Variance of destination region image according to multi-dimensional proximity: A case of the Greater Bay Area

Abstract

Due to increasing accessibility and mobility, tourism destinations are broadening their spatial boundaries and cultural contexts. This study took as an example the Guangdong–Hong Kong–Macao Greater Bay Area, which consists of 11 cities, and explored how the new path creation of a regional tourism destination reshapes people's cognitive and affective images of the destination on a megalopolitan scale. Destination region image is neither a simple aggregation of the images of member cities nor dictated by the image of a single well-known destination. Both the physical and conceptual connections among multiple cities within the destination region are key nodes of the inclusive image of the region. Connectivity is not only embedded within institutional relations and discourses, but also represented through multi-functional tourism networks and regional culture. The study further explored the image heterogeneity of three proximity-based tourist clusters, divided in terms of cultural and geographical distance and previous travel experience. The research findings of this study can inform planning and marketing strategies for the path creation and development of metropolitan destination regions.

Keywords: Destination region; Path creation; Images; Proximity; GBA

1. Introduction

Over the last several decades, urban regions around the world have undergone considerable structural changes due to economic, social, and spatial evolution (Lakshmanan, Anderson, & Song, 2016). These changes have been accompanied by the bordering, de-bordering, and re-bordering of tourism destinations, which connect or separate spaces and groups of people (Scuzzarello & Kinnvall, 2013). At the conceptual level, these changes have furthered cross-border tourism and regional collaborations both in destination development (Mariani, Buhalis, Longhi, & Vitouladiti, 2014) and in interdisciplinary discourses on tourism mobility (Hannam & Guereño-Omil, 2017). The concept of path creation has accordingly been applied to destination re-bordering (or

restructuring) and to facilitate the divergence of a destination's development from established paths (Bramwell & Cox, 2009; Clavé & Wilson, 2017; Fuchs & Shapira, 2005). According to Garud and Karnøe (2001), path creation occurs when entrepreneurs intentionally deviate from existing practices to create new future directions. In economic geography, path creation refers to the emergence of new economic systems in regions, and path creation mechanisms involve the emergence and growth of new regional economic actors, spin-offs, and extra-regional assets such as knowledge and investment (MacKinnon, Dawley, Pike, & Cumbers, 2019). The concept is used in tourism research to identify new forms of tourism development at the macro level (Taylor, Frost, & Laing, 2019).

Given that a tourism destination region is a broad network with diverse stakeholders (Scott, Cooper, & Baggio, 2008), pursuing an innovative development path is an important strategy for destinations and can be contrasted with path dependence, which may lead to lock-in (Taylor, Frost, & Laing, 2019). Similar to sustainable mass tourism convergence (Weaver, 2012), 'path-dependent path-creation' can reshape tourists' mobility through the interplay of such drivers as technology, markets, cultures, and state intervention, according to Williams (2013). Ma and Hassink (2014) also indicated that new paths are not only created through random events or chance (e.g. institutional changes, shifts in policy priority, or marketing) but also depend on initial conditions such as pre-existing resources and location advantage. Despite the growing literature on the reconstitution and innovation of destination development paths, people's perceptions of these redefined destinations have received less attention.

Taking the case of the Guangdong–Hong Kong–Macao Greater Bay Area (known simply as the Greater Bay Area, or GBA), this study explored people's cognitive and affective responses to the path creation of a mega-tourism region and identified the factors that bring about these responses. Large urban areas (or megapolitan regions) are essential to today's highly clustered knowledge economy and are now the powerhouses of the global economy (Florida, 2019). The GBA project, proposed by the central Chinese government in 2018, has re-marked the area with innovative and smart tourism ecosystems across administrative borders and has been hailed as the model for a national strategy for development and integration (Xinhua, 2019b). In this project, the two Special Administrative Regions (SARs) of Hong Kong and Macao and nine cities in Guangdong province have been demarcated as a single region. Cross-border governance has been put on the agenda to assist with intra-regional cooperation and co-create a competitive

megalopolitan destination (BrandHK, 2019). The project aims to integrate the region with easier internal flows of people and goods across borders (Xinhua, 2019b) and to attract overseas travelers and businesses via its five major airports, which handle over 200 million passengers per year (Xinhua, 2019a). This state-led regionalization is also aimed at increasing institutional and socio-cultural diversity in the unique and evolving context of 'One Country, Two Systems' (Yang, 2006). For these reasons, social challenges are unavoidable while tourism booms in the region. Recent tourism studies using the case of mainland China–Hong Kong conflicts have debated how social discourse can shift to emotional contagion and group polarization (Song & Wu, 2018) through competing stereotypes and the development of mutual distrust between the host community and tourists (Tung, King, & Tse, 2020). These studies have generally discussed negative sentiments and their undesirable effects on tourism development (Luo & Zhai, 2017), although some have argued that this effect can be ignored because the negative impact remains unclear (Tolkach, 2018).

Thus, the present study investigated the public's cognitive and affective responses to the path creation of an integrated tourism region. By identifying constructs of the cognitive image of a newly formed region, it explored a more objective measurement scale of destination region image to provide practical implications for collaborative strategy formulations in cross-border destination management. A comprehensive three-dimensional construct of proximity was also taken into account, in light of its potential role as a determinant (Kastenholz, 2010; Szytniewski, Spierings, & Van der Velde, 2017) or moderator (Zhang, Wu, Morrison, Tseng, & Chen, 2018) of the destination image within a megaregion.

This study had two research objectives. First, a series of factor analyses were conducted to examine latent constructs that shape people's cognition of a region in response to path creation. The cognitive structure was further elaborated through online text mining. Second, tourists were classified based on proximity to explore how the level of proximity may lead to cognitive and affective differences in the destination region image. The heterogeneous impact of each proximity dimension on destination region image was further examined.

