The effect of social media on travel planning process by Chinese tourists: the way forward to tourism futures

Yuke Yuan, Chung-Shing Chan, Sarah Eichelberger, Hang Ma and Birgit Pikkemaat

Abstract

Purpose – *This paper investigates the usage and trust of Chinese social media in the travel planning process (pre-trip, during-trip and post-trip) of Chinese tourists.*

Design/methodology/approach – *Through a combination of structured online survey (n = 406) and follow-up interviews, the research identifies the diversification of the demand-and-supply patterns of social media users in China, as well as the allocation of functions of social media as tools before, during and after travel.*

Findings – *Social media users are diverse in terms of their adoption of social media, use behaviour and scope; the levels of trust and influence; and their ultimate travel decisions and actions. Correlations between the level of trust, influence of social media and the intended changes in travel decisions are observed. Destination marketers and tourism industries should observe and adapt to the needs of social media users and potential tourist markets by understanding more about user segmentation between platforms or apps and conducting marketing campaigns on social media platforms to attract a higher number of visitors.*

Research limitations/implications – *This paper demonstrated the case of social media usage in mainland China, which has been regarded as one of the fastest growing and influential tourist-generating markets and social media expansions in the world. This study further addressed the knowledge gap by correlating social media usage and travel planning process of Chinese tourists. The research findings suggested diversification of the demand-and-supply pattern of social media users in China, as well as the use of social media as tools before, during and after travel. Users were diversified in terms of their adoption of social media, use behaviour, scope, the levels of trust, influence and the ultimate travel decisions.*

Practical implications – *Destination marketing organizations should note that some overseas social media platforms that are not accessible in China like TripAdvisor, Yelp, Facebook and Instagram are still valued by some Chinese tourists, especially during-trip period in journeys to Western countries. Some tactics for specific user segments should be carefully observed. When promoting specific tourism products to Chinese tourists, it is necessary to understand the user segmentation between platforms or apps.*

Originality/value – *Social media is a powerful tool for tourism development and sustainability in creating smart tourists and destinations worldwide. In China, the use of social media has stimulated the development of both information and communication technology and tourism.*

Keywords *Information and communication technology (ICT), Outbound tourist market, Smart destinations, Travel planning process, User-generated content*

Paper type *Research paper*

Introduction

In the era of information and communication technology (ICT) and social media, the Internet has evolved from a broadcast medium into an open platform, which allows users to become "media" themselves, giving them the power to search, organize, share, annotate and contribute content in a collaborative way (Parra-López *et al.*, 2011). As the key industry and driver for economic growth in many cities, tourism has also been greatly affected by the expanding use of social media (Amaro *et al.*, 2016; Choe *et al.*, 2017; Chong *et al.*, 2018; Gretzel, 2018; Yoo *et al.*, 2011; Zarezadeh *et al.*,

2018). Social media has the ability to facilitate the operation of smart destinations and industries in the context of tourism-related ICT development and management.

Today, cities compete against each other as urban destinations to ensure economic sustainability in tourism because of growing mobility of people and capital (Dinnie, 2011). From a marketing perspective, social media is regarded as an important tool for destination promotion by organizations both in the public sector such as destination marketing organizations (DMOs) and tourism businesses (Ali and Frew, 2010; Chan and Guillet, 2011; Munar, 2011; Tang et al., 2017). Practitioners have reaffirmed the potential of social media to provide opportunities for product or service distribution and promotion (Akehurst and Akehurst, 2009). Social media also plays a crucial function in creating an interactive and mutual relationship between destinations and tourists, enabling governments, DMOs and tourism industries to understand their markets and adjust business strategies (Noone et al., 2011).

From the tourist perspective, social media has largely changed the way tourists make their travel plans and select destinations (Buhalis and Law, 2008; Gretzel, 2018). On the one hand, user-generated content (UGC) on social media has been considered an important and credible source of information (Filieri et al., 2015; Lam et al., 2020; Luo and Zhai, 2017; Parka and Nicolau, 2015; Qi and Chen, 2019; Xiang and Gretzel, 2010; Xiang et al., 2017; Zarezadeh et al., 2018). On the other hand, social media platforms allow tourists to develop networks and share travel experiences, which in turn influences travel decisions of other users (Choe et al., 2017; Noone et al., 2011). Moreover, social networks promote sustainable development in many ways (Sobhanifard and Vaeysi, 2020), for example, by encouraging participatory, improving expectation, pro-environmental behaviour and helping users search for diverse product and service information (Dinan and Sargeant, 2000; Han et al., 2018; Sarkar and George, 2018; Narangajavana et al., 2017).

