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Introduction

The “spatial turn” in cultural geography has led scholars to pay more attention to the intrinsic connection between space and culture (Li, 2000). This increased attention is likely due to the importance of culture to regional development. Hence, it would seem important to understand tourists’ perceptions of space within cultural environments. One space that has a long cultural history is the Yellow River basin, which passes through seven present-day provinces and two autonomous regions in China. The complex geographical space difference in the Yellow River basin has strengthened the unique regional culture. In particular, the upper, middle, and lower reaches of the Yellow River differ from one another in terms of cultural and environmental resources. As the birthplace of ancient Chinese civilization, the dynamic stabilization of cultural exchange between regions in the Yellow River basin has the ability to have the widespread distribution of cultural resources. This has been suggested to further promote the evolution of regional tourism competition and cooperation (Hou, Huang, et al., 2013). Yet, dividing regional tourism collaboration units based on the upper, middle, and lower reaches of the Yellow River ignores the cultural connectedness within the Yellow River basin. Further, developing tourism industries on a city-by-city basis has been argued to result in overcapacity, homogenization, and cut-throat competition (Hsu and Gu, 2010). Therefore, a regional division of tourism cooperation that takes into account the similarity of Yellow River culture and the difference in tourism resources within the region is likely more conducive to success.

The current study was grounded in the theory of tourist cultural perception. This theory, which originated in psychological research, suggests tourists are virtually and mentally stimulated by the local culture at a destination and subsequently develop a cultural understanding and impression of the destination (Chen, Meng, et.al., 2022). Tourists’ perception was believed to be important as it influences tourism decision-making and tourist satisfaction after tourism (Guo, Yu, Zhang & Jiang, 2022), and it has been found that tourists who perceive a destination to be more attractive and unique compared to other destinations are more likely to engage with the tourism activities when they visit a destination (Jeong and Kim, 2021). Hence, as suggested by Cheng (2018), tourists’ cultural perceptions were adopted in this study in hopes of better understanding and utilizing the Yellow River culture. In recent studies, geotagged social media data have been used to explore the social and cultural features of cities (Peng, Bao & Huang, 2020), but these studies haven’t considered the Yellow River basin as a whole area and analyzed the similarities and differences in tourists’ cultural perception between cities in the Yellow River basin to improve regional tourism cooperation and development.

Hence, the objectives of the research were threefold, namely, enriching tourists’ cultural perception literature, developing insights into the similar and different attributes of tourists’ perception of the Yellow River culture as a cue of regional tourism cooperation, and ultimately establishing a geographic regionalization model oriented to promote the Yellow River basin as an integrated destination equitably and complementarily. To address the objectives, the research was focused on four core questions: (1) What are the dimensions of tourists’ cultural perception in the Yellow River basin?, (2) What are the similarities and differences in tourists’ cultural perceptions between targeted destinations in the Yellow River basin?, (3) How can the targeted destinations in

the Yellow River Basin be classified into cultural tourism regions based on the degree of the Yellow River cultural similarities and differences?, and (4) What are the cultural tourism themes and current tourists' emotional evaluation in these regions in the Yellow River basin?

Review of Cultural Difference Methodologies

Previous studies have generally used clustering methods to study regional cultural differences (Li, Yang & Xiao, 2022), such as hierarchical clustering (Zheng, Deng, Luo Liang, et al., 2016). However, because this method relies on manual identification, it is typically limited to the study of perceived differences in a few cultural types at a small regional scale, and is likely not suitable for the study of regional differences in cultural systems composed of multiple cultures in a large area and a complex geographical environment (Ahmed, Sreedhar Kumar, et al., 2020). With the development of new geographic information technology in the context of spatio-temporal big data, new data sources and geographical analysis methods have recently been applied to the study of regional cultural spatial differences. For example, the POI data and minimum span tree method have been used to study regional differences in food culture (Zhang, Zhou, Tang, et al., 2021), and toponymic big data and the multivariate clustering method have been used to study differences in toponymic cultural spatial distribution (Wang, Zhang, Tang, et al., 2022). Geographical regionalization used in these studies helped to understand the local cultural similarities and global heterogeneity of single or multiple regional features, and it has also been able to determine geographic boundary divisions. The current research ignores the regionalization of network data emphasizing spatial interaction, but mainly focuses on point or polygon data. Thus, this research attempted to optimize the segmentation method for complex network communities and proposes a geographic regionalization model oriented to cultural semantic similarity networks.