2. Literature review

2.1. Destination region image

Tourism destination image reflects the multiple dimensions of both 'object' and 'subject' (i.e.

destination and tourist) and the dynamic interaction between them (Gallarza, Saura, & García, 2002). The dynamic process of destination image formation has been widely investigated by researchers. A theoretical foundation for image formation with three image components and eight agents was developed by Gartner (1994). In terms of image components, cognitive, affective, and conative images have been widely acknowledged as distinct but hierarchically interrelated within the structure of the destination image (Gartner, 1994; Stylidis, Shani, & Belhassen, 2017). The formation of cognitive, affective, and overall images of a place has been recognized in the path model of the tourism destination image (Baloglu & McCleary, 1999). Image formation is determined by various agents acting as collective forces. Previous studies have agreed that the destination image is formed by two main factors: personal factors and stimulus factors (Baloglu & McCleary, 1999; Beerli & Martin, 2004). Personal factors are the socio-psychological characteristics of tourists, whereas stimulus factors are information obtained from different sources and via various channels and previous experiences. Gartner (1994) concluded that the information that affects image formation needs to be analyzed, as it affects tourists' cognition and (re)assessment of a place and may eventually lead tourists to form or reform their destination image. Images are likely to remain somewhat stable over time even if there is a dramatic change in destination attributes (Crompton, 1979). However, the exposure to abundant information in contemporary society may lead to changes in tourists' perceptions of and opinions on a place (Wang, Chan, & Pan, 2015). In the digital era, contemporary tourists have become more proactive in creating destination images rather than passively receiving them (Tomaž & Walanchalee, 2020).

Destination is a unit of tourists' perception and analysis, and its boundaries are an evolving concept. In a cross-border setting, Blasco, Guia, and Prats (2014) indicated that a destination governance structure should also be developed from a conventional structure to a more evolved one that engages various stakeholders and places. It is important to define 'destination boundary' to understand tourists' image of a place (Chaulagain, Wiitala, & Fu, 2019), because the spatial boundary and the meaning of a place are interconnected. The image of the spatial boundaries of a destination has long been dominated by the contrast between generic and specific dimensions, such as the country and city (Akgün, Senturk, Keskin, & Onal, 2020; Mossberg & Kleppe, 2005; Zhang et al., 2018); as a result, meso-scale spatial cognition has often been neglected in the literature. As the conceptual and geographical boundaries of a region (e.g. a metropolitan cross-border region or coordinating region) are ambiguous, the research on destination region image remains insufficient.

Tourism collaboration can create novel paths in evolutionary terms by forming new images and identities for destination regions (Clavé & Wilson, 2017). Fyall, Garrod, and Wang (2012) addressed collaborative relationships in tourism destinations and categorized the theories as resource-based, relationship-based, politics-based, process-based, or chaos-based. In the empirical literature, two types of regional destination boundaries can be observed: resource-based (or natural) demarcation and policy-driven demarcation (e.g. regional planning and zoning). For example, wine destinations are a case of the former: they cover an enormously wide area that includes the "wine tourist terroir" (Jones, Singh, & Hsiung, 2015, p.262). In the latter case, policy-driven demarcation includes the re-bordering of a destination region or the strategic bundling of tourism destinations, such as city-region planning and governance (Coombes, 2014), multiple-destination marketing (Teye, 1988), joint promotion (Gooroochurn & Hanley, 2005), and cross-border collaboration (Stoffelen & Vanneste, 2018). Regional tourism collaboration facilitates connection, integration, and intra-regional mobility (Hwang, 2001). In the context of megapolitan geography, connectivity describes new types of relationships or links between member cities or regions (Lang & Knox, 2009). A new urban way of living and traveling in the megalopolitan region reflects the morphological and functional coordination of city systems (Phelps, 2019). Similarly, the coordinating destination system may reshape the destination image because people recognize tourist regions through new urban regional identities and patterns of tourism activities.

2.2. Multi-dimensional proximity and its impact on destination image

An image is a personalized and internalized understanding of what people know about a place (Gallarza et al., 2002). Obviously, destination image is influenced not only by individuals' experiences in the destination but also by their personal characteristics and their knowledge and feelings about the destination (Currie, 2020). Tourism studies consider distance to be critical to addressing the role of the relationship between tourists and places in destination image formation. Traditionally, the distance between the origin and a destination has been understood as an important ingredient in the formation of a destination's image (Crompton, 1979). Distance also plays an important role in determining market segments, such as in-state and out-of-state tourism (Uysal, Chen, & Williams, 2000), short- and long-haul travel (Crouch, 1994; Pike, 2016), and domestic and international tourism (Bonn, Joseph, & Dai, 2005). The concept of distance should not be limited to physical distance (miles or travel hours); it should also convey subjective distance

(Ankomah & Crompton, 1992). Subjective or cognitive distance consists of environmental and personal characteristics. Topographic and political boundaries are examples of the former, while socio-demographic features, the frequency or duration of the visit, the level of involvement, and experience belong to the latter (Ankomah & Crompton, 1992). As tourism activities involve cross-cultural encounters between the home and host areas, cultural familiarity (or cultural distance) is the critical determinant of tourists' perceptions of the destination (Huang, Chen, & Lin, 2013). Prentice (2004) highlighted that familiarity, as a relationship that develops between the tourist and a distant place, involves the incorporation of a person's experience of a destination into their everyday imaginings.

Tourism studies have demonstrated that different dimensions of proximity should be jointly considered (King, Shipway, Lee, & Brown, 2018; Szytniewski et al., 2017). For instance, Boschma (2005) distinguished five dimensions of proximity (cognitive, organizational, social, institutional, and geographical) to address proximity in terms of distance, relation, and communication. Since Tobler (1970) proposed the theoretical basis of proximity in economic geography, proximity dynamics have been studied by researchers across different disciplines in the social sciences (Boschma, 2005; McCann & Folta, 2008; McKercher, 2018). In tourism studies, the familiarity of tourists with a destination can be either informational, experiential, proximate, self-described, or educational, and extends to self-assured and expected familiarity (Prentice, 2004). This is why a measure of familiarity should be derived from a multi-dimensional concept (Baloglu, 2001). Baloglu (2001) indicated that familiarity is a blend of knowledge that consists of a certain amount of information and experience from previous visits. Generally, "the higher the familiarity, the more positive the image" (Baloglu, 2001, p.127); however, a collision between familiarity and novelty can also be observed in tourists' perceptions. Kastenholz (2010) found that visitors who were neither extremely close nor extremely far in terms of cultural proximity tended to have the most positive destination image. In her study, however, cultural proximity was measured only by the country of residence, and thus the influence of visitors' holistic cultural background on destination image formation could not be captured. Nonetheless, increasing tourists' familiarity with the destination through channels that convey the lifestyle, culture, language, values, and history of the region reduces barriers between the hosts and tourists (Kapuściński & Richards, 2016) and improves tourists' image of the destination. This in turn generates further tourist flows (Wang et al., 2015; Yang, Liu, & Li, 2019). Despite its importance, however, cultural proximity/distance has

received relatively little attention in tourism studies (Yang et al., 2019).

