Applying Q Methodology in Developing Destination Images from the Traveller Generated Photographs

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Introduction

Q methodology is originally a methodology to study human psychology, but recently it has been applied in various social science fields and in tourism as well as by some researchers. Q methodology combines a quantitative approach with the interpretation of qualitative research. (Boom et al., 2021) It observes humans subjectively and empirically defines human psychological factors (Sáenz de Tejada Granados et al., 2020) by drawing out common or individual perspectives to general opinion.(Hunter, 2011) Q method is suitable for landscape perception since it pulls up positive levels of consistency and provides effective assessments of the social perspectives of environment and landscape (Sáenz de Tejada Granados et al., 2021).

The destination images are projected to potential tourists to deliver a destination's characteristics, values, original ideas, and concepts (Picazo & Moreno-Gil, 2019). Picazo & Moreno-Gil, (2019) criticized that projected destination images are rarely studied and mainly employ content analysis or structural equational method (SEM) with a small sample size, and some are biased. The Internet and social media rise define a new paradigm in tourism communication: visual content and photographs (Picazo & Moreno-Gil, 2019). Travelers use the internet and share pre- and post-trip information on social media, forming a large body of travel data, including photographs, texts, and videos. These data offer a new way to understand destination images and experiences (Taecharungroj & Mathayomchan, 2021). “Travel-related content created and uploaded by tourists on the Internet is termed ‘tourist generated content’(TGC)”and there are a few attempts in analysing tourist generated content (TGC), especially photographs (Mak, 2017). Morgan et al. (2011) argued that there is a lot of tourism literature on destination marketing, in contrast to less practical example or managerial application (Morgan et al., 2011). Lastly, the qualitative studies’ results do not generalize the issue and the quantitative studies do not capture a destination's holistic and psychological elements that explain the destination's actions, attitudes, perceptions and behaviours (Picazo & Moreno-Gil, 2019).

Therefore, Q method is applied in this case to discover new insight into perceived destination image. As for the sample site, Sun Moon Lake area is selected as it is a must-see destination for tourists in central Taiwan with magnificent landscape.

1. Does methodological application of Q method provide new dimension in tourism study?
2. Does using TGC photographs as sample in Q method beneficial?
3. What is the perceived destination image of Sun Moon Lake area?

Literature Review

Q Method

Q method(Q) was invented by the British physicist and psychologist William Stephenson in 1935 to portray and understand human subjectivity, which is people's beliefs, attitudes, perspectives, viewpoints, and personal opinions. However, Steven R. Brown contributed most to developing and adapting Q method to an applicable research method by applying and codifying it. Q is applied in political science and communication and later in health studies. Recently, Q has been applied in human geography, psychology, tourism, and other research areas to observe humans subjectively (Wijngaarden, 2017).

For applying the Q method, firstly, Q samples are formulated from research hypotheses, researcher's philosophy, and theory that is sufficient to discuss the research topic. Q sample is usually drawn from a larger concourse and presented to respondents as a miniature, providing comprehensiveness of what it is modeled. Concourse could be words, statements, pieces of art, collection of paintings, photographs, videos, music selections etc. (Brown, 1993). Then, respondents sort Q samples in the way of forced or unforced (free) distribution. In forced distribution, the researcher advises the number of statements that should be placed in a Q grid, and in free sort, respondents can create as many categories as they want as many statements as they want in each category.(Steen Jacobsen, 2007) After sorting, a qualitative interview follows. Meanwhile, respondents explain their views and choices and personally what the statements mean. Respondents 'answers' are less likely to be influenced by the research because they are given a physical task like sorting statements, compared to asking them directly. Individuals' subjective points of view are holistically approached and compared with the complete views of other respondents. Factor analysis is a statistical process in which variables are compared to each other, pair by pair, so a pattern can be found that correlates with one another. This simplifies a large amount of data, where factor analysis is primarily a data reduction technique. When a group of respondents sort the statements similarly, that probably indicates a common social perspective that could be a shared belief. In order to make this visible, the inverted factor analysis can be applied, which rank particular Q sort test units that could prove research respondents' similar views or perspective. Q method offers an in-depth picture of the taxonomy of perspectives that is remarkable in a given situation rather than statistically generalized results. This is why Q method is a powerful tool that provides significant results with only a few numbers of respondents. Thus, respondents should be selected to represent as wide a variety as possible, preferring those with a strong opinion on the matter. For the result, the researcher selects one or a series of factors that possess maximal explanatory value regarding the research object or purpose and go through it to get the result that makes the best sense with the qualitative data. Therefore, as Stephenson envisions, the Q method's statistical component is just a tool to bring out qualitative results. Q method reminds the researcher's observer status with strategies that provide consciousness upon the presence of his or her subjectivity in the research process, reducing the chances of research