In recent years, China has become one of the world's largest outbound tourist markets for cities (CTA and Ctrip, 2017). China has also experienced a rapid expansion of ICT and social media within the past decade. In 2017, the number of Internet users in China reached 751 million, indicating a high level of Internet penetration (CNNIC, 2017). China's unique political and economic systems have formed a distinctive social media network that is completely different from that in other countries (Chiu et al., 2012; Chong et al., 2018; Ge and Gretzel, 2018; Luo and Zhai, 2017). It is necessary to provide more theoretical knowledge and empirical information about the growing use of social media in China.

Based on the aforementioned background, it is found that the role of social media in Chinese tourists' travel planning process remains insufficiently understood by scholars and practitioners (Chen, 2017; Ge and Gretzel, 2018; Shang, 2016; Shi, 2013). The level of trust on UGC and social media may influence tourists' behaviour (Lam et al., 2020; Munar and Jacobsen, 2013). Social media is a crucial part of the ICT infrastructure of smart urban destinations, and it can transform these destinations to a higher level of innovation and sustainability through the provision of technology-enhanced experiences to tourists (Alaei et al., 2019; Chan et al., 2019; Fuchs et al., 2014; Li et al., 2018; Pikkemaat et al., 2018, 2019).

This paper answers the following research questions: (1) How is social media used before, during and after travel? (2) How are tourists' travel plans influenced by social media? (3) How are various types of social media characterized by the level of trust, especially compared with traditional sources of information (such as official DMO websites, travel agents, mass media advertising, commercial operators and accommodation sites) and traditional word of mouth (WOM) in China? Specific concluding remarks are derived to discuss the policy and practical implications of these research findings to tourism development futures.

Literature review

Social media in China

Based on the concepts of Web 2.0 and UGC, Kaplan and Haenlein (2010) proposed that social media refers to "*a group of Internet-based apps that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user generated content*"

(p. 61). From a more generic perspective, Filo *et al.* (2015) defined social media as "*new media technologies facilitating interactivity and co-creation that allow for the development and sharing of user-generated content among and between organizations and individuals*" (p. 167). Obar and Wildman (2015) further reviewed the literature on social media and identified four unique dimensions, namely Web 2.0, UGC, creation and interaction. Based on these definitions, social media can be summarized as Web 2.0-based online platforms that enable and promote the users' independent creation and sharing of UGC.

However, contemporary literature demonstrates lack of unified classification systems for social media (Brandtzæg, 2010; Chong *et al.*, 2018; Ge and Gretzel, 2018; Gretzel, 2018; Zarezadeh *et al.*, 2018). Based on the theories in media research (social presence/media richness) and social process (self-presentation/self-disclosure), Kaplan and Haenlein (2010) categorized social media into six types according to their usage characteristics. The six types are collaborative projects, blogs, content communities, social networking sites, virtual game worlds and virtual social worlds. This classification has two dimensions. The first is the degree of social presence and the richness of the medium, which determines how people communicate and interact with each other on the Internet (Dao, 2015). The second dimension describes social media as a tool of self-presentation and self-disclosure, which involves impression management and public sharing of personal information (Goffman, 1959; Derlega and Grzelak, 1979). The Chinese social media platforms have been allocated into the classification with slight modification based on the degree of social presence or media richness. The medium level of self-presentation/self-disclosure was added for better understanding of the media characteristics as presented in Table 1 (Kaplan and Haenlein, 2010).