Methodology

3.1 Data collection

As explained in the introduction, the Yellow River basin was chosen as the research context because it is the birthplace of ancient Chinese civilization with rich historical heritage and cultures, such as the Han culture, Mongolian culture, and other minority cultures (Zhang, Zhang, & Ju, 2020). Taking on a consumer-centric approach to marketing, when visitors posted travel blogs related to the cities along the Yellow River on the website, we assumed they were expressing and declaring their perception towards the Yellow River basin (Filieri, Yen, & Yu, 2021). Mafengwo (<https://www.mafengwo.cn/>), considered the “travel bible” by younger Chinese people, has one of the highest numbers of travel blogs, compared to other similar tourist generated content (TGC) platforms, such as Ctrip (6,966 travel blogs). As of December 2022, there were 65,113 travel blogs and 11,171,304 words in Mafengwo under the cities in the Yellow River basin. This was believed to be a good context to explore visitors' perceptions and emotional attachments towards the Yellow River. Using the Python programming language and the XML path language, all travel blogs were downloaded for the period January 1, 2019 to December 1, 2022. All of the Mafengwo travel blogs consisted of the date and time, textual captions, blog contents, account usernames, and a URL link.

3.2 Data analysis

A mixed-method approach was adopted to get a comprehensive account of the phenomenon under investigation (Torrance, 2012) and to assist in getting a more valid and detailed understanding of the investigated phenomenon (Denzin, 2010). Two separate studies were conducted to analyze the

data. Figure 1 below describes how these two studies complement each other in achieving the study’s research objectives.

