Influence of Cultural Background on Tourist Flow Process and Outcomes: An Empirical Study with Chinese-speaking Tourists in Japan

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Abstract

Purpose: This paper aims to fill a research gap on whether cultural background (Eastern or Western) influences tourist flow experiences and outcomes with Chinese-speaking tourists.

Study design/methodology/approach: We conducted flow-aware, guided cultural tours in Kyoto, Japan, from March 2019 to February 2020. Tourists visited the same spots on the same route with the same guide to avoid discrepancies stemming from experiencing different tours with different guides. Professional photoshoots were conducted to study the flow experience under high challenges. Participants were Chinese-speaking tourists worldwide. The guide spoke in Chinese to minimise language bias. Participants were asked to complete an anonymous questionnaire within one week of the tours.

Findings: We received 191 valid responses. Those from the Eastern regions showed significantly lower flow states and outcomes than their counterparts from the Western regions under high challenges, whereas this phenomenon was not observed under low challenges. A positive correlation between the flow state and outcomes was observed in both regional groups.

Originality/value: This is the first study to apply flow theory to guided cultural tours with Chinese-speaking tourists from different cultural backgrounds. It was found that those from the Eastern regions can have flow experience and good outcomes in guided tours, although they may require a lower level of challenge. A managerial implication is that cultural tours should be designed considering the balance between challenges and tourists' cultural background to optimise their flow experiences and outcomes.

Keywords: *Cultural Tourism, Flow, Guided Tour, Chinese Tourist, Cultural Background, Cross-cultural Study*
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I. INTRODUCTION

Cultural tourism, as adopted by the UNWTO General Assembly in its twenty-second session (2017), is a type of tourism in which tourists 'learn, discover, experience and consume the tangible and intangible cultural attractions/products in a tourism destination'. It is a major component of international tourism (Richards, 2018; Richards, 2020a; UNWTO, 2018; UNWTO, 2022; Vergori and Arima, 2020). The proportion of cultural tourists among international arrivals was estimated at 47% before the COVID-19 pandemic (UNWTO, 2018, p. 9). After the pandemic, with a reboot of the tourism industry (Niewiadomski, 2020), cultural tourists are expected to recover sharply (UNWTO, 2022) through the recovery of international tourism (Kourentzes *et al*., 2021; Zhang *et al*., 2021). For example, the recovery rate of international arrivals to Japan is forecasted as 45% to 92% (Kourentzes *et al*., 2021). This seems possible at the end of 2022, as Japan reopened its border to international tourists on June 10, 2022.

This study is interested in outbound Chinese tourists, as China has become 'the world's largest spender, with one fifth of international tourism spending' (UNWTO, 2019). The number of Chinese international tourist departures was approximately 155 million in 2019 and is expected to double by 2027 (UNWTO,

2019). Therefore, studies on Chinese tourists have increased rapidly over the past 15 years (Li and Lu, 2016). In fact, we found that the annual number of publications indexed by Web of Science with the text 'Chinese tourists' in the 'Hospitability Leisure Sport Tourism' field was nearly zero before 2007, and it increased to a few tens in 2008-2016, then to more than 100 after 2017, and to about 180 in 2020 and 2021.

However, the literature lacks studies in *cross-cultural* contexts (Herdin, 2019; Richards, 2018). We found only 53 hits in total when we searched Web of Science for 'Chinese tourists cross cultural'. Herdin (2019) summarised this situation as 'enormous increases in the numbers of Chinese tourists visiting Europe and other Western destinations require building up intercultural competencies to minimise conflicts and promote mutual understanding' (p. 77). Moreover, Li and Lu (2016) found a huge gap between English and Chinese literature in cultural tourism. English articles largely concentrate on traditional Chinese values, whereas Chinese articles discuss the changes in values to date. While empirical studies are dominant in English articles, Chinese articles are mostly conceptual and lack empirical support (Li and Lu, 2016). Therefore, considering the rapid globalisation of China since 1992, it is important to study Chinese tourists using the latest theories and empirical methodologies to obtain new managerial implications for the tourism industry (Filep and Laing, 2019; Li and Lu, 2016; Richards, 2018; Sun *et al.*, 2021; UNWTO, 2022).