bias. If researchers include his or her opinion, they can lay Q sort and study their perspectives (Wijngaarden, 2017).

Q method has been applied as a reliable research method in human geography where human's premises are non-positive. It combines the benefits of qualitative and quantitative approaches by providing statistical results supporting and interpreting those perspectives. It reveals the different interconnections between topics that seem unrelated by means of giving respondents a chance to consider the topics at the same time. It is unlike traditional surveys where opinions on each topic are asked, and it focuses on the similarities between the perspectives of individuals that inverted factor analysis brings into such a data set. Lastly, respondents are forced to engage clearly with perspectives that might be unexpected or inappropriate so respondents' 'answers' are not biased. Moreover, it combines the advantages of both the structure of surveys and the depth of interviews. Q method contestable leaves less freedom of interpretation than qualitative discourse analysis and interviews since opinions in Q method are limited to a set of items presented to respondents. Q method aspires to uncover the diversity of opinion, regardless of whether opinions are predominant in the population. A set of coefficients, the factor loadings, denote the relation between individual respondents and factor and factor loadings, which can be interpreted as the correlation of coefficient (Juan et al., 2017; Zabala et al., 2018).

In the past, researchers have done factor analysis manually, but now some Q methodological packages (computing software) are available for appropriate analyses, for example, PCQ for windows or PQ method, etc. PQ method is available for free from the internet and works efficiently. These packages automatically provide data input, initiate a by-person correlation matrix, and process factor extraction, rotation, and estimation in straight order. Factor analysis and factor extraction can be done in different ways. Traditional factor analysis was done by hand; hence it does not resolve itself into a single correct solution, but principal components analysis (PCA) or cluster analytic techniques in computerized techniques do and gives a mathematically superior solution. It works similarly in factor rotation techniques as varimax, the computerized method that gives mathematically informative solutions, not the most theoretical ones. This raises an argument among Q methodologists whether judgemental or by-hand rotation techniques or simple and reliable varimax produce the best solutions. The varimax procedure agrees with a particular aim in applying the Q method to discover the range of perspectives that the respondents favour. By this aim, the rotated factor ought to be the maximum amount of explanatory variance extracted from an unrotated factor that makes theoretical sense. The varimax procedure aims for a mathematically superior solution that makes sense to prefer this technique. In addition, varimax from a qualitative perspective it ushers the input of the respondents' group on emergent factor structure (Watts & Stenner, 2005).

Q method using photographs

The whole-time landscape perception and scenic beauty have been studied only empirically, and very few, needless to say the employment of visual encompasses representation of landscapes such as a photograph is even lesser. Photographs play a vital role in creating and communicating

destination images (DI), and photo-based studies might benefit from such themes. Early tourism research on image attribute identification is highly based on tourists' perception of destination names in preference to visual representations of the destinations. Destinations generally utilize photographs to promote or communicate with tourists. Therefore, studies that employ photographs allow an additional observation of the presentation process and context. Furthermore, photographs provide researchers control to the conditions of the landscapes to be perceived, such as different attributes presentation, number, light conditions, surrounding atmosphere and so on. In addition, it allows one to compare several photographs concurrently to the research theme. In order to gain versatile exploration of landscape perception, it is excellent to use approaches that let the respondents to make their own classifications (Steen Jacobsen, 2007).

Regarding tourism image studies employed by photograph, many researchers applied visitor employee photograph (VEP) where photographs are taken by tourists during their trip or studied printed photographs on brochures, travel magazines, postcards, or websites, mostly used content analysis. Others use structural equation modeling (SEM) by asking tourists or hosts questions. (Picazo & Moreno-Gil, 2019) However, in Q method, a set of pre-selected photographs act as stimuli to be sorted by respondents that have proved to be effective in bringing out environmental conceptualizations and judgment. In tourism-related landscape studies, photograph sorting is employed mainly to study how people classify, describe and evaluate research subjects (Steen Jacobsen, 2007).