3. Study area and method

3.1. The GBA and path creation

The GBA has undergone three distinctive phases of development that illuminate the unique history of convergence and divergence in its regional development. This developmental path also demonstrates the reasons why individuals' spatial cognitive images of the GBA are highly dynamic and of interest to scholars.

In the first phase, during the Qing Dynasty, Canton (now Guangzhou) was designated as a port for foreign trade in the South China coastal region. This region, then triangulated by Guangzhou, Hong Kong, and Macao, experienced bordering and de-bordering in subsequent eras. During the period of institutionalized lockdown from 1757 to 1842 (Liao, 2007), the Canton System was internationally known for its single-port trading function and the dominant position of the '13 Hongs' (factories). As the foreign trade center of the Qing Dynasty, the Canton System intermediated Sino-Western commercial relations and contributed to the rise of the modern global economy and international trade flows (Carroll, 2010). Famed as the bellwether of China's foreign trade since spring 1957, the Canton Fair was the sole gateway to China for international business travelers before the opening-up policy was introduced in 1978. Special economic zones (SEZs) played a unique role in re-bordering the destination and attracting foreign capital and technology. To facilitate investment from the overseas Chinese business network, three coastal cities (Shantou, Shenzhen, and Zhuhai) in Guangdong province were strategically zoned as SEZs in China's epoch-making policy (State Council Information Office, 2011).

In the second phase of path creation, the Pearl River Delta (PRD) region was officially created to promote economic renaissance and urban agglomeration (Li, Xu, & Yeh, 2014; Liu et al., 2019; Sung, Liu, Wong, & Lau, 1995), and the region was re-bordered in 1994. Excluding Hong Kong and Macao, the PRD mainly involved cities in Guangdong province, while Guangzhou and Shenzhen served as intermediaries linking Chinese manufacturers and global markets. The resurrection of the Canton System was promoted as the recovery of international commercial relations and an extension to more comprehensive goods and service flows beyond trade in tea and silver. As the tourism industry became an economic pillar of regional planning and development,

the PRD was enriched by the path creation of urban tourism agglomeration (Chen, Lu, & Zheng, 2011). The PRD has undergone vigorous development as a tourist destination: for instance, the tourism revenue of the PRD increased from 83.537 billion RMB to 222.246 billion RMB during the 1999–2008 period (Xiao, 2009). During this phase, however, social and institutional integration lagged far behind economic integration across the border between Shenzhen and Hong Kong (Shen, 2014).

In terms of recent path creation, the newest phase of regional integration has been stimulated by the GBA project, which emphasizes cross-border flows and smart technologies. Through internal de-bordering and external re-bordering, the GBA has reshaped the region by developing a seamless ecosystem and smart environment (Xinhua, 2019b). Because the GBA is portrayed as an enlargement of the PRD region by including the two SARs (Figure 1), the bridging or hindering role of the borders between the mainland cities and SARs has become an important issue in terms of both academic research and governance. Cross-border tourism planning and cooperation have become more significant in 'soft' region-building across the borders (Stoffelen, 2018). To this end, tourism collaborations between cross-border institutions have increased (UNWTO/GTERC, 2018), and the region is now an 'experimental field' of transboundary regional integration and tourism cooperation in response to the new regionalism (Paasi, 2009) within the Asian paradigm. At this stage, both residents' and visitors' interests should be taken into consideration when developing cross-border tourism collaboration and public policies and strategies, with a focus on breaking down administrative obstacles and establishing a shared regional identity (Stoffelen & Vanneste, 2018).

Due to the GBA's path creation, people's spatial cognition may change in accordance with the newly defined destination region. For example, Kirillova, Park, Zhu, Dioko, and Zeng (2020) found that homogeneity and heterogeneity coexist among member cities and that a coopetitive GBA brand can be developed by the flexible assembly of different combinations and collaborations. The dynamic background and characteristics of the GBA give rise to multi-directional approaches, especially in the cognitive perceptions of tourists who have different levels of familiarity with and distance from the region. This requires an exploration of the structure of the cognitive destination image of the GBA region, and how dissimilar groups of visitors, with different levels of cultural familiarity and distance, evaluate destination regions.
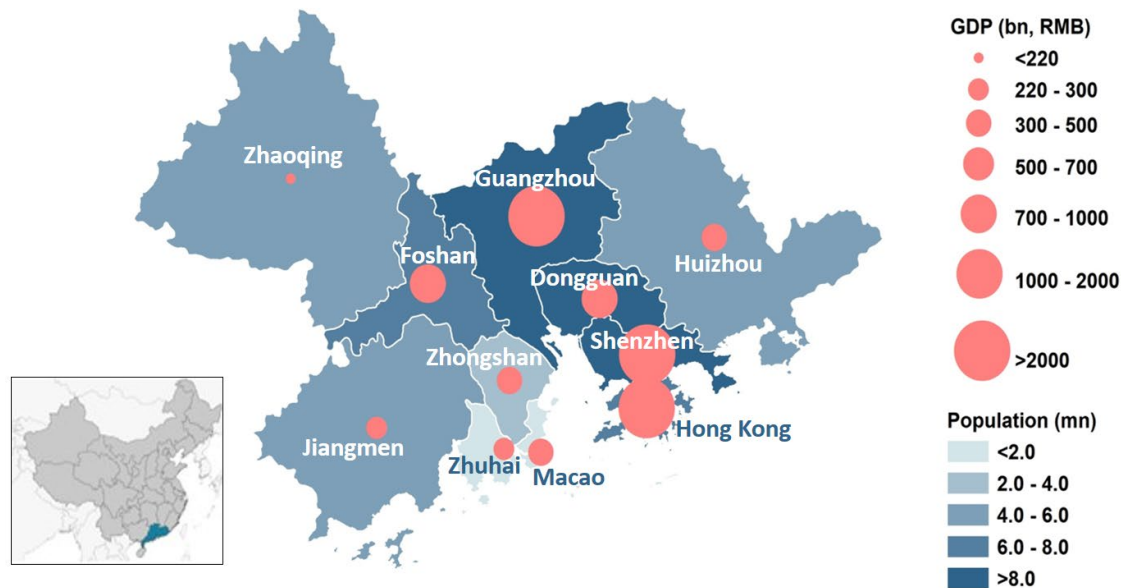
Fig. 1. Overview of Greater Bay Area cities
Data source: Greater Bay Area website (https://www.bayarea.gov.hk/en/home/index.html)

3.2. Survey design and analysis

To achieve the two research objectives of this study, a comprehensive measurement scale of the cognitive image of a destination region was developed, with particular reference to the GBA region. The scale was developed based on previous theoretical and empirical findings on destination image (Mill & Morrison, 2012; Beerli & Martin 2004; Chen & Tsai, 2007), regional/international tourism collaboration (Hill & Shaw, 1995; Larionova, Suslova, Povorina, & Vinogradova, 2015), and cross-border co-marketing and co-branding (Hospers, 2006; Zenker & Jacobsen, 2015), in addition to the government document on the GBA plan (Xinhua, 2019b; GBA, 2019). The affective image was measured using the scale of Russell (1980).