We consider flow theory in a cross-cultural context for this purpose. Flow is a subjective and positive phenomenon in which people feel immersed and joyful in challenging tasks (Csíkszentmihályi, 1975). This is promising for tourism design (Alexiou, 2018; da Silva deMatos *et al.*, 2021; Frochot *et al.*, 2017; Holbrook and Hirschman, 1982; Lee and Payne, 2016). Unfortunately, little is known about cross-cultural contexts (da Silva deMatos *et al.*, 2021; Filep and Laing, 2019; Vada *et al.*, 2020). Thus far, flow studies have focused on Western people (da Silva deMatos *et al.*, 2021; Filep and Laing, 2019; Vada *et al.*, 2020). Therefore, observations may not apply to non-Western people who have different psychological behaviours owing to differences in cultural backgrounds (Alemán Carreón *et al.*, 2021; Chun *et al.*, 1974; Levy, 2010; Sann and Lai, 2021). For example, it is known that Western cultures value 'individual achievement, self-worth, and personal freedoms' (Kim *et al.*, 2017, p. 3083) or *individualism* (Meng, 2010), which matches the driver for the flow state (i.e., autotelic personality). Meanwhile, traditional Chinese and Eastern cultures respect *modesty* and *self-effacement* (Yau, 1988) and *collectivism* (Meng, 2010) which inhibit autotelic personality. This may be different from the new generation of Chinese people.

Therefore, it is unclear whether cultural background influences tourists' flow states and outcomes (da Silva deMatos *et al.*, 2021; Filep and Laing, 2019; Vada *et al.*, 2020) with Chinese tourists. This study aimed to fill this knowledge gap from a cross-cultural perspective. We propose the following hypotheses:

Hypothesis: *Cultural background* (*Eastern or Western*) *influences Chinese-speaking tourists' flow processes and flow outcomes*.

II. LITERATURE REVIEW

Flow experience

Flow is a subjective and positive psychological phenomenon that 'people are so involved in an activity that nothing else seems to matter' (Csíkszentmihályi, 1990). Applications of flow theory include sports (Jackson *et al.*, 2001), games (Wu and Lai, 2022), online consumer behaviour (Chang, 2014; Huang *et al.*, 2017; Liu *et al.*, 2020; Novak *et al.*, 2003), learning (Li *et al.*, 2021; Liu and Song, 2021), daily life (Asakawa, 2004; Wang *et al.*, 2020; Lin *et al.*, 2021), work (Quinn, 2005), and others (see da Silva deMatos *et al.*, 2021). Studies have shown that one may improve the overall quality of life if one builds a positive personality through the flow state (Csíkszentmihályi and Rathunde, 1993). Therefore, it is expected that tourism with flow experience can provide tourists with 'the chance of digging deep or being immersed' (da Silva deMatos *et al.*, 2021, p. 2), thus improving their overall quality of life.

To characterise flow, Csíkszentmihályi (1975,1990) developed a theory of nine dimensions, including *challenge-skills balance*, *action-awareness merging* (*absorption in the task*), *and autotelic experience*. The right level of challenge may motivate people, and people experiencing a flow state can concentrate on the activity and repeat it (Csíkszentmihályi, 1975). Recent studies have preferred scales with fewer dimensions. Quinn (2005) proposed a model as 'the merging of awareness and application, with the remaining flow elements acting as antecedents and outcomes of the flow experience' (p. 632). Lavoie *et al.*, (2022) reviewed the latest studies and found most of them were either unidimensional or bidimensional. After some comparison, we adopted a bidimensional (i.e., balance of challenges and skills; absorption in the task) scale, PPL-FSQ, as it improved existing scales (Magyaródi *et al*., 2013).