In Q sort, respondents are allowed to draw their concepts instead of considering the constructs provided by the researchers. Using the photographs in Q sort, open-ended questions are enquired, and sorting them gives possibilities to extract greater rationalities than those obtained by traditional interviews and questionnaires. Q sort is relevant if the research aims to apply sorting techniques that provide cognitive and experiential approaches. The application of photographs in Q method conducted with in-depth interviews generates rich and elusive interpretations of complex phenomena easily. Additionally, photographs in Q sort allow experimental control over the presentation context and the process. Photographs may provide control over some conditions that the landscape will be perceived, such as the representations, the light conditions, framed and filtering etc, and offer respondents to compare varieties of the landscape in the same time period. Moreover, photographic representations possibly reduce irrelevant effects in cross-cultural research. Photo-based approaches may largely benefit visitor perceptions on landscape management and environmental planning and are also pertinent for the studies of sustainability, environmental issues, and destination images (Steen Jacobsen, 2007).

Methodology

Developing the concourse

TGC, especially photograph is more influential, which is static visual content produced by tourists on the internet while or beyond traveling time (Taecharungroj & Mathayomchan, 2020) and is also a perceived destination image(Marine-Roig & Ferrer-Rosell, 2018). With the

proliferation of Web 2.0 technologies, accessing information about destinations is effortless and enables tourists to share their perceived image through various social media platforms (Mak, 2017). TGI is collected from social media platforms such as Facebook, Instagram, and Flickr. Images that have geo-tag as (#sunmoonlake, #日月潭, #nantou, #南投) also in other languages (Japanese, Korean, Thai, Indonesian and Malay) are collected manually. Totally six thousand one hundred forty images are collected considering copyright and privacy.

Developing the Q sample

Based on Taecharungroj and Mathayomchan (2020) identified CIA (Cognitive Image Attribute) as defined by geographical attributes, TGIs are classified into 16 categories as the mountain, street, people, event, arts, architecture, lake, city, vehicles, plants, sky, building, food, plain, desert and wildlife. Nevertheless, plain and desert categories are removed because there is no similar landscape around Sun Moon Lake. Then, 30 images representing each category are selected for Q sort as in table 1.

Table 1: TGC as concourse

 1. Wildlife	 2. Hiking and mountaineering	 3. SML cable car
 1. SML tea egg	 2. Five stars or high-end accommodation	 3. Swimming carnival

		
4. Bicycle trail	5. Paper dome	6. Firework festival
		
7. Water festival	8. Dongpu spring	9. Shanlin park
		
10. Wenwu temple	11. Xitou university pond	12. Xitou monster village

 13. Hehuang mountain (sunrise)	 14. Qingjin farm	 15. Wangyou forest
 16. Hehuang mountain dark sky park	 17. Xianshan visitor centre	 18. Street food stalls
 19. Checheng train station	 20. Shuiyuan rainbow bridge	 21. Marathon festival

 22. SUP	 23. SML yacht tour	 24. Hutou mountain paragliding
 25. Tianzhong marathon	 26. Aboriginal culture and eco-tour	 27. Sun Moon tea factory

Selecting P Set

Q method can produce prominent results with only a few research respondents. And respondents should be selected to represent as much diversity as possible and who have strong opinions on the research issue (Brown, 1993; Wijngaarden, 2017). So, twenty members and stakeholders of SMLTC are selected.

Q Sort

Q grid that ranges from -4 (disagree), to 0(neutral), to 4(agree) is developed for Q sort as in Fig2. The 30 photographs are Q sorted by 20 stakeholders, ranking from most attractive to least attractive. Moreover, for the qualitative approach, the following questions are asked to fill in rather than in-depth interviews for the convenience of respondents. The questions are to observe respondents' judgment and compare them to seek the subjectivity of respondents' viewpoints so the holistic view will be figured out.