The questionnaire included four sections. The first section of the initial questionnaire included 23 items that measured respondents' cognitive images of the destination region. The items were measured on a 5-point scale (from 1 = strongly disagree to 5 = strongly agree). There were also four items that measured affective image using a 5-point semantic differential scale. The second and third sections comprised five items that measured respondents' cultural proximity and a binary choice of geographical proximity (in-GBA vs. out-of-GBA domestic tourists). Cultural proximity was measured by self-described familiarity on a scale of 1 (not familiar/knowledgeable) to 5 (very familiar/knowledgeable) in terms of the unique locality of the GBA, including the local dialect

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(e.g. Cantonese and Hakka), history, popular culture, folk customs and culture, and lifestyle (Kapuściński & Richards, 2016; Lu, Chen, Huang, & Bao, 2019). The fourth section covered the socio-demographic and travel characteristics of the respondents, as shown in Table 1. The initial questionnaire was revised based on the feedback from the pilot study. For instance, the pilot respondents were hesitant about answering a question on the 'hospitable host community' of the GBA and stated that they had very different evaluations of the various GBA member cities in terms of residents' hospitality. In view of this, the item on the 'hospitable host community' was divided into two questions for more accurate responses.

The survey was conducted two years after the promulgation of the 'Outline Development Plan for the GBA.' A professional data company was appointed to administer an online survey to randomly selected panels in January 2021. The survey quotas were established according to the population's age and gender distribution to ensure the representativeness of the sample. After discarding 55 responses with missing information, a total of 628 valid responses were retained.

Tab. 1. Respondents' demographic and travel characteristics ($N = 628$)

Characteristics		n	%
Gender	Female	322	51.3
	Male	306	48.7
Age (years)	18−24	83	13.2
	25−34	246	39.2
	35−44	148	23.6
	45−54	91	14.5
	55−64	36	5.7
	65 or older	24	3.8
Education	Primary school or below	8	1.3
	Secondary school/technical institution	77	12.3
	Tertiary college	112	17.8
	University	370	58.9
	Graduate student or higher	61	9.7
Monthly expenditure	2,000 RMB[a] or less	5	0.8
	2,001−5,000 RMB	52	8.3
	5,001−8,000 RMB	52	8.3
	8,001−10,000 RMB	91	14.5
	10,001−20,000 RMB	206	32.8
	20,001−30,000 RMB	159	25.3
	30,001 RMB or more	63	10.0
Current residence	In-GBA	320	51.0
	Out-of-GBA	308	49.0
Previous visits to GBA	9–11 cities	236	37.6

member cities	4–8 cities	246	39.2
	1–3 cities	81	12.9
	Never visited	65	10.4
Travel intention to GBA	Passive/negative	13	2.1
	Neutral	67	10.7
	Active/positive	548	87.3

a.   The exchange rate of the Chinese yuan to the U.S. dollar was 0.154 at the time of the survey (January 2021).

The reliability and validity of the measurement scale of destination region image and cultural proximity were assessed using SPSS and Amos. An exploratory factor analysis (EFA) with varimax rotation and confirmatory factor analysis (CFA) using the maximum likelihood method were conducted to investigate the measured construct. The respondents were clustered based on the multi-dimensional proximity level, and their destination image was compared using an analysis of covariance (ANCOVA). The heterogeneous impact of each proximity dimension on destination image factors was examined using a regression model.

3.3. Weibo data acquisition and processing

To provide further elaboration of the survey results, supplementary data were gleaned from Sina Weibo, a Twitter-like microblogging platform. Weibo is one of the biggest social media platforms in mainland China and is an effective data source for vivid self-expression by Chinese users (Cheng & Edwards, 2015; Song & Wu, 2018). It is also a source of accurate spatio-temporal data (Su, Spierings, Dijst, & Tong, 2020).

The Weibo posts were collected using a combination of two keywords: 'Guangdong–Hong Kong–Macao Greater Bay Area' and 'Tourism.' After screening out irrelevant posts, the corpus contained 676 source posts with 132,414 Chinese characters during the two-year period from February 2017 to September 2019. Most (505 posts, 74.7%) were posted in 2019 because the official GBA agreement was signed in July 2017 and the plan was promulgated in 2019 (GBA, 2019). Lastly, 7,776 words and 101 word categories were extracted using the TAPoR 3.0 tool and TextMind program (Wenxin), a Simplified Chinese word-analysis system developed by the Chinese Academy of Sciences based on Linguistic Inquiry and Word Count (Song & Wu, 2018). TAPoR 3.0 and TextMind were used to categorize the words in the Weibo corpus. TextMind further categorized the words into linguistic, cognitive, and emotional dimensions based on their dictionary definitions, and identified the five most frequent categories: function words (e.g.

pronouns and articles), relativity (e.g. space, motion, time), personal concerns (e.g. work, leisure), cognitive processes, and regular verbs. This snapshot of the data structure supported the application of the Weibo data as a supplement to the survey results to investigate the cognitive image of the GBA destination region. After the data modification process (including the exclusion of meaningless words and substantive merging), 178 keywords were determined to identify people's cognitions with specific expressions about the GBA as a tourism destination region and then classified by the authors on the basis of their semantic properties. The classification applied a deductive approach based on the GBA image construct in the survey data analyses.

4. Results

4.1. Measurement scale

EFA and CFA were carried out to identify the latent constructs of the cognitive image of a destination region and to test the reliability and validity of the data. This study randomly divided the sample into two groups, using the first selected subsample ($n = 307$) for EFA. For the cognitive image of a destination region, the EFA identified three dimensions (Table 2), which together explained 50.101% of the overall variability of the original data. The reliability coefficients of these factors were 0.926, 0.852, and 0.789. The result of the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was 0.961, and Bartlett's test of sphericity returned a high value of 4,256.277 ($p < 0.001$). The reliability of the 5-item cultural proximity scale was tested using Cronbach's alpha and found to be satisfactory ($\alpha = 0.926$). The KMO measure of sampling adequacy was 0.889, and Bartlett's test of sphericity returned a value of 1,337.703 ($p < 0.001$).