The reasons for adopting the questionnaire scale instead of the interview or experience sampling method (ESM) are as follows: First, interviews need a lot of time, and tourists usually stay a short time at a destination. Moreover, while ESM is a common qualitative method, it is rarely used in tourism studies owing to the participant burden (Cutler *et al*., 2018); it requires collecting feedback during real-time experience. In our study, the guide did not have any time for ESM since he needed to talk to the participants frequently, introducing the local culture, explaining the attractions, giving instructions on activities, answering questions, and taking tourists' photos. Therefore, the questionnaire was the only appropriate option in the present study. We remark that self-administered questionnaires are more optimal for reducing response bias (Zatori *et al.*, 2018, p. 116).

Flow studies for tourism

A survey by da Silva de Matos *et al*. (2021) examined 185 studies published in high-impact journals from 1987 to 2019 on flow and/or optimal experience. They found 28 studies in tourism and leisure context; *drivers* (motivation, autotelic personality), *processes* (flow, immersion, etc.), and *outcomes* (satisfaction, happiness, etc.) were the three key flow concepts in tourism context. As noted, little is known about the flow experiences of non-Western tourists. For example, Vada *et al*. (2020) highlighted a need for 'tourism scholars, specifically in Eastern countries or within Less Developed Countries'.

This study aims to provide a timely examination on the flow experience of non-Western tourists, especially with Chinese-speaking tourists (Filep and Laing, 2019). We searched the Web of Science and SCOPUS databases to find the latest high-quality publications not covered by da Silva de Matos *et al*. (2021). We found that Gao et al. (2017) studied sustained participation in Chinese virtual travel communities with a three-dimensional flow scale. Liu *et al*. (2019) verified that flow experiences have a positive impact on place attachment in Taiwan's night markets. Wei *et al.* (2021) found that cultural intelligence contributes to flow experiences via online and offline surveys at multiple cultural and creative tourist destinations in Taiwan using a four-dimensional flow scale. On the other hand, Wu and Lai (2022) used flow theory to study virtual tours for promoting mountain walking tourism in three cities in China. Yang *et al*. 2022 studied flow experiences in virtual tourism with randomly selected consumers in several Chinese cities. Finally, Karasakal and Albayrak (2022) studied the role of destination attributes in Antalya, Turkey, using a three-dimensional flow scale. These studies added knowledge to the literature on flow experiences in tourism but did not provide any findings on Chinese tourists in a *cross-cultural context*.

Chinese tourists in cross-cultural contexts

While there are many studies on the influences of cultural background on tourists' behaviours (see Li, 2014), not much is known about Chinese-speaking tourists, except in Dewar *et al.*(2007) and Osti *et al.*(2009). We searched on the Web of Science and SCOPUS with the text 'tourism cultural background' or 'Chinese tourists cross cultural' and reviewed the articles to find comparative studies on Eastern and Western cultural backgrounds in cultural tourism. Studies on the interaction between participants and tour evaluations (Levy, 2010), online restaurant reviews (Jia, 2020), online hotel reviews (Alemán Carreón *et al*., 2021; Moro, 2020;

Sann *et al*., 2021), destination images (Kim *et al*., 2018; Sun *et al*., 2021; Tian *et al*., 2021), local food consumption (Choe and Kim, 2018), and tourists' satisfaction (Chang, 2008). We could not find any studies on guided tours in cross-cultural contexts.

III. Research Design

Tour design

We conducted the study in Kyoto, which has been the centre of Japanese culture for more than 1,200 years and has 17 UNESCO World Heritage Sites. Additionally, it was Conde Nast Traveler readers' No. 1 choice in 2020 (Saumya, 2022). We designed flow-aware guided cultural tours in small groups with different levels of challenges. The high-challenge tours had professional photoshoots in traditional Japanese clothing, whereas the low-challenge tours had no professional photoshoots. Studying flow in group tours was interesting, as 'few studies have explored individuals' flow experiences in a tourism activity within a group tour context' (Kim and Thapa, 2018, p. 374). Because drivers, processes, and outcomes are three key concepts of flow in the context of tourism (da Silva deMatos *et al*., 2021), we formulated our tours following the framework as follows:

High-challenge tour (Group G_{PHOTO}): A guided cultural tour with professional photoshoots.