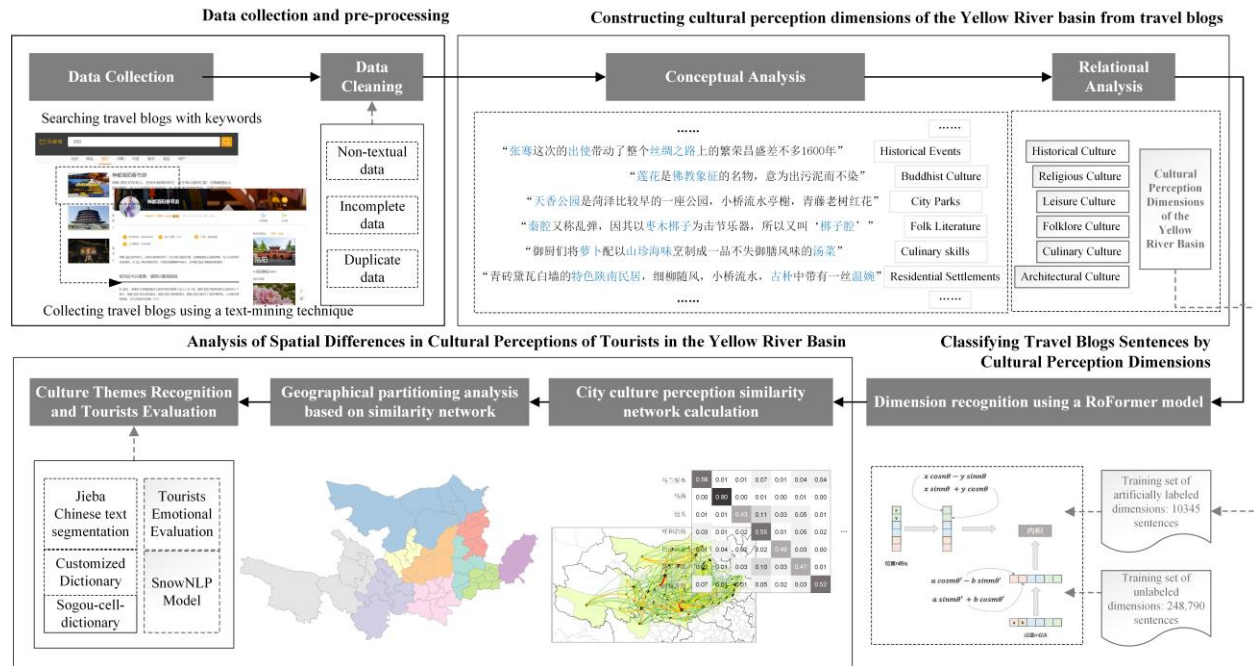


Figure 1. Workflow Chart

Study one focused on identifying and clustering tourists’ cultural perceptions from user-generated travel blogs. This study used thematic analysis to generate and identify codes and themes, which constructed the cultural perception dimensions of the Yellow River Basin, guided by the theory of cultural perception. The data were subsequently separated into sentences to be clustered into different dimensions according to the cultural perception dimensions using the RoFormer BERT-like autoencoding model. This model is a deep learning model for natural language processing to improve performance on textual classification tasks and is believed to generate an objective and text-driven review of large datasets with reproducible and reliable concept extractions and thematic clustering (Kitaev, Kaiser, & Levskaya, 2020).

Study two mainly focused on exploring the spatial association of tourists’ perceptions between different cities in the Yellow River basin and tourists’ emotional evaluation of tourism resources and product development. This study attempted to propose a regionalization method to divide prefecture-level cities in the Yellow River basin into a specified number of regions based on the perceived cultural similarity between cities. Then, the dominant dimensions in tourists’ cultural perception in each partition were analyzed and the cultural themes were extracted through co-word analysis. Lastly, tourists’ emotional attitudes of different dimensions in each region were measured using SnowNLP Model.

Results

The rudimentary findings indicated: (1) The multi-dimensional cultural perception dimensions of the Yellow River basin were composed of six dimensions: historical culture, architectural culture, folklore culture, culinary culture, religious culture, and leisure culture. (Table 1); (2) There were spatial associations and spatial variations of tourists’ cultural perceptions at prefectural scales in

the Yellow River basin. The central cities in the middle and upper Yellow River basin areas had a wider cultural radius and formed a cultural circle centered on the provincial capital cities, while the high similarity of cultural resources in the middle and lower Yellow River basin areas occurred between the two cities in very close proximity; (3) The network-oriented geographic regionalization model proposed in this paper divided prefecture-level cities in the Yellow River basin into 10 cultural tourism regions (Figure 2) and further clarified combined cultural tourism strengths of the Yellow River and the uniqueness of each individual cities; and (4) In different cultural tourism regions identified by this study, tourists expressed different emotional attitudes for each cultural perception dimension (Figure 3), and the level of tourist's emotional evaluation did not fully match the degree of cultural perception.

Table 1. Cultural Perception Dimensions and Interpretation in the Yellow River Basin

Primary dimension	Subdimension	Initial concept examples
Historical culture	Historical event	Zhang Qian went on a mission to the Western Regions; The Red Army campaign; Princess Wencheng entered Tibet; The long march across the grassland.....
	Historical celebrity	Bao Zheng; Genghis Khan.....
	Historical allusion	Yo Qi defended moral integrity in Shouyang Mountain; The legend of Luoyang water mat; The origin of Yu.....
	Historical city	Kaifeng City Luo city ruins; Tangbo Passageway; Yangguan Beacon Tower; Prehistoric remains of Shuidong Gully.....
Architectural culture	Residential settlement	Pit courtyard; Tibetan folk house; Stone building; Jinnan cave dwelling.....
	Place and mansion	Yang's Tianbo Mansion; Wang's Grand Courtyard; The East Mountain Palace.....
	Ritual architectural	The Temple of Confucius in Qufu; The Manihong Shrine; Ancient tomb.....
	Garden architectural	One step makes a differences; Garden relics of Yuan Dynasty.....
	Facility architectural	"The first Yellow River Bridge"; Wall road; Water conservancy project; Ggranary.....
Other architectural	Modern memorial tower; Ancient tower; View pavilion; Sixth floor riding street wonders.....	
Folklore culture	Folk custom	Temple fair experience, Wedding customs, offering eagle, River Lantern Festival.....
	Folklore	Snow female legend, the symbol of the god beast, Dayu flood control, Nine lakes source fairy descent.....
	National dress	Kangba clothing, Mongolian women's headdress, Shaanxi-northern sheep belly hand towel, "to the gate gate" jacket.....
	Folk literature	Classic poems, Tangut script, oral epic of King Gesar, Maiji ballad.....
	Folk art	painted pottery art, sheepskin raft manufacturing, Lanzhou waterwheel technology, printing.....
	Fork performing art	Xintianyou, Qinqiang Opera, Ansai waist Drum, shadow puppet play, Kangba Song and Dance.....
	Folk painting and calligraphy	Longmen twenty pieces, Thangka, Mani stone painting, woodcut.....
Folk sport	Tai Chi, "Three Manly Skills"	