The second randomly selected subsample ($n = 321$) was then used for CFA to examine construct validity. As Table 3 shows, the construct validities of the cognitive image, affective image and cultural proximity measures were examined, and the standardized factor loading on all latent constructs was satisfactory. The indicators of average variance extracted (AVE) ranged from 0.462 to 0.752, and those of composite reliability (CR) ranged from 0.738 to 0.938. The convergent validity was deemed adequate, given that the standardized factor loadings of all items on their constructs were higher than 0.6 (>0.5) and the CR values of all constructs were higher than 0.7 (>0.7), despite AVE values that were slightly lower than the recommended value of 0.5 (Fornell & Larcker, 1981; Huang, Wang, Wu, & Wang, 2013). In the CFA and reliability tests for the cognitive

image and cultural proximity measure, the model fit indices demonstrated a good fit (Doll, Xia, & Torkzadeh, 1994), χ^2 $(df) = 597.586$ (471), $\chi^2/df = 1.269$, $p < 0.001$, goodness-of-fit index (GFI) = 0.901, adjusted goodness-of-fit index (AGFI) = 0.882, normed fit index (NFI) = 0.915, comparative fit index (CFI) = 0.980, and root-mean-square error of approximation (RMSEA) = 0.029.

Tab. 2. Exploratory factor and reliability analysis results for initial measurement scales ($n = 307$)

Dimensions: Factor interpretation Variables included in the factor	Factor load	Cronbach's alpha
Cognitive image of destination region:		
Regional tourism planning		0.926
Hospitable host community (two SARs)	0.730	
Efficient travel route planning	0.654	
Quality of tourism service	0.613	
Distinctive role sharing of member cities	0.594	
Difference in political and economic systems	0.569	
Leading role of mature destinations in regional reputation	0.549	
Hospitable host community (nine mainland cities)	0.534	
Safety	0.523	
Good partnership among member cities	0.519	
Cleanliness	0.517	
Smart tourism destination	0.488	
Tourism infrastructure and facilities	0.484	
Government and policy support	0.452	
Wide choice of multi-destination travel products	0.437	
Destination attractiveness (for leisure and business travel)		0.852
Appealing local cuisine and beverages	0.688	
Good for a family trip	0.622	
Unique lifestyle	0.610	
Outdoor recreation activities	0.549	
Variety of cultural attractions and entertainment	0.539	
Environment for business, exhibitions, and conferences	0.509	
Development environment		0.789
Transportation accessibility	0.614	
High level of internationalization	0.608	
Economic development	0.608	
Nightlife	0.446	
Affective destination image:		0.813
Distressing–Relaxing	0.725	

	Std. load		
Gloomy–Exciting	0.814		
Unpleasant–Pleasant	0.834		
Sleepy–Arousing	0.825		
Cultural familiarity:			0.926
Folk customs and traditions	0.924		
Lifestyle	0.892		
History and local stories	0.870		
Local dialect	0.797		
Mass/popular culture	0.749		

Tab. 3. Confirmatory factor analysis for final measurement scales ($n = 321$)

Dimensions	Std. load	AVE	CR
Cognitive image of destination region:			
Regional tourism planning		0.498	0.933
Hospitable host community (two SARs)	0.661		
Efficient travel route planning	0.715		
Quality of tourism service	0.739		
Distinctive role sharing of member cities	0.695		
Difference in political and economic systems	0.657		
Leading role of mature destinations in regional reputation	0.737		
Hospitable host community (nine mainland cities)	0.761		
Safety	0.702		
Good partnership among member cities	0.718		
Cleanliness	0.728		
Smart tourism destination	0.691		
Tourism infrastructure and facilities	0.737		
Government and policy support	0.652		
Wide choice of multi-destination travel products	0.679		
Destination attractiveness (for leisure and business travel)		0.520	0.867
Appealing local cuisine and beverages	0.669		
Good for a family trip	0.747		
Unique lifestyle	0.722		
Outdoor recreation activities	0.720		
Variety of cultural attractions and entertainment	0.743		
Environment for business, exhibitions, and conferences	0.723		
Development environment		0.462	0.738
Transportation accessibility	0.678		
High level of internationalization	0.658		
Economic development	0.705		
Nightlife	0.678		
Affective destination image:		0.510	0.806
Distressing–Relaxing	0.722		

Gloomy–Exciting	0.747		
Unpleasant–Pleasant	0.653		
Sleepy–Arousing	0.731		
Cultural familiarity:		0.752	0.938
Folk customs and traditions	0.897		
Lifestyle	0.908		
History and local stories	0.891		
Local dialect	0.845		
Mass/popular culture	0.789		

4.2. Structure of the cognitive image of a destination region

To identify the cognitive destination image structure of the GBA region, an EFA with varimax rotation and CFA using the maximum likelihood method were conducted, and three factors were extracted: Regional Tourism Planning; Destination Attractiveness (for leisure and business travels); and Development Environment (Table 2 and Table 3). The factor labeled Destination Attractiveness was related to tourism destination items. Another two factors were specified for the region-related destination image to capture the regional planning and economic development of the region, namely Regional Tourism Planning and Development Environment. Beyond the traditional assessment criteria for the cognitive image of tourism destinations, which was mainly reflected in Factor 2 (including the local cuisine, leisure resources, cultural attraction, and business events), the destination region was evaluated in terms of its region-specific characteristics. For the object itself (the destination region), the connectivity among member cities in terms of infrastructure and partnerships was evaluated by tourists. The associated benefits of the extension of the destination boundaries were also evaluated. In the GBA, tourists have a choice of multiple destinations with different systems and tourism resources. Following the government's destination co-branding strategy for the GBA (Xinhua, 2019b), smart tourism and role sharing among member cities have become key components of the image for regional tourism planning.