- **Drivers**: Motivation to understand Japanese culture and obtaining nice photographs.
- **Process**: A three-hour guided tour in a small group visiting selected cultural sites in the popular Gion area in Kyoto by walk. The challenges to the participants included (1) understanding Japanese culture and (2) finding personally creative poses that best match the backgrounds of cultural sites and traditional Japanese clothes in photoshooting activities. This was an *autotelic experience* to discover oneself, as the best poses depend on the participant.
- **Outcomes**: Delight, satisfaction, recommendation intention, and photographs

Low-challenge tour (Group $G_{NOPHOTO}$): A guided cultural tour with no professional photoshoots.

- **Drivers**: Motivation to understand Japanese culture.
- **Process**: Same as G_{PHOTO} tour except, for the photoshoot (which takes only 1.5 h). The challenge was to understand Japanese culture (participants did not need to change into traditional clothes).
- **Outcomes**: Delight, satisfaction, and recommendation intention.

The tour was guided by the first author, who had been living in Kyoto for more than five years and was familiar with both Chinese and Japanese culture. We fixed the guide to minimise bias due to its performance (Alexiou, 2018), which has been neglected in most previous studies (e.g., Levy, 2010). The same cultural explanation and social communication were provided for both tours. While walking, the guide introduced local culture, seasonal changes, historical information, and so on to the participants. Participants were encouraged to talk to each other to ease their social experiences. Participants in the G_{PHOTO} group had extra professional photoshoot experience compared to those in the $G_{NOPHOTO}$ group. They were asked to change into traditional Japanese clothes at the beginning of the tour and to pose against the background of cultural sites. The guide, who was also a professional photographer, helped the participants find their best and most creative poses in this experience. Typically, a participant was required to take over 200 photographs. According to the feedback, this photoshoot experience was challenging for most participants.

We chose professional photoshoots for the following reasons: (1) they are popular in cultural tours on Kyoto; (2) they help one to better discover oneself (than self-shooting by smartphone); and (3) they match recent proposals for *active participation* in tourism. For example, Creative Tourism (Richards, 2020b) calls to provide tourists the opportunity to 'develop their creative potential through active participation' (Richards and Raymond, 2000); and (4) Photography plays an important role in tourism, not only because it can be

'influential, shape cognitive and affective image of a destination, serve as memorabilia, and inspire travelling' (Yu and Egger, 2021, p.1). This could be confirmed by feedback from our participants, as discussed in Section IV.

Finally, to be as close as possible to real tours, we charged the participants, where the price for G_{PHOTO} was twice that of $G_{NOPHOTO}$ (excluding photographs). Since the activities and prices were announced in advance and the participants were free to choose, we considered that price was not a significant factor affecting tourists' final satisfaction. They were asked not to consider the price when completing the questionnaire. Moreover, we tried to collect data as diversely as possible regarding gender, age, and so on. Finally, we assumed that tourists had the same expectations of satisfaction before the tour because they chose the tours themselves.

Scale design for measuring flow state and outcomes

We adopted a 7-point Likert scale, PPL-FSQ (Magyaródi *et al*., 2013) to measure the flow state. The PPL-FSQ has two factors (balance of challenges and skills; absorption in the task) with 20 questions (see Table II). To measure the outcomes, we integrated several studies into a single scale with three factors: delight, satisfaction, and recommendation intention. We translated the questions into Chinese with slight adjustments to the expressions to fit our tours. Including general information, such as nationality and age, we finally obtained a five-part, 44-item questionnaire. The two most important aspects were as follows:

PART I. Flow state questions (PPL-FSQ by Magyaródi *et al*., 2013, see Table II).

PART II. Outcome questions (7-point Likert scale) were based on Oliver *et al*. (1997) and Chitturi *et al*. (2008) (questions 1 and 2 for *delight*); Ono, 2010; Finn, 2005; Oliver *et al*., 1997 (Questions 3 and 5 for *satisfaction*); Chitturi *et al*., 2008; and Ono, 2010 (Questions 6 and 7 for *recommendation intention*). Question 4 was a reverse question to eliminate invalid answers.