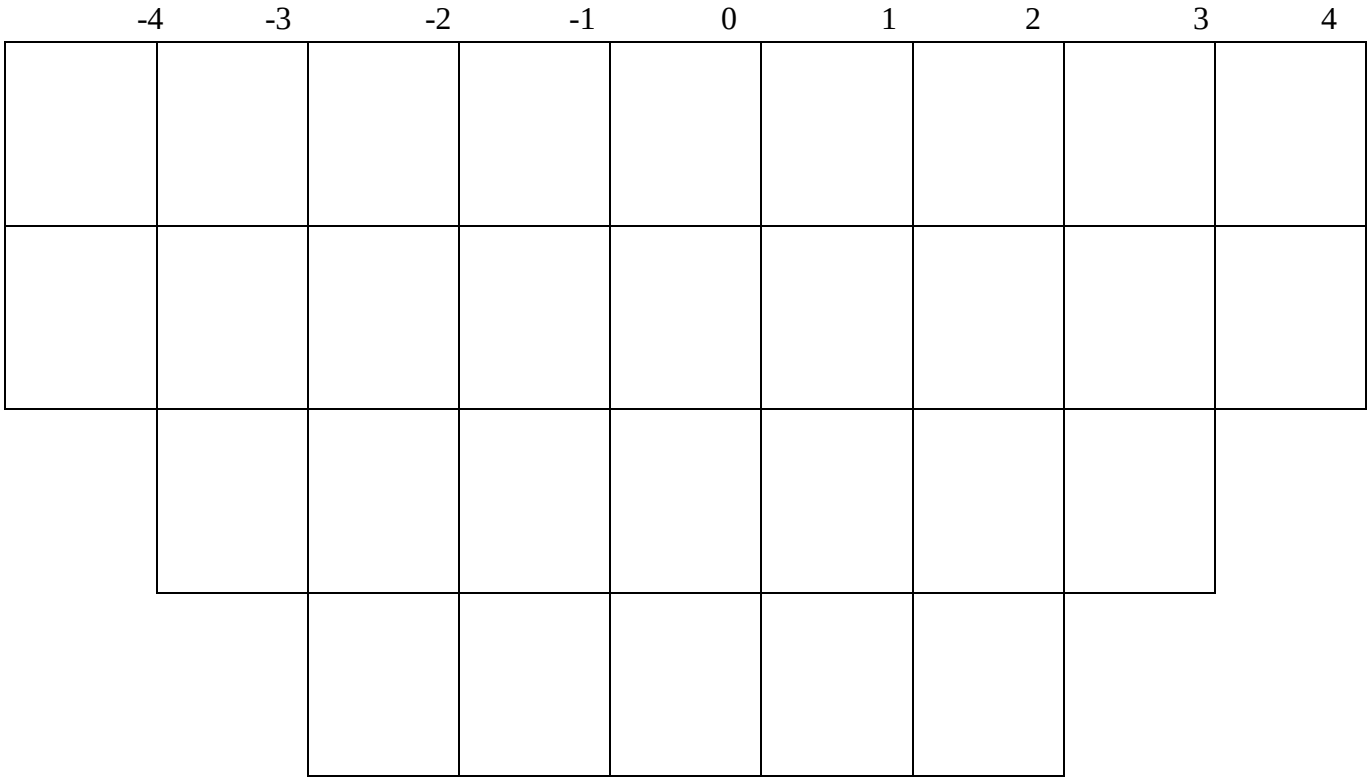

Figure 1: Q grid

1. How do you decide to rank photographs?
2. When you are ranking photographs, how do you feel?
3. Why do you think it is most attractive or least attractive?

Results

Q sorts are input and analysed using PQ method (Version 2.35). Then, principal component analysis (PCA) is performed to generate factors. Afterward, varimax is carried out to rotate factors, and three significant factors are selected.

Factor 1: Mountain climbing and hiking destination

Figure 2: Mountain climbing and hiking destination

The top two ranked photographs show Hehuang Mountain and contributing to factor 1 are mountain climbing and hiking tours. Respondents no.1, 4, 5, 12, 14,17,18,19, and 20 give higher scores to photos no. 19 and 16 (Hehuang Mountain) as they see it is more attractive to international tourists and photos no. 6, 7, and 9 (swimming carnival, SML bike tour and SML firework festival) that they believe attract local tourists. Those respondents share the same point of view as their workplaces offer recreational activities to tourists and believe attracting more tourists to the region will result in regional tourism development. Moreover, their overall score significantly supports factor 1 (mountain climbing and hiking destination). They choose these images as they consider Hehuang Mountain offers an eco-tourism experience. They give the least scores to photos no. 4 and 21 (food stall), said the food stall can be found all over Taiwan, and it is not unique and attractive to tourists.