Culinary culture	Dietary habit	dietary taboo, dietary preference.....
	Diet product	Mongolian eight treasures, Taishan three beauty, white food and red food, 72 kinds of Shaanxi pasta.....
	Local drinks	Highland barley wine culture, Moet liquor culture.....
	Cooking skill	ramen technology, milk skin technology, six smoke and six drying.....
	Kitchenware	Chuanshan stove.....
Religious culture	Buddhist culture	Prayer flags flutter, living Buddhas reincarnated, Listen to chanting, pilgrimage.....
	Taoist culture	Daiyue Taoist Temple, Lao-Tzu, Lao Juntang endless stream of pilgrims.....
	Mohammedanism culture	mosques, Muslim weddings.....
	Other religious culture	Christian churches, Catholic churches.....
Leisure culture	Cultural site	Museum, art museum.....
	City parks	Baotu Spring Park, Daquan Square, Daming Lake Park.....
	Leisure consumption site	Kuanhouli, Bookstore Street, Quanxiang area, Tea house.....

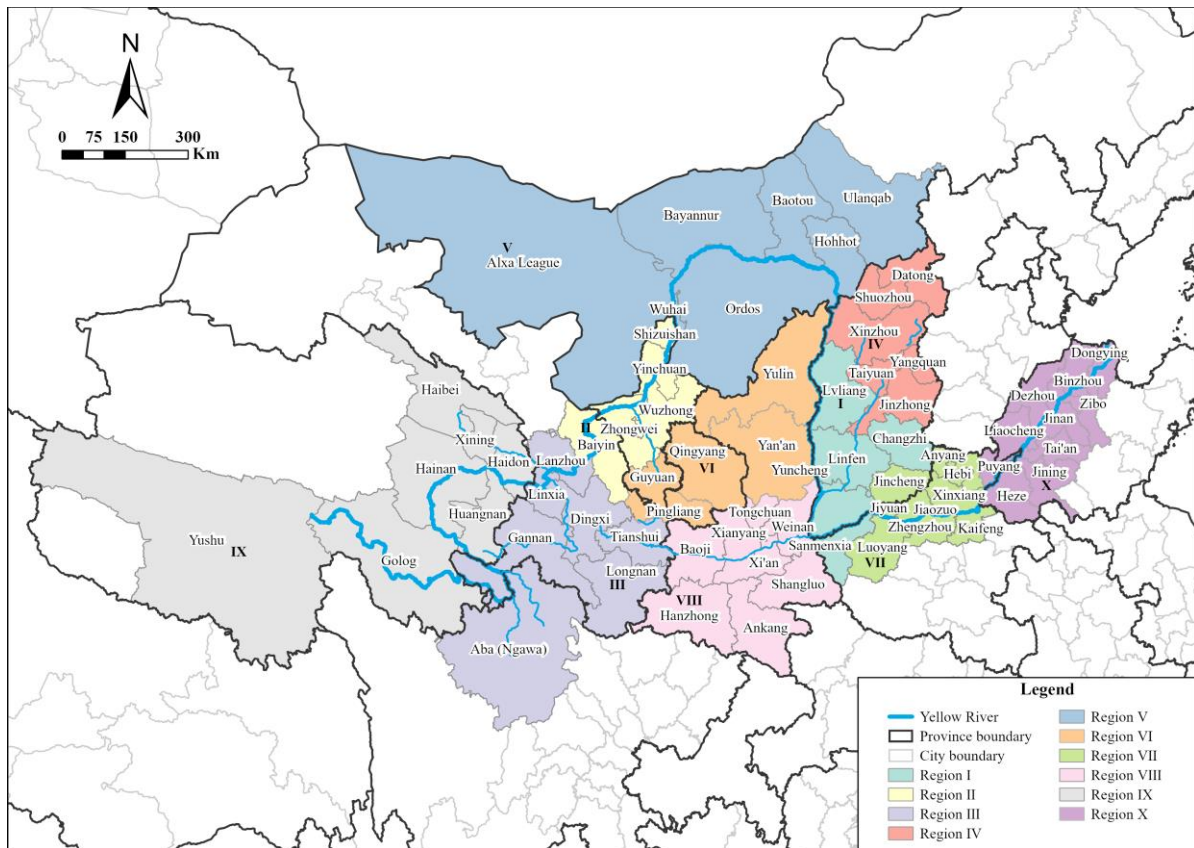


Figure 2. Results of multi-dimensional culture regionalization in the Yellow River basin