1. I was touched by this tour.
2. I have a deep impression of this tour, which has influenced me for a long time.
3. Compared to other tours that I have experienced, I was satisfied with this one.
4. Compared to other tours that I have experienced, I regret choosing this one.
5. This tour enriched my journey.
6. I will make this tour a delight topic to talk to my family and friends.
7. If this photo tour is held in another place and I happen to be touring there, I will choose this experience as my first candidate to participate.

IV. Data Collection and Analysis

We conducted pilot tests to discover popular cultural tours and the optimal route, time, and price. After a year of preparation, we finally decided on the current tour, as described in the previous section. We selected a 1.6 km route connecting cultural sites via small and quiet cultural streets to increase their uniqueness (to attract new visitors) and avoid the mass of tourists (to minimise the influence of other tourists). The study formally started in March 2019 and ended in February 2020. We put advertisements on Airbnb experiences and tourists applied for tours via the online platform. As a new type of tourism platform, the online service of Airbnb Experiences provides local services to tourists instead of traditional, institution-oriented tours. This matches the trend of future tourism in 2020 (Richards, 2020a).

The high-challenge photoshoot tour soon became one of the most popular experiences in Kyoto on Airbnb Experiences, whereas the low-challenge tour was not as popular (we still had nearly 70 participants for the latter because it was provided at a very low price). All participants were tourists visiting Kyoto who chose

their own tours after reading tour descriptions on Airbnb experiences. We asked them to complete an anonymous questionnaire within one week of the tours. Of the 233 participants, 191 provided valid responses. Tourists came from diverse regions, including 84% Eastern (mainland China 68%, Singapore 5%, Hong Kong 4%, Malaysia 4%, Taiwan 2%, and others 1%) and 16% Western (USA 8%, Australia/New Zealand 3%, Canada 2%, EU 2%, and others 1%). Most had visited Japan for the first time. The details are listed in the following Table.

<Insert Table I about here>

Of the participants, 72.25% were women and 27.75% were men. In terms of age, 59.2% were aged between 21 and 30 years, 24.1% between 31 and 40 years, 10% over 40 years, and 6.7% under 20 years. Therefore, most participants were expectedly young adults. In terms of education, 48.7% had 16–18 years, 26.1% had 18 years and over, 22% had 12–16 years, and 3.2% had less than 12 years. The occupations were diverse: employees with specific skills, including artists, engineers, and teachers, accounted for 37.1%, students 15.7%, government-related 5.8%, freelancers 5.8%, general staff 15.2%, managers 16.8%, retired or no occupation 2%, and others 1.6%.

We first conducted a factor analysis on the PART I scale to determine whether it was reliable for measuring the tourists' flow state. The results are presented in Table II. There were two factors: Factor 1 tested the challenge-skills balance (the first 11 questions), and Factor 2 tested absorption in the task (the other nine questions). It could be observed that 15 out of the 20 questions showed communalities greater than 0.5. Therefore, we considered that the PART I scale had sufficient reliability to measure the flow state.

<Insert Table II about here>

We then compared the flow state (output of the PART I scale) and outcomes (output of the PART II scale) among the different groups of tours. Table III shows the results of the G_{PHOTO} group, from which we can confirm that, on average, tourists from Eastern regions showed *a significantly lower* average flow state and outcomes than those from Western regions.

<Insert Table III about here>

To confirm this observation, we used a t-test (Table IV). We observed that one-sided $p < 0.05$ hold for all tests, which supports the observation that both the flow state and outcomes positively depend on the living regions. In other words, the t-test confirmed that Eastern tourists had lower flow states and outcomes than Western tourists did.

<Insert Table IV about here>

However, we did not observe such a phenomenon for the $G_{NOPHOTO}$ group. From Table V, it can be observed that tourists from Eastern regions had *significantly higher* average flow states and outcomes than those from Western regions. This observation, however, is not supported by a t-test since the sample size of Western tourists was too small. Nevertheless, the average values suggest that Eastern tourists may be less inclined to enter the flow state than Western tourists under high challenges, whereas they may be less inclined to become bored under low challenges. From a cultural perspective, we discuss this phenomenon further in Section V.