With respect to self-presentation and self-disclosure, microblogs, blogs and social networking sites are considered higher than commercial tourism communities, third-party tourism communities and tourism social networking. The former are popular platforms where Chinese people prefer to manage and disclose their personal information publicly. Microblogs and blogs are personal web pages where owners can post messages while the blog or forum followers can view, download and comment online (Dao, 2015; Ge and Gretzel, 2018). The latter are limited to specific tourism content domains. Social networking sites, for example, enable users to interconnect by creating personal profiles, inviting others to join their sites, accessing the profiles of the site owners,

Table 1	Classification of Chinese social media by social presence/media richness and self-presentation/self-disclosure		
Self-presentation/ self-disclosure	*Social presence/media richness*		
	Low	*Medium*	*High*
High	–	Microblogs and blogs (e.g. Sino Weibo, Tencent Weibo)	Social networking sites (e.g. WeChat, Q-zone, Renren, LinkedIn)
Medium	Commercial tourism communities (e.g. Tuniu, Qunar, Ctrip, Fliggy and Lvmama)	Third-party tourism communities (including pure third-party tourism communities website and third-party tourism communities in comprehensive website) (e.g. Qiongyou, Mafengwo, Mofang, Douban, Zhihu, Tieba, Tianya and Xiaohongshu)	Tourism social networking (e.g. Jianren and Tuyou)
Low	Collaborative projects (e.g. Baidu Baike and Hudong Baike)	Content communities (e.g. Dou Yin, Meipai, Miaopai and Youku)	–
Source(s): Based on Kaplan and Haenlein (2010)			

sharing information and sending instant messages (Dao, 2015; Kaplan and Haenlein, 2010). Finally, collaborative projects and content communities only allow limited self-disclosure. Collaborative projects encourage a joint effort and simultaneous content creation by participants (Kaplan and Haenlein, 2010), while content communities allow the sharing of media content such as videos, pictures and audio clips between users via a user-generated link (Dao, 2015).
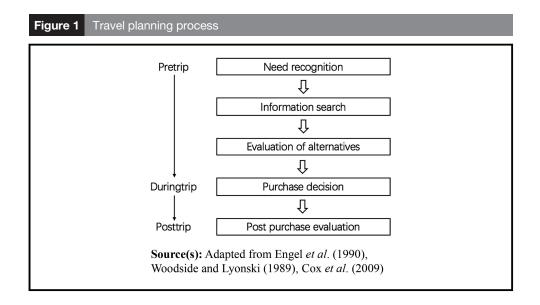
Travel planning process and social media

Contemporary literature on the role of social media in the travel planning process such as Choe et al. (2017), Cox et al. (2009), Fotis et al. (2011) and Leung et al. (2013) tended to follow and combine the theories and models of generic consumer behaviour (Engel et al., 1973; Woodside and Lyonski, 1989) as illustrated in Figure 1.

The travel planning process consists of three key stages. In the pre-trip stage, potential travellers recognize their need for travel; they search for travel-related information and evaluate alternatives. During the trip, tourists also make specific purchase decisions. Finally, within the post-trip stage, tourists evaluate their trips by experience sharing through WOM or social media (Cox et al., 2009; Pan et al., 2007; Parra-López et al., 2011; Wang and Fesenmaier, 2004). Some of these activities might occur throughout the journey with ICT advancement. However, their most prominent time of taking the action or using specific a platform is still identifiable.

The role and impact of social media on different stages of the travel planning process have been widely investigated by researchers (Amaro et al., 2016; Choe et al., 2017; Ge and Gretzel, 2018; Haiyan, 2010; Xiang and Gretzel, 2010; Sparks and Browning, 2011). Some scholars have presented both similar and contradictory results. For instance, Cox et al. (2009) found that social media is predominantly used in the pre-trip stage for information search only but has a very limited usage during and after the trip. Contrastingly, Fotis et al. (2011) reported that social media was mainly used in the post-trip stage for experience sharing.

Since tourism products and services are costly with high involvement and well-differentiated in nature, potential travellers require extensive information search tactics to minimize the risk of making unwise decisions (Jeng and Fesenmaier, 2002; Sirakaya and Woodside, 2005). Therefore, some researchers have recognized the utmost importance of social media in searching for tourism-related information before a trip (Cox et al., 2009; Leung et al., 2013; Lo et al., 2011). Huang et al. (2010) agreed that obtaining travel information is the primary driving force for the use of

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Figure 1   Travel planning process

Source(s): Adapted from Engel et al. (1990), Woodside and Lyonski (1989), Cox et al. (2009)

social media. Moreover, Yoo and Gretzel (2010) noted that social media is more effective than other sources of information in providing comprehensive tourism-related knowledge.