Figure 3. Differences in cultural perception dimensions and tourists' emotional evaluations in different cultural tourism regions

Conclusion and Discussion

Based on the travel blogs of 69 prefecture-level cities along the Yellow River Basin, this study constructed a six-dimensional cultural perception system from the perspective of tourists, analyzed the similarities and differences in cultural perception across 6 dimensions between 69 prefecture-level cities, and further classified them into 10 cultural tourism regions with different cultural themes. Lastly, this study compared tourists' cultural perceptions and emotional evaluations across 10 cultural tourism regions.

This study contributed to the growing literature on cultural perception in travel and tourism research. We explored multi-dimensions of cultural perception from the perspective of tourists, specifically focusing on the large space scale with common history and culture, and added to cultural perception contents literature (Singh, Yadava, & Neog, 2017; Dai, et al., 2017; Guo, Yu, Zhang, & Jiang, 2022), by showing that tourists perceived the Yellow River culture from six dimensions: historical culture, architectural culture, folklore culture, culinary culture, religious culture, and leisure culture. Further, the different levels of cultural perception across six dimensions in the Yellow River basin supported the proposed single-culture-domination and multicultural compositing patterns in the academic literature on cultural perception (Chen, Meng, et.al., 2022).

There was limited mixed-methods research with a large pool of data in travel and tourism research in general (Filieri, Yen, & Yu, 2021), and on cultural perception in particular. This study adopted qualitative thematic analysis of a limited number of travel blogs to enable an in-depth understanding of the structure of cultural perception in the Yellow River basin, and a textual classification method based on deep learning technique using a large dataset to recognise tourists' cultural perception from six dimensions. Furthermore, this study proposed a regionalization method for spatial network data composed of origin-destination flow, which can divide the network nodes into spatially continuous partitions according to their interaction strength, and combined this method with quantitative textual analysis to identify the themes and concepts most frequently used to express tourists' perception towards the Yellow River culture. Although previous research focused on the individual city along the Yellow River using a limited number of

tourists generated contents in their studies (Tian, et al., 2012; Ao & Meng, 2019; Zhang, Du, & Gao, 2021), this research provided a more comprehensive picture of the Yellow River culture using travel blogs from 69 prefecture-level cities.

According to the destination competitiveness model (Ritchie, & Crouch, 2010), regional tourism cooperation in the Yellow River basin would be more competitive than any of the individual destinations within the basin. The findings highlighted the potential regional tourism development strategies of the Yellow River basin. Destination marketing organizations were suggested by collaborating targeted destinations with neighboring destinations based on the ten cultural tourism regions and promoting each region in a dimension that is more dominated and compatible with the other regions. The study also proposed an approach to integrate tourism destinations complementarily, which would be of interest for destination marketing organizations of the Linear Cultural Landscapes such as Pioneer Memorial Highway, Hadrians Wall, and the Grand Canal.

