third space proposed by Muller and Druin (2003). This space allows for constructive negotiation and mutual discovery among co-design team members. The experience pattern and *lingua franca* contribute to this third space by establishing a shared knowledge base and a common language for design investigation. It draws connections between the cognitive level of innate psychological needs and traits and the behaviour level of activities to which the MMEs are related. This set of experience patterns allows MMEs to be purposefully considered and strategically integrated into smart tourism innovation via a co-design process. Consequently, it facilitates constructive discussion, promotes negotiation and supports the development of rationales for the design proposition. An exploratory study (Wan, de Bont, and Hekkert 2016) identified three moments in which an individual's character strengths intervene in the generation of MMEs: through the pursuit of purposeful activities, the anticipation of the future self and reflection and introspection regarding remarkable experiences (see Figure 2). To further narrow the research scope, this study focuses on reflection and introspection regarding remarkable experiences (i.e., savouring of travel experience). This refers to individuals' capacities to "attend to, appreciate, and enhance the positive experiences in their lives" (Bryant and Veroff 2007, 2). In the tourism context, this savouring process occurs when travellers find their experiences to be remarkable and worthwhile (i.e., MMEs) based on events they have encountered. As such, this project focuses on two main research questions:

RQ1. Regarding the generation of experience patterns and a *lingua franca*: what are the innate psychological needs, personal character strengths, personal interests (i.e., motivation and engagement) and external stimuli (i.e., tourism activities) comprising the savouring of memorable and meaningful travel experiences?

RQ2. Regarding the improvement of experience patterns and the *lingua franca*: how to advance the quality of the experience patterns and *lingua franca* in co-design practices?

Capturing MMEs for experience patterns and generating a lingua franca (RQ1)

Journaling and narration are effective ways to capture remarkable travel experiences (McCabe and Foster 2006; Mossberg 2008; Moscardo 2017). This study captures the MMEs of participants through the creation of a travel diary describing their episodic memories with the support of physical and digital footprints (e.g., photos, maps, videos, etc.) and other resources (e.g., graphical elements) provided by the research team. The diary creation process will help researchers to understand how the participants used their digital footprints and other resources to recount their MMEs. Thematic analysis (Guest, MacQueen, and Namey 2012) will be used to identify the patterns pertaining to higher-level psychological needs and lower-level behaviours in the generation of experience patterns. The identified themes and codes will be used as resources for the development of the *lingua franca*.

Applying the experience patterns and lingua franca in co-design workshops (RQ2)

Two ways have been identified to improve the quality of a pattern: assessing its practicality in supporting the co-design process (Winn and Calder 2002) and expert review (Schmidt 1995). Hence, an iterative co-design workshop and expert interviews will be used to enhance the quality of the patterns identified. Quality experience

patterns and a *lingua franca* can facilitate the co-design process by making the design purpose and values distinct and explicit. They can also guide and inspire the design team to generate superior design propositions that can be presented using design visualisation techniques such as personas, user journey maps and experience mapping. Follow-up interviews with the design team will enable researchers to gather user feedback to improve the experience patterns.

Research Impact

This study addresses the knowledge–practice gap regarding understanding and integrating MMEs into tourism innovation. The use of experience patterns and a *lingua franca* contributes to the co-design process for the incorporation of MMEs in smart tourism innovation in three ways: First, they help to establish a knowledge base regarding MMEs in tourism. Second, they provide a shared language to facilitate communication between different stakeholders. Third, they can inspire and guide design team members to move through the design process by providing design rationales for making informed decisions.

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