The information search process is affected by the trustworthiness of travel-related UGC on social media (Lam *et al.*, 2020; Leung *et al.*, 2013; Munar and Jacobsen, 2013). UGC can be electronic word of mouth (e-WOM), which is considered a more important and trusted source for travel planning than commercial propaganda (Casaló *et al.*, 2011; Murphy *et al.*, 2007). Although UGC on social media is partly similar to traditional WOM, UGC is perceived to be less trustworthy than WOM (Leung *et al.*, 2013; Mack *et al.*, 2008). However, there have been some contrasting findings, for example, by Wasserman (2006), who found that only about one-fifth of surveyed respondents trusted information on social networks, while information provided on corporate websites was considered more trustworthy. Similarly, Cox *et al.* (2009) revealed that non-UGC sites such as DMO or airline websites were more highly trusted by users than general UGC, while third-party UGC-based sites were more autonomous and useful than weblogs or social networking sites. On the contrary, Fotis *et al.* (2011) noted that online information from other travellers was trusted more than official DMO websites or travel agents.

Studies have confirmed the influence of social media on travellers' planning and decision process (Fotis *et al.*, 2011; Tussyadiah and Fesenmaier, 2009). Tussyadiah and Fesenmaier (2009) suggested that social media has had an increasing effect on destination awareness and choice set availability. Tussyadiah *et al.* (2011) verified that tourists' reviews or stories could enrich the overall knowledge about specific destinations, which in turn affects the intention to visit or revisit (Kirilenko *et al.*, 2019; Munar and Jacobsen, 2013; Park *et al.*, 2020). Fotis *et al.* (2011) revealed that the higher the perceived level of influence from social media on destination choice, the more likely potential travellers would change destination selection. Furthermore, Liu *et al.* (2020) recently identified a series of roles of social media in travel components and functions of need generator, supporter, guider and approver. Further research was proposed to include areas of on-site decision-making, technology adoption and the use of quantitative approach (Liu *et al.*, 2020), which are bridged in the current study.

Tourism futures and social media

For Dinan and Sargeant (2000), social media provides contributions for people who are interested in smart and sustainable tourist destinations. In this sense, social media marketing offers tourism organizations opportunities to adopt a more sustainable approach by providing social marketing techniques and tools that have a potential impact on the sustainable behaviour of tourists (Dinan and Sarageant, 2000; Gretzel, 2018; Narangajavana *et al.*, 2017). This is in line with the arguments of Han *et al.* (2018) on how to promote sustainable tourism by encouraging tourists to act with greater personal responsibility towards the destination and its environment. In this context, social media is defined as an essential channel for tourism information, especially with UGC that impacts environmental norms, the engagements in pro-environmental social media activities, as well as the development of pro-environmental online communities (Guzzo *et al.*, 2013; Han *et al.*, 2018).

Moscardo (2020) recently identifies three strong driving forces in Asian destinations supporting a paradigm shift in tourism futures, namely building on the experiential approach to tourism, the rise of mobile social media, UGC and gamification. This trend was also highlighted by Jamal and Budke (2020) in response to the global pandemic over the past year. Furthermore, Boley *et al.* (2013) identify a potential relationship between sustainable tourism and social media users. They observed that the use of social media promotes and influences the purchase of local-produced souvenirs by visitors and thus encouraging local community-based tourism development (Boley *et al.*, 2013).

Although the role of social media in travellers' planning process has been widely discussed, national tourism markets are different in many aspects including how potential tourists react to the effect of social media (Ge and Gretzel, 2018; Zarezadeh *et al.*, 2018). Fotis *et al.* (2011) therefore recommended further research about specific countries. Following the increasing popularity of

social media and the expanding population of tourism consumers, there is a knowledge gap of investigating the role and impacts of social media on travellers' planning processes in China (Leung et al., 2013; Shang, 2016; Shi, 2013).