A list of 178 keywords from Weibo text classified by the authors based on their semantic properties provided more expressions related to each image factor. Applying the social network approach via iterative metric multidimensional scaling, the relationships between the three factors and Weibo discourse (frequency) were examined (as shown in Figure 2). The textual data delineated the destination region image beyond the structured (or researcher-administered) survey

data. For instance, the Destination Attractiveness factor showed that 'culture' could fully represent the image of a destination region. This suggests that not only is the regional culture reflected in the collective dimensions of the destination culture, but also involves an individual's everyday life (e.g. 'life,' 'work,' 'home,' and 'behave'): specifically, 'celebrating' the destination's 'festival' and 'unique features' or experiencing its 'art,' 'cuisine,' 'dialect,' and 'history.' The Weibo data also indicated the projection of people's images in response to framing discourses through institutionally grounded 'propaganda.' Regarding the Regional Tourism Planning factor, a brief summary of the Weibo corpus is that under China's 'Belt and Road Initiative,' the GBA might 'build' a 'new' and 'comprehensive' regional 'brand' and facilitate a 'joint innovation project' including 'borderless tours.' In this case, the 'power' and hegemony of government authorities among the GBA member cities were also implied.
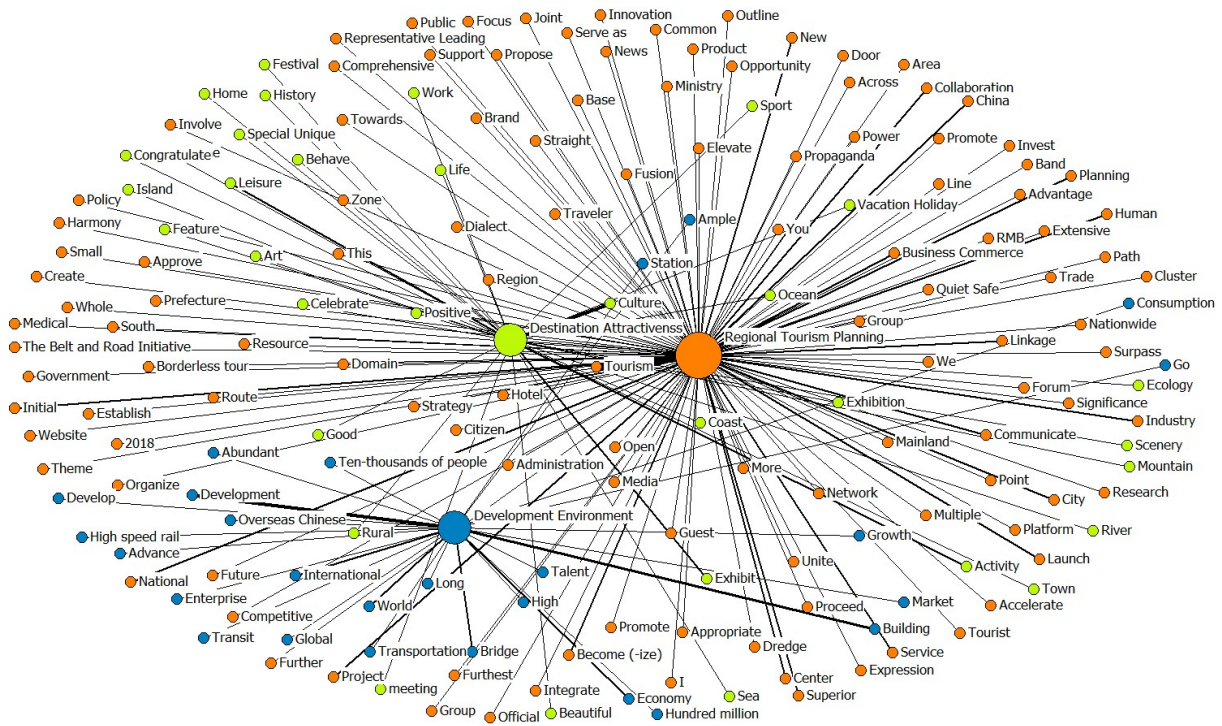

Fig. 2. Network underlying cognitive factors of the destination region image

4.3. Comparison of the image by proximity-based clusters

To contribute further to the proximity and destination image literature, the study further

estimated whether heterogeneous proximity-based clusters perceived destination region images differently. Proximity was measured using the three dimensions of cultural familiarity, geographical distance, and previous travel experience which leads to experiential familiarity (Table 4). The study compared hierarchical and k-means clustering, and identified three clusters labeled as low ($n = 126$), medium ($n = 204$), and high ($n = 298$) proximity. A cross-tabulation summary demonstrated that 76.2% of those in Cluster 1 (the high proximity group) had visited most of the GBA cities (9–11 cities), compared with only 32.4% and 5.6% of those in Clusters 2 and 3 (the medium and low proximity groups), respectively. In terms of geographical proximity, 76.2% of Cluster 1 were in-GBA tourists, while out-of-GBA tourists constituted the majority of both Clusters 2 and 3 (58.3% and 93.7%, respectively). In terms of cultural proximity, the cluster analysis indicated that the mean thresholds of the low, medium, and high proximity groups were 1.4, 3.2, and 4.0, respectively. This further demonstrates the distribution of each variable of cultural proximity within the clusters in Figure 3. Interestingly, acquisition of the local dialect and popular culture showed intra-individual variance in the medium and low proximity groups, whereas the other three dimensions of cultural familiarity were homogeneous within each cluster but had distinctive features between clusters. Only the high proximity group showed a full understanding of the region's history/local stories and folk customs/traditions.