Factor 2: Participating in sports events plus high-end accommodation destination

Figure3: Participating in sports events plus high-end accommodation destination

The top two ranked photographs are swimming festival and SML yacht tour and the second top-ranked three photographs are similar to factor 1 firework festival, marathon and a particular one, five stars or high accommodation. Respondents no. 2, 11, 13, and 16 give higher scores to photos no.6 and 26 as they assume those are SML unique tourist experiences (swimming carnival and yacht tour) along with photos no. 5, 24, and 9 (five-star hotels, SML marathon and SML firework festival). They don't share similar workplaces as some are Tourism academic expertise and interestingly, participant no. 19 has a significant score in both factor2 and 3. The respondents assume that the festivals are popular enough to recognize by tourists and local specialties that SML can offer. These respondents give the least scores to photos no. 12 and 18 as they think they are too remote and unpopular with tourists.

Factor 3: Local landscape and cultural destination

Figure 4: Local landscape and cultural destination

The top-ranked photographs differ from factor 1 but like factor 2. Respondents no. 7, 8, and 15 intriguingly give the highest score to photo no. 14 (Xitou Pond) and higher scores to photos no. 26, 6 ,7, and 9 (SML yacht tour, marathon, bike tour, and firework festival) similar with factor 2. They also share a similar point of view with those with a significant score in factor 2. Interestingly least attractive photographs in this factor are top ranked in other factors. The respondents gave the least score to photos no.2 and 28 (mountain climbing, hiking tour, and Tianzhong marathon) as they assume these activities have no locality and some photographs are relatively attractive in other factors like old tea factory or wildlife around SML ranked least in this factor.

Most of the respondents try to see from the point of view of international tourists but some from their personal viewpoint and some from their own experience which make the result genuine perceived destination image. Respondents believe that SML itself is special because it is a beautiful natural landscape and provides variety of outdoor activities such as cable car, yacht tour and international swimming festival but with Hehuang Mountain international dark sky park uniquely stand out as a destination. On the other hand, catering business, food and beverage and some locations with great locality like Dongpu bridge, Shanlin park and Wangyou forest, have less

impression on SML as a destination. The overall image of SML is a central Taiwan unique beautiful natural landscape with relaxation atmosphere and a cultural experience.

Conclusion and Discussion

To create a core brand, first, the brand personality needs to be established. The attributes are identified from the result factors. The outdoor activities and luxury hotels are functional attributes of SML with lake and mountain be its symbolic attributes overall furnish visitor experience such as refresh, fascinate, lively, natural, relax and emotional etc. Second, the brand positioning identifies the similar and unique attributes with other destinations. Q method is an efficient method to explore the similar and unique attributes of SML by conducting Q sort and interview. The outdoor activities such as marathon, swimming and firework festival, Hehuang Mountain are unique attributes of SML. Then, the last element of core brand is brand reality. This is through strong communication network between stakeholders could be performed to provide holistic visitors experience (Hankinson, 2004).

The main function of DMOs are to improve competitiveness in heterogeneous market and DMOs have been using logo and slogans to differentiate from competitors (Kotsi & Pike, 2020). SMLTC meeting is held to confer the core brand and to establish brand image composed of functional and symbolic attributes as first step of branding. A brand image (Fig 2) representing the attributes is created and approved by stakeholders as projected image. The four colourful stripes represent four destinations within SML Tourism Circle including Hehuang Mountain and other; the green for mountain as well as the nature, orange the cloud sea that will arouse emotions and fascinate the tourist with beautiful nature and blue for SML which is the major attraction and red for festivals (swimming, firework and marathon) with dots for people to present liveliness around the SML. The official brand name of SMLTC i.e. Sun Moon Lake Plus $^{+}$ is promoted with a new brand image.