In China, a country with rapid and vigorous social media development, research connecting social media and travel planning process is still developing (Amaro et al., 2016; Chen, 2017; Choe et al., 2017; Ge and Gretzel, 2018; Haiyan, 2010; Kristensen, 2013; Shang, 2016; Shi, 2013). Most of these studies focussed on identifying factors such as characteristics of information, marketing methods and attitudes towards social media (Pabel and Prideaux, 2016; Shi, 2013; Shang, 2016; Chen, 2017) rather than linking social media and tourism futures (Fotis et al., 2011; Gretzel et al., 2008; Sobhanifard and Vaeysi, 2020). Except in the perspectives of tourism industries (e.g. Guillet et al., 2016) and outsiders from other countries (Li and Wang, 2011), and online marketing (e.g. Haiyan, 2010; Kristensen, 2013), there is an apparent knowledge gap in China regarding an explicit connection between social media usage (trustworthiness of information, influence of social media and motivation of travel experience sharing) and the implications to future tourism development in China and its various tourism resources and local destinations. Bridging this knowledge gap will provide more opportunities for destination innovation and transformation (Chan et al., 2019; Pikkemaat et al., 2018, 2019; Tiziana et al., 2013; Yoo et al., 2011). The future and sustainability of tourism requires more theoretical understanding of tourist market behaviour and reactions to supply-side factors in destinations (Dinan and Sargeant, 2000; Sarkar and George, 2018).

Methodology

This research adopted a mixed-method approach based on online questionnaire-based survey (Cox et al., 2009; Fotis et al., 2011) and interviews. The bilingual (Chinese and English) questionnaire measured, first, the social media use behaviour by the respondents, in terms of choice of destination, attractions, accommodation and transportation (Carifio and Perla, 2007). The second section detected several aspects of pre-trip, during-the-trip and post-trip stages of the travel process, including frequency of social media use, the trustworthiness of different kinds of social media, the level of influence and the likelihood of making changes to travel plans (Carifio and Perla, 2007; Cox et al., 2009; Fotis et al., 2011; Munar and Jacobsen, 2013). Finally, socio-demographic characteristics of the respondents were requested. The variables were measured by a seven-point Likert scale.

Convenience sampling was used for the survey due to the difficulty in covering a large sampling frame from China and randomizing respondent selection. Online questionnaire was designed and posted to the key Chinese social media platforms from low to high social richness shown in Table 1 if a publicly accessible platform is available for posting the survey link (which include Sino Weibo, Tencent Weibo, Qiongyou, Mafengwo, Zhihu, Tieba, Tianya, Xiaohongshu, WeChat, Q-zone and Renren). Data were collected in April and May 2018. Finally, a total of 453 questionnaires were completed with 406 deemed valid for further analysis, reaching a validity rate of 89.6%. Statistical application provided descriptive statistics and a series of analysis including independent-sample t-test, correlation and factor analysis to perform inter-group comparison and verify the underlying factors of purposes of social media use.

Follow-up semi-structured in-depth interviews were conducted to further examine the Chinese tourists' perception, rationale and experiences in using social media in the travel process (Whiting, 2008). Since the interviews aimed to identify the views of the survey respondents, the potential interviewees were selected through invitations from the online survey, and voluntary sampling approach was adopted in this case. Upon a round of invitations from the survey sample, seven volunteers agreed to participate in the online interview. The interview questions were mainly derived from the questionnaire content (Cox et al., 2009; Fotis et al., 2011), but this part of the analysis deepens the discussion of relevant topics including previous travel experiences, self-reported social media use behaviour, reasons determining trustworthiness and influences of different applications of social media. Interpretative and thematic analyses were used to extract the

ideas of the responses from this qualitative part of the result. The validity and reliability of the data and information collected from both survey and interviews are confirmed through multi-staged validation and verification process.

Results

Profiles of respondents

Table 2 presents the profiles of survey sampled respondents and Table 3 shows the profiles of interview participants. From the data, the survey respondents show the following characteristics: balanced gender distribution, a majority of younger age group ranged between 18 and 25 (67.5%), postgraduate education (46.3%) and an annual personal income of less than RMB29,999 (36.5%). The selected interviewees were balanced in terms of gender and were mostly in their 20s and 30s. They had diverse occupations, income levels and varied outbound travel frequency due to own discretionary ability. Information saturation was detected by the interviewer and subsequently by researchers who conducted transcription and qualitative interpretation although the interviews were mainly voluntarily recruited.