<Insert Table V about here>

We confirmed a positive correlation between the flow state and outcomes. Table VI presents the results of this study. This suggests that the flow state and outcomes may have strong correlations since the Sig. (2-

tailed) < 0.05. Surprisingly, the Pearson correlations were all greater than 0.5. This suggests that the flow state is positively correlated with outcomes (delight, satisfaction, and recommendation intention), in line with previous observations (see da Silva deMatos *et al*., 2021). Interestingly, the Western group showed significantly higher correlation coefficients than the Eastern group in all three outcomes.

<Insert Table VI about here>

Finally, we confirmed an *overchallenge* in the photoshoot tours. The average value of *the flow state* in the G_{PHOTO} group was slightly lower than that in the $G_{NOPHOTO}$ group (4.6309 < 4.7545), whereas the average value of *the outcomes* in the G_{PHOTO} group was significantly higher than that in the $G_{NOPHOTO}$ group (4.7038 > 4.4883). This was unusual because we expected higher flow states to trigger higher outcomes. To find the reason, we analysed the feedback by t-test on each question in the PART I scale and found that it was a result of overchallenge in the activities. Due to the length limit, the details are given in the Appendix.

V. Discussion and Conclusion

To the best of our knowledge, we reported in this study the first empirical study on the influence of cultural background on tourist flow processes and outcomes with Chinese-speaking tourists from different regions. We found that those from the Eastern regions showed significantly lower flow states and outcomes than their counterparts from the Western regions under high challenges, whereas such a phenomenon was not observed in low-challenge tours. This suggests that Eastern tourists may be less inclined to enter the flow state than Western tourists under high challenges, whereas they may be less inclined to become bored under low challenges.

This phenomenon can be explained by traditional Chinese and Eastern cultural values. First, it is known that Eastern people tend to avoid giving extreme responses (Chun *et al.*, 1974; Levy, 2010; Jia, 2020). This explains why Eastern tourists may be less inclined to enter a flow state (especially under high challenges). Moreover, Ekiz and Au (2011) found that 'Chinese respondents tend to forgive and forget failures, whereas Americans seek a remedy from third parties' (p. 327) towards complaining. This explains why Western tourists may be inclined to get bored with low challenges and give lower ratings, whereas Eastern tourists do not have such a tendency.

Nevertheless, quantitative analysis revealed a positive correlation between flow state and outcomes for both groups of regions, which matches previous studies with Western people (da Silva deMatos *et al*., 2021) and Eastern people (Liu *et al*., 2019; Wei *et al.*, 2021; Wu and Lai, 2022; Yang *et al*., 2022). We consider this to be because the cultural values of young Chinese have accepted more or less Western values, such as individualism (see Li and Lu, 2016). This can be observed in the fact that early studies on flow experiences with Eastern people were mainly conducted in Hong Kong, South Korea, Japan, and Taiwan. These regions were exposed to Western culture much earlier than China. Additionally, owing to the recent globalisation since 1992, flow studies have gradually become popular in China. Future studies can thus find it interesting to discover the differences in cultural values between old and new generations of Chinese tourists and how they influence their behaviours in tourism.

In conclusion, we found that Chinese tourists from Eastern regions, especially young tourists—even as they avoid giving extreme responses owing to their traditional Chinese values—can also have good flow experiences and outcomes if the level of challenges is appropriate. The appropriate level might be lower than what Western tourists prefer.

This study had some limitations. First, the number of participants from the Western regions was not large. Second, more studies such as interviews are needed to study in detail the overchallenge phenomenon in photoshoot tours. Third, seasonal and weather factors were not considered in this study; but they could affect

the outcome of a tour. Hence, it would be interesting to conduct a study in a shorter period (e.g., in a month). Finally, this study focused only on Chinese-speaking tourists, which limits its generalisability.