Fig 2: SML Brand image

Brand positioning strategies could be drawn upon the brand personality for future tourism performance. But amid Covid-19, it will be a difficult challenge. Positioning strategy can

implement according to SMLTC goals, start tourism bubbles through digital platforms virtually to raise awareness and to assure heath safety in this destination. Then, after the pandemic brand reality could carry out, by the creation of tourism bubbles with neighbouring countries and actively participating in international MICE tourism and tourism trade fare. Finally connect to Tourism development 2030 national tourism policy, the SML tourism will recover and also develop more than before pandemic (Tseng, 2021).

Lastly, Q method explores the perceived destination image of SML efficiently in uncomplicated way and gives full insight into the views of stakeholders. Then, managerial implication has been easily comprehended by the stakeholders. The use of photographs in Q is easy to conduct to any respondent i.e. any age or education background to understand the perception on the matters (Boom et al., 2021). The application of Q method using photographs is proved to be benefit in exploring the characteristics of the perceived destination image and the application of this method has greater potential in tourism research.

References

Boom, S., Weijschede, J., Melissen, F., Koens, K., & Mayer, I. (2021). Identifying stakeholder perspectives and worldviews on sustainable urban tourism development using a Q-sort methodology. *Current Issues in Tourism*, *24*(4), 520-535.

Brown, S. R. (1993). A primer on Q methodology. *Operant subjectivity*, *16*(3/4), 91-138.

Hankinson, G. (2004). Relational network brands: Towards a conceptual model of place brands. *Journal of Vacation Marketing*, *10*(2), 109-121.

Hunter, W. C. (2011). Rukai indigenous tourism: Representations, cultural identity and Q method. *Tourism Management*, *32*(2), 335-348.

Juan, Y., Choi, Y., An, S., Lee, C.-K., & Lee, S. J. (2017). The constraints of Chinese tourists to visit Korea caused by THAAD using Q-methodology. *Asia Pacific Journal of Tourism Research*, *22*(12), 1261-1273.

Kotsi, F., & Pike, S. (2020). Destination brand positioning theme development based on consumers' personal values. *Journal of Hospitality & Tourism Research*, 1096348020980056.

Mak, A. H. (2017). Online destination image: Comparing national tourism organisation's and tourists' perspectives. *Tourism Management*, *60*, 280-297.

Marine-Roig, E., & Ferrer-Rosell, B. (2018). Measuring the gap between projected and perceived destination images of Catalonia using compositional analysis. *Tourism management*, *68*, 236-249.

Morgan, N., Pritchard, A., & Pride, R. (2011). *Destination brands: Managing place reputation*. Routledge.

Picazo, P., & Moreno-Gil, S. (2019). Analysis of the projected image of tourism destinations on photographs: a literature review to prepare for the future. *Journal of Vacation Marketing*, *25*(1), 3-24.

Sáenz de Tejada Granados, C., Santo-Tomás Muro, R., & Rodríguez Romero, E. J. (2021). Exploring landscape preference through photo-based Q methodology. Madrid seen by suburban adolescents. *International Research in Geographical and Environmental Education*, *30*(3), 255-278.

Steen Jacobsen, J. K. (2007). Use of landscape perception methods in tourism studies: A review of photo-based research approaches. *Tourism geographies*, *9*(3), 234-253.

Taecharungroj, V., & Mathayomchan, B. (2020). Traveller‐generated destination image: Analysing Flickr photos of 193 countries worldwide. *International Journal of Tourism Research*.

Taecharungroj, V., & Mathayomchan, B. (2021). Traveller‐generated destination image: Analysing Flickr photos of 193 countries worldwide. *International Journal of Tourism Research*, *23*(3), 417-441.

Tseng, Y. P. (2021). *Sun Moon Lake White Paper*.

Watts, S., & Stenner, P. (2005). Doing Q methodology: theory, method and interpretation. *Qualitative research in psychology*, *2*(1), 67-91.

Wijngaarden, V. (2017). Q method and ethnography in tourism research: enhancing insights, comparability and reflexivity. *Current Issues in Tourism*, *20*(8), 869-882.

Zabala, A., Sandbrook, C., & Mukherjee, N. (2018). When and how to use Q methodology to understand perspectives in conservation research. *Conservation Biology*, *32*(5), 1185-1194.