Tab. 4. Cluster analysis of multi-dimensional proximity

| Dimensions of proximity Variables	F/p	Cluster 1 ($n = 298$)	Cluster 2 ($n = 204$)	Cluster 3 ($n = 126$)
Cultural familiarity				
Local dialect	771.975/<0.001	4	3	1
History and local stories	853.913/<0.001	4	3	2
Mass/popular culture	396.435/<0.001	4	4	2
Folk customs and traditions	900.893/<0.001	4	3	1
Lifestyle	968.985/<0.001	4	3	1
Geographical distance (1 = In-GBA; 2 = Out-of-GBA)	128.710/<0.001	**1**	**2**	**2**
Previous travel experience (1 = Had visited almost every city; 2 = Had visited many cities; 3 = Had visited few cities)	265.030/<0.001	**1**	**2**	**3**
Cluster definition:		High proximity	Medium proximity	Low proximity
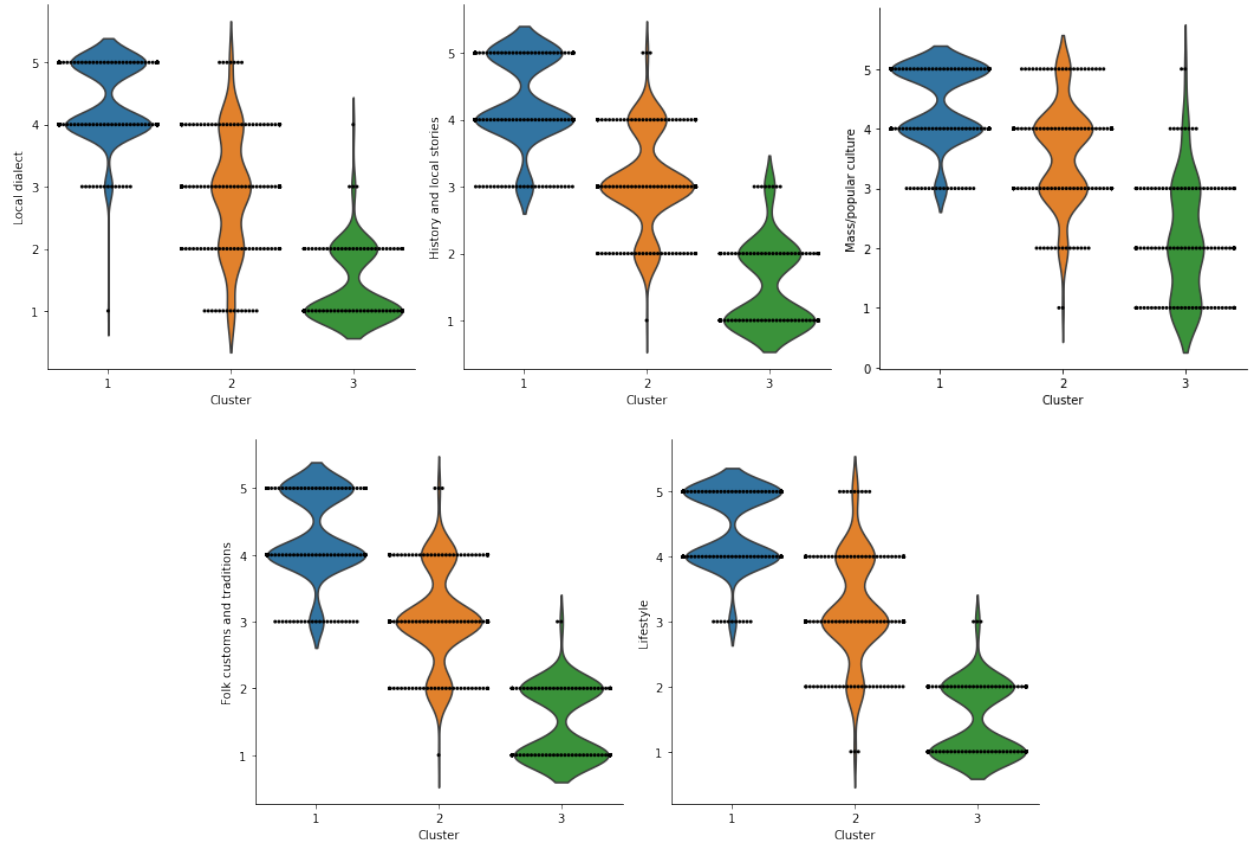
Fig. 3. Categorical plots of clusters and cultural familiarity

Notes. Cluster 1 = High proximity group; Cluster 2 = Medium proximity group; Cluster 3 = Low proximity group.

As shown in Table 5, the proximity-based clusters demonstrated significantly different destination images of the GBA region in all four aspects. An ANCOVA was carried out to examine the relationship between proximity heterogeneity and destination region image while controlling for age and gender, which are widely acknowledged as influencing destination image (Beerli & Martin, 2004). There was a significant effect ($p < 0.001$) of proximity on regional destination image (i.e. the sum of cognitive and affective images). The Bonferroni test indicated that the low, medium, and high proximity groups of tourists showed significant differences in their destination region images. Tourists who were more proximate to the region expressed a more positive and holistic image of the destination region.

Tab. 5. ANCOVA results for destination image by proximity controlling for covariates

	SS	df	F	p	η_P^2
Proximity-based cluster	122.737	2	81.481	<.001	0.208
Gender	0.044	1	0.058	0.810	<0.001

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Age	2.271	1	3.016	0.083	0.005
Education level	0.210	1	0.279	0.597	<0.001
Error	468.464	622			

Notes. SS = sum of squares, df = degrees of freedom, η_p^2 = partial eta-squared (effect size measure); R^2 = 0.219 (adjusted R^2 = 0.213).

Given the significant relationship between proximity and destination image on a holistic level, a regression analysis was conducted to examine the impact of each proximity dimension on the destination image factors. As Table 6 shows, the three dimensions of proximity influenced cognitive and affective images of the destination region differently. Cultural familiarity was the strongest determinant of destination region image formation. Interestingly, geographical distance negatively affected the image of the GBA. This echoes the findings from Stylidis et al. (2017) that residents' evaluations of their own place of residence were more rational while tourists tend to be more affective. In terms of previous travel experiences, various combinations were compared. Specifically, dummy variables for previous travel experiences were coded to generate a 'had visited most cities (9–11 cities)' group and an 'others (0–8 cities)' group. The threshold of nine cities chosen for the first group would include those respondents who had traveled to most of the nine mainland cities in the GBA and/or the two SARs. The results showed that tourists who had traveled extensively across the GBA had more positive evaluations of regional planning and tourism collaboration between member cities, while the opposite was true for the effect of previous travel experiences on affective destination images.

The study checked for the absence of multicollinearity using VIF, which ranged between 1.511and 1.692 (<10) and thus confirmed the null hypothesis. Linearity and homoscedasticity assumptions were also confirmed using diagnostic plots (see Appendix), suggesting that the residuals of the models were normally distributed.