Table 2	Profile of survey participants		
Variable	*Category*	*Count*	*Percent (%)*
Gender	Female	204	50.3
	Male	202	49.8
Age	Under 18	2	0.5
	18–25	274	67.5
	26–35	104	25.6
	36–50	21	5.2
	Over 50	5	1.2
Education level	High school or below	17	4.2
	College graduated	21	5.2
	Bachelor's Degree	180	44.3
	Master's degree or above	188	46.3
Annual personal income (in RMB)	Less than 29,999	148	36.5
	30,000–49,999	58	14.3
	50,000–100,000	101	24.9
	100,000–200,000	66	16.3
	More than 200,000	33	8.0

Table 3	Profile of interview participants					
Code	*Gender*	*Age*	*Education*	*Occupation*	*Yearly income (RMB)*	*Outbound travel frequency per year*
R1	Female	23	Bachelor	Secretary Internet company	108,000	10
R2	Male	24	Graduate student	Intern in hospital	48,000	1–2
R3	Female	25	Graduate student	Unemployed (Student)	60,000 from parents	2–3
R4	Male	26	Master's	Engineer	65,000	10
R5	Male	30	Doctoral	Artificial intelligence engineer	400,000	1–2
R6	Female	35	College	Bank manager	1,000,000	8–10
R7	Female	45	High school	Unemployed (Housewife)	36,000 from family	More than 10

Social media usage and behaviour

A slightly larger proportion of survey respondents (29.8%) travelled twice a year, followed by once per year (24.6%) and 2–5 times a year (24.4%). In the travel process, many respondents (45.6%) used social media 2–5 times every day, more than 20% had used social media more than 10 times every day, but 5.7% never used social media in the process. Chi-square tests were performed to detect any socio-demographic characteristics determining frequency of social media usage. The findings confirmed that statistical significance was observed in gender ($\chi2 = 11.92$, $p = 0.018$) and education ($\chi2 = 53.94$, $p = 0.010$) but not age or income. Female users more likely to use social media more frequently, and the higher the education level, the higher the frequency of use.

The popularity of different types of social media showed that the top three social media types are WeChat (67.7%), Sino Weibo (52.5%) and Ctrip (48.0%), which belong to the categories of social networking sites, microblogs, blogs and commercial tourism communities, respectively (Table 4). Interview results indicated that all interviewees predominantly used social networking sites and commercial tourism communities. Specifically, R5 expressed that some social media were not accessible in China, such as those of third-party tourism communities (e.g. TripAdvisor and Yelp): "*before the trip, I usually search information in Google, Agoda and TripAdvisor and find the restaurant at the destination through Yelp*".

Functions of social media in the travel planning process

Regarding the usage of social media, Table 5 presents the tourist ratings on different social media functions throughout the travel process, i.e. before, during and after travel. In the pre-trip stage, social media is used primarily to search for information about accommodation options (mean = 5.85) and to screen options of attractions before departure (mean = 5.63). Within the during-the-trip stage, respondents largely used social media to locate information about specific attractions and leisure activities (mean = 5.57) and to a lesser extent to communicate with friends

Table 4	Popularity of different types of social media used by interviewee participants in travel
Interviewee	*Top three types of social media the interviewees used in travel*
R1	CTC: Qunar, Ctrip TTC: Mafengwo, Zhihu, Xiaohongshu SNS: WeChat, Weibo
R2	CTC: Qunar, Ctrip TTC: Dazhongdianping SNS: WeChat, QQ
R3	CTC: Qunar, Ctrip, Flypig TTC: Mafengwo, Qiongyou, Dazhongdianping SNS: WeChat, Weibo, QQ CP: Baidubaike
R4	CTC: Ctrip TTC: Mafengwo SNS: WeChat
R5	CTC: Lvmama, Flypig, Ctrip, Agoda TTC: Mafengwo, Tripadviser, Yelp SNS: Wechat
R6	CTC: Qunar, Ctrip, Feizhu TTC: Mafengwo, Qiongyou, Dazhongdianping SNS: WeChat
R7	CTC: Tuniu, Tongchenglvyou SNS: WeChat, QQ

Note(s): CTC, commercial tourism communities; TTC, third-party tourism communities; SNS, social networking sites; CP, collaborative projects