This study found that Chinese-speaking tourists from Eastern regions can also have good flow experiences and outcomes, although they may require a lower level of challenge. Managers should design cultural tours with careful consideration of the balance between challenge levels and tourists' cultural background to optimise tourist flow experiences and outcomes.

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APPENDIX

On the dimensions used in recent flow studies

Lavoie, Main, and Stuart-Edwards (2022) reviewed the latest studies and found that most of them were either unidimensional or bidimensional. They reported that 'the results of six studies (N = 2809) reveal that flow has two dimensions: "fluency", which comprises experiences related to fluent thought and action; and "absorption", which is based on sustained full attention' (p. 38). We confirmed their findings from many studies, e.g., one dimension (Huang *et al*., 2017; Lin *et al*., 2021; Wang *et al.*, 2020; Wu and Lai, 2022); two dimensions (Liu *et al*., 2020); three dimensions (Gao *et al.*, 2017; Karasakal and Albayrak, 2022; Yang *et al*., 2022); and four dimensions (Wei *et al.*, 2021).

On the over challenge issue in the high-challenge (photo shooting) tours

The average value of *the flow state* in the G_{PHOTO} group was slightly lower than that in the $G_{NOPHOTO}$ group (4.6309 < 4.7545, calculated from Table III), whereas the average value of *outcomes* in the G_{PHOTO} group was significantly higher than that in the $G_{NOPHOTO}$ group (4.7038 > 4.4883, calculated from Table V). This anomaly seems unusual because we expect higher flow states to trigger higher outcomes. To find the reason for this, we analysed the feedback by t-test for each question in the PART I scale. See the next table.

Table: Independent samples t-test on questions in PART I (those with Sig. (2 tailed) > 0.05 are omitted).

Question		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
1. I could effortlessly perform well.	Equal variances assumed	.004	.951	-3.486	182	.001	-0.790	.227
	Equal variances not assumed			-3.469	79.115	.001**	-0.790	.228
5. My mind worked in total harmony with my body.	Equal variances assumed	.193	.661	-3.597	182	.000	-0.834	.232
	Equal variances not assumed			-3.637	81.380	.000***	-0.834	.229
12. I forgot about my close environment.	Equal variances assumed	.354	.553	2.315	182	.022	.576	.249
	Equal variances not assumed			2.397	85.081	.019*	.576	.240
15. I found the task interesting.	Equal variances assumed	8.078	.005**	2.639	182	.009**	.424	.161
	Equal variances not assumed			2.325	65.679	.023	.424	.183
18. This task was not too difficult.	Equal variances assumed	5.011	.026*	-2.599	182	.010*	-0.540	.208
	Equal variances not assumed			-2.967	104.385	.004	-0.540	.182
19. My skills were in balance with the challenges of the activity.	Equal variances assumed	2.183	.141	-2.69	182	.008	-0.519	.193
	Equal variances not assumed			-2.832	87.875	.006**	-0.519	.183

In the t-test, questions 1, 5, 18, and 19 had lower scores in the G_{PHOTO} group than those in the $G_{NOPHOTO}$ group. These questions were all related to the flow dimension of the 'balance of challenges and skills'. Thus, it is highly possible that participants in the G_{PHOTO} group had difficulty completing the professional photoshoots. As an example, one of the participants said that 'Photoshoots were tiring; there were no breaks, and I could not perform well enough to get creative pictures.' Nevertheless, as a driver in the flow state, the autotelic experience in photo shooting tours showed good results. Many answers to the open question in the G_{PHOTO} group said that with the help of a professional photographer, they were delighted to recognise themselves more. For example, one participant said, 'I became more confident about my appearance.' Other answers included: I was happy to know my partner deeper by thinking how to control action and feeling in the (photo-shooting) experience, I knew more about myself, after this experience I decided to look in the mirror more often to find what poses best match myself, I enjoyed it, and so on. Meanwhile, answers from the $G_{NOPHOTO}$ group only said that it was a normal tour with nothing exciting. Therefore, we consider that the professional photoshoot helped most tourists evoke the flow state, but the level of the flow state could be higher with lower challenge.