Tab. 6. Effect of proximity on destination region image

Proximity dimensions	Destination region image			
	Cognitive image F1	Cognitive image F2	Cognitive image F3	Affective image
Cultural familiarity	0.371 *** (0.041)	0.364 *** (0.041)	0.135 *** (0.041)	0.341 *** (0.045)
Geographical distance[1]	−0.211 *** (0.075)	−0.292 *** (0.076)	−0.181 ** (0.075)	−0.170 ** (0.083)
Previous travel experience[2]	0.356 *** (0.077)	0.031 (0.077)	−0.095 (0.077)	−0.181 ** (0.084)

Constant	0.302 (0.070)	0.171 (0.070)	0.140 (0.069)	0.179 (0.076)
R-squared	0.214	0.138	0.029	0.146

Notes. F1 = Regional Tourism Planning; F2 = Destination Attractiveness; F3 = Development Environment. Standard error in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.
[1] Dummy coded as 0 = out-of-GBA or 1 = in-GBA
[2] Dummy coded as 0 = others (0–8 cities) or 1 = had visited most cities (9–11 cities)

5. Conclusions and implications

The development of infra- and info-structure not only streamlines connectivity between neighboring destinations but also enhances people's mobility within a broader concept of tourist space and time. As such, contemporary destination regions ceaselessly search for new paths by restructuring tourism products and places (Saarinen & Kask, 2008). The new cognitive systems of tourists in response to these redefined destinations have thus become an important topic in tourism studies. In light of the spatial and cultural complexity of modern travel, this study explored people's images of a destination region demarcated by government policy. The top-down zoning policy could support city-regional economies (the tourism destination region) in creating a new path, and people's cognitive systems and affective responses can also be reshaped to align to this path.

This study contributes to the understanding of destination image in several ways. First, the structure of the cognitive image in response to the path creation of the destination region is addressed. As Butler (1980) indicated, tourism destinations are dynamic and evolving and bring about corresponding changes in people's spatial cognition. Many recent studies have used semantic analysis approaches to explore emotional destination images in different social contexts; however, there have been few empirical studies of cognitive perceptions in the light of spatial dynamics and different conceptual scales of destinations. This study filled this gap by taking the GBA as a real-world scenario and proposing an extended structure of the cognitive image for the broader destination region. The analysis of cognitive image and its attributes could provide more specific and objective information for destination regions to develop effective marketing strategies (Alcañiz, García, & Blas, 2009) and cross-border collaboration.

Second, this study identified the destination region image, thus going beyond the conventional destination image at the city or state level. Due to variations in the economic, political, social, and cultural characteristics of the cross-border megalopolitan region, the regional image is more

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complicated and is framed by the discourses of local authorities and mass media. Our findings suggest that destination regions should provide innovative images by enhancing and publicizing the connectivity, administrative efficiency, and communal harmony among member cities in the region.

Third, the study demonstrates that proximity has a critical role in classifying tourists, and that boundaries are not only geographical but also cultural. In this study, the geographical boundary of proximity was measured as in-GBA or out-of-GBA, and cultural proximity involved several social criteria between in- and out-groups (group identity), such as language (local dialect), history and local stories, popular culture, traditions, and lifestyle. Beyond the binary variables of geographical distance (in or out) and previous experience (visited most member cities in the region or not), cultural distance provides a proximity-based typology through five elements. By integrating these elements into three-dimensional proximity, the study found a significant role of proximity in image differences. Tourists who have higher proximity have more opportunities within and access to the destination region, which makes their overall image of the destination region more positive. Because the results indicate that tourists gravitate toward destination regions to which they have higher proximity, the critical role of proximity in segmenting consumers (i.e. local travelers and outside visitors) for the purposes of marketing strategy and policymaking should be emphasized. Specifically, the interactions between the three proximity dimensions and four image constructs (the three factors of cognitive image plus affective image) have two important implications: first, cultural proximity is critical for building a positive image of a destination region; second, residents' cognitive evaluation and affective responses toward the image of their own region are generally negative. Given that tourism organizations in the GBA have been promoting intra-GBA travel by streamlining border formalities for its residents (e.g. Hong Kong Chief Executive, 2020), more effort should be made to understand this feature of the traveler-resident to enhance the image of the GBA among this group.

Mutually related objects (destination image attributes) and subjects (tourist proximity) were considered in this study to identify the dynamics of destination region image formation. The destination image of the GBA region was classified into three factors involving region-related attributes in addition to general destination image elements. Aside from the leisure and business travel attractiveness of the tourism destination, intra-regional connectivity (both infrastructure and partnerships) was highly valued by tourists. Variation provided a wider choice of member

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destinations in the region; hence, efficient and diverse travel route planning was highly rated. Beyond the physical connections between spaces, conceptual and environmental collaborations were also valued by tourists. Partnerships and role sharing among member cities should be developed and promoted to establish the destination region image and brand. It is also worth noting that the destination region is a polycentric rather than a monocentric system. The region's destination image is neither a simple aggregation of the member cities' images nor led by a single major destination. Connecting regional networks is a vital element of regional planning and tourism destination design. This study proposed that connectivity could be created through a functional urban network via human resource and service flows, within a regional culture with a distinct identity (language and history). These findings echo existing studies of path dependence and local innovation systems, which have underlined the networking and knowledge spillovers among sectors and institutions (Clavé & Wilson, 2017; Martin & Simmie, 2008).

The results of this study also give rise to practical suggestions for planners and marketers in the path creation and development of destination regions. From the demand side, this study focused on the structure and description of the cognitive image of a destination region. The description of the destination region image showed how tourists perceived these intangible concepts through the visible form of discourses or environments. The study findings offer insight into how intangible projects become tangible and deliver their messages (projected image or brand) to locals and visitors. This is applicable not only to travel by tourists from outside of the region but also to the intra-regional mobility of local residents and regional travelers. Government publicity has a major influence on the production, distribution, and representation of the region's image; thus, local authorities or joint destination marketing organizations should take a purposeful and multilayered marketing approach to attract heterogeneous tourists based on geographical, cultural, and experiential proximity. As Yang and Wong (2012) indicated, joint governmental promotion and de-bordering measures can maximize the benefits of cross-city or intra-regional spillovers in tourism flows. They also provide more opportunities to stakeholders across the region to learn from each other through coopetitive interplay (Kirillova et al., 2020).

Several limitations of the study should be noted. First, the GBA a region that is intensively planned and promoted by the central government, was used as a case study. Decentralized regional development and path creation may differ in terms of cognitive images and proximity effects. Therefore, future studies should more fully evaluate the destination region image in various

empirical settings. Second, this study was intended to elicit people's initial cognitive and affective responses to the top-down plan for cross-border regional development; however, these would be modified by acquiring more knowledge and experiences. In response to the COVID-19 pandemic and border lockdown within the GBA, certain images or evaluations may have emerged among regional residents and visitors concerning the public health system or border-free travel across the GBA. Third, more complex social discourse and communications channels should be considered. This would encompass not only internal perceptions across the border but also those of international markets and external stakeholders. In terms of image formation, major factors such as psychological characteristics and the use of various information sources and channels should also be considered. Future studies evaluating the holistic perceptions of regional tourism development and path creation strategies should involve various stakeholders and agents.

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