References

- Ahmed, S.T., Sreedhar Kumar, S., Anusha, B., Bhumika, P., Gunashree, M., Ishwarya, B. (2020). A Generalized Study on Data Mining and Clustering Algorithms. In: Smys, S., Ilyyasu, A.M., Bestak, R., Shi, F. (eds) *New Trends in Computational Vision and Bio-inspired Computing*. ICCVBIC 2018. Springer, Cham. https://doi.org/10.1007/978-3-030-41862-5_114
- Bing, H., Huang, Z., et al. (2013). Spatial Cognitive Differentiation of Synergetic Development of Regional Cultural Tourism: A Case Study of Nanjing Metropolitan Area. *Tourism Tribune*, 28(2):102-110.
- Chen, S., Meng, B., Liu, N., Qi, Z., Liu, J., & Wang, J. (2022). Cultural Perception of the Historical and Cultural Blocks of Beijing Based on Weibo Photos. *Land*, 11(4), 495.
- Cheng, P. (2018). Effect of Tourists' Pre-visit Destination Image on Their Perceived Service Quality: The Moderating Effect of Tourist's Expertise. *Tourism Tribune*, 33(2):57-66.
- Dai, L., Wang, S., Xu, J., Wan, L., & Wu, B. (2017). Qualitative analysis of residents' perceptions of tourism impacts on historic districts: a case study of nanluoguxiang in Beijing, China. *Journal of Asian Architecture and Building Engineering*, 16(1), 107-114.
- Dajiang, T., Jiaming, L., Shanshi, L., & Run, W. (2012). Research on Urban Tourism Image Positioning: A Case Study of Dengfeng in Henan Province. *Chinese Journal of Population Resources and Environment*, 10(4), 35-38.
- Hongyan, A. O., & Meng, L. I. (2019). Image Perception and Emotional Evaluation of Tourists for Desert Tourism Destinations in Inner Mongolia--Content Analyses Based on Network Travel Notes. *Journal of Landscape Research*, 11(1).
- Filieri, R., Yen, D. A., & Yu, Q. (2021). # ILoveLondon: An exploration of the declaration of love towards a destination on Instagram. *Tourism Management*, 85, 104291.
- Guo, Y., Yu, J., Zhang, H., & Jiang, Z. (2022). A Study on Cultural Context Perception in Huizhou Cultural and Ecological Reserve Based on Multi-Criteria Decision Analysis. *Sustainability*, 14(24), 16790.

- Hsu, C. H., & Gu, Z. (2010). Ride on the gaming boom: how can Hong Kong, Macau and Zhuhai join hands to develop tourism in the region?. *Asia Pacific Journal of Tourism Research*, 15(1), 57-77.
- Jeong, Y., & Kim, S. (2022). The role of a mega-sporting event in attracting domestic tourists: the case of Seoul. *Asia Pacific Journal of Marketing and Logistics*, 34(2): 306-321.
- Ji, L. J., Guo, T., Zhang, Z., & Messervey, D. (2009). Looking into the past: cultural differences in perception and representation of past information. *Journal of personality and social psychology*, 96(4), 761.
- Jing, L., Dinghai, Y., & Dawei, X. (2020). Regional differentiation and forming mechanism of cultural landscape of the traditional settlements and vernacular dwellings in Hainan Island. *Urban Development Studies*, 27(5), 1-8.
- Kitaev, N., Kaiser, L., & Levskaya, A. (2020). Reformer: The efficient transformer. arXiv preprint arXiv:2001.04451.
- Li, J., Yang, D., & Xiao, D. (2020). Regional differentiation and forming mechanism of cultural landscape of the traditional settlements and vernacular dwellings in Hainan Island. *Urban Development Studies*, 27(5), 1-8.
- Li, L. (2000). A discussion on spatial rules of tourist destination's image perception. *Scientia Geographica Sinica*, 20(6): 563 – 568.
- Peng, X., Bao, Y., & Huang, Z. (2020). Perceiving Beijing's "city image" across different groups based on geotagged social media data. *IEEE Access*, 8, 93868-93881.
- Ritchie, J. R., & Crouch, G. I. (2010). A model of destination competitiveness/sustainability: Brazilian perspectives. *Revista de Administração Pública*, 44, 1049-1066.
- Singh, S., Yadava, A. K., & Neog, Y. (2017). The Determinants and Measure of Tourist's Perception: A Study of Namchi District of Sikkim. *International Journal of Research in Social Sciences*, 7(9).
- Wang, H., Zhang, H., Tang, G., Zhou, L., & Jiang, S. (2022). Inter - city association pattern recognition by constructing cultural semantic similarity network. *Transactions in GIS*, 26(5), 2225-2243.
- Zhang, H., Zhou, X., Tang, G., Xiong, L., & Dong, K. (2021). Mining spatial patterns of food culture in China using restaurant POI data. *Transactions in GIS*, 25(2), 579-601.
- Zhang, S., Zhang, G., & Ju, H. (2020). The spatial pattern and influencing factors of tourism development in the Yellow River Basin of China. *PloS one*, 15(11), e0242029.
- Zheng, W., Deng, L. L., & Luo, L. (2016). Quantitative evaluation of similarity among traditional settlement culture landscapes in Xiangxi area. *Human Geography*, 31(2), 55-60.
- Zhang, Y., Du, R., & Gao, Y. (2021). Geographical characteristics of tourism flow network structure in the Yellow River Basin: A case study along the Huang-Gansu-Su section. *Arabian Journal of Geosciences*, 14, 1-11.