On the other hand, the outcomes were higher in the G_{PHOTO} group than in the $G_{NOPHOTO}$ group, which can be confirmed by the t-test results for Questions 12 and 15. These two were related to the flow dimension 'Absorption in the task'. The scores for these two questions in the G_{PHOTO} group were higher than those in the $G_{NOPHOTO}$ group (Sig. (2-tailed) values < 0.05), suggesting that the professional photoshoots attracted and immersed the participants and helped them absorb the task. This explains the higher level of outcome in the G_{PHOTO} group.

Table I. Number of collected samples and their living regions

Group	Eastern	Western
G_{PHOTO}	111	25
$G_{NOPHOTO}$	50	5

Table II: Factor structure and the results of PART I scale (The questions were from the PPL-FSQ scale developed by Magyaródi *et al*., 2013. Notice * shows a reverse question.)

Questions	**Factors**		**communalities**
	1	2	h^2
Q20. I was able to keep up with the challenges.	*.702*	-.360	.622
Q10. I felt I could meet the requirements of the situation.	*.803*	.253	.709
Q16. I had a grip on the events.	*.624*	.441	.584
Q14. I felt I was in control of the situation.	*.645*	.124	.432
Q17. I knew I was able to solve the task.	*.747*	.370	.694
Q9. I knew exactly what I had to do, and I acted accordingly.	*.637*	.406	.571
Q18. This task was not too difficult.	*.762*	.211	.625
Q4. I felt that what I had to do matched my skills well.	*.716*	.259	.580
Q1. I could effortlessly perform well.	*.739*	.086	.533
Q19. My skills were in balance with the challenges of the activity.	*.778*	.243	.664
Q5. My mind worked in total harmony with my body.	*.749*	.188	.597
Q8. *I was not engrossed by the activity at all.	-.037	*-.722*	.655
Q13. *It was boring for me.	-.076	*-.739*	.551
Q6. I was engrossed in the activity.	.225	*.792*	.678
Q3. I forgot about the passage of time all along.	.386	*.008*	.149
Q15. I found the task interesting.	.309	*.744*	.650
Q2. I forgot about the passage of time.	.303	*-.016*	.092
Q7. Time passed faster than I thought it did.	.283	*.555*	.387
Q11. I fused with the task.	.444	*.732*	.520
Q12. I forgot about my close environment.	.012	*.270*	.073

Table III. Results of the Flow state and Outcomes in the G_{PHOTO} group.

	Living Region	Size of sample	Mean value	Std. Deviation	Std. Error Mean
Flow state	Eastern	111	4.5730	.75531	.07169
	Western	25	4.8880	.71214	.14243
Outcomes	Eastern	111	4.6499	.79065	.07505
	Western	25	4.9429	.77372	.15474

Table IV. Independent samples t-test on Flow state/Outcomes and living regions in G_{PHOTO} group.

		Levene's test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Significance (One-Sided p)
Flow	Equal variances assumed	.664	.416	-1.903	134	.030*
	Equal variances not assumed			-1.976	37.181	.028*
Outcomes	Equal variances assumed	.029	.865	-1.680	134	.048*
	Equal variances not assumed			-1.703	36.180	.049*

Table V. Results of the Flow state and Outcomes in the $G_{NOPHOTO}$ group.

	Living Region	Size of sample	Mean value	Std. Deviation	Std. Error Mean
Flow	Eastern	50	4.8030	.74679	.10561
	Western	5	4.2700	1.28433	.57437
Outcomes	Eastern	50	4.4971	.94154	.13315
	Western	5	4.4000	1.18838	.53146

Table VI: Correlation analysis on the Flow state and Outcomes (delight, satisfaction, and recommendation intention), where **E** and **W** denote Eastern group and Western group, respectively.

	Delight			Satisfaction			Recommendation intention		
	All	**E**	**W**	**All**	**E**	**W**	**All**	**E**	**W**
Flow Pearson Correlation	.533	.512	.621	.632	.628	.646	.524	.520	.536
Sig. (2- tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	.002
Number of samples	191	161	30	191	161	30	191	161	30