Item	Frequency and percent (%) (1 = Never; 7 = Every time)							Mean	SD
	1	2	3	4	5	6	7		
Pre-trip (mean = 5.42)									
Search ideas about destination options	14	37	32	65	62	111	85	4.96	1.722
	3.4%	9.1%	7.9%	16.0%	15.3%	27.3%	20.9%		
Search information for screening choices of destinations	6	24	28	66	59	131	92	5.24	1.544
	1.5%	5.9%	6.9%	16.3%	14.5%	32.3%	22.7%		
Confirm good destination choices	7	18	20	61	58	138	104	5.40	1.494
	1.7%	4.4%	4.9%	15.0%	14.3%	34%	25.6%		
Search information about accommodation	3	10	17	30	51	137	158	5.85	1.323
	0.7%	2.5%	4.2%	7.4%	12.6%	33.7%	38.9%		
Search information to screen choices of attractions	3	11	14	57	60	138	123	5.63	1.344
	0.7%	2.7%	3.4%	14%	14.8%	34%	30.3%		
During-trip (mean = 5.19)									
Search information about specific attractions and leisure activities	5	10	20	51	70	129	121	5.57	1.391
	1.2%	2.5%	4.9%	12.6%	17.2%	31.8%	29.8%		
Communicate with friends and acquaintances	6	20	25	50	66	106	133	5.46	1.553
	1.5%	4.9%	6.2%	12.3%	16.3%	26.1%	32.5%		
Leisure purpose	4	24	41	81	62	109	85	5.07	1.549
	1.0%	5.9%	10.1%	20.0%	15.3%	26.8%	20.9%		
Develop relationship with other travellers	24	42	41	73	65	83	78	4.66	1.824
	5.9%	10.3%	10.1%	18.0%	16.0%	20.4%	19.2%		
Post-trip (mean = 4.95)									
Share photos and videos with friends and other travellers	15	17	18	51	60	123	122	5.42	1.615
	3.7%	4.2%	4.4%	12.6%	14.8%	30.3%	30.0%		
Provide comments and reviews about travel experiences	22	25	35	59	68	99	98	5.01	1.769
	5.4%	6.2%	8.6%	14.5%	16.7%	24.4%	24.1%		
Obtain ideas of inspiration for next trip	39	33	57	81	58	63	75	4.42	1.895
	9.6%	8.1%	14.0%	20.0%	14.3%	15.5%	18.5%		

Table 5 Means and standard deviations of variables measuring social media use *during the travel process* (n = 406)

and acquaintances (mean = 5.46). The development of relationships with other travellers is regarded the least important by respondents (mean = 4.66).

During the post-trip stage, social media was largely applied to share trip-related photos, videos and other materials with friends and other online users (mean = 5.42) but was used to a lesser extent to provide comments and reviews about travel experiences (mean = 5.01).

To understand the influences of social media on individual travel planning, principal component analysis (PCA) with varimax rotation was further conducted to examine the underlying driving factors determining the use of social media throughout the travel process (Table 6). The resultant analysis extracted two factors containing high factor loadings, which explain 61.5% of the total variance across twelve variables. Based on the nature of each factor, the first factor was labelled "search for information" (Cronbach's alpha = 0.900; eigenvalue = 3.976; variance explained = 33.146%), which encompassed five pre-trip items and one during-trip item. These items determine the information about destinations and relevant travel options. The second factor was identified as sociability and entertainment (Cronbach's alpha = 0.833; eigenvalue = 3.407; variance explained = 28.391%), which consisted of three during-the-trip and three post-trip items. These items were mainly related to inter-travellers' communications and future travel oriented.

Some interview responses further support the aforementioned observations. For instance, WeChat, a social networking site, was found to be important in pre-trip stage: "*WeChat is important to my travel. Tourism destinations with photos that other people showed in moments of WeChat are very likely to be my next destination. WeChat can help me recognize my travel need*" (R1). Third-party tourism communities such as Mafengwo and Qiongyou were mainly used to search for information about destinations and experiences posted by other tourists. Commercial

Table 6	Factor analysis results of the travel planning process (n = 406)				
Factors and underlying elements		Factor loading	Eigenvalue	Variance explained (%)	Alpha
Factor 1: Search for information			3.976	33.146	0.900
Pre-trip: Search ideas about destination options		0.722			
Pre-trip: Search information for screening choices of destinations		0.844			
Pre-trip: Confirm good destination choices		0.827			
Pre-trip: Search information about accommodation		0.707			
Pre-trip: Search information to screen choices of attractions		0.804			
During-the-trip: Search information about specific attractions and leisure activities		0.728			
Factor 2: Sociability and entertainment			3.407	28.391%	0.833
During-the-trip: Communicate with friends and acquaintances		0.700			
During-the-trip: Leisure purpose					
During-the-trip: Develop relationship with other travellers		0.551			
After-trip: Share photos and videos with friends and other travellers		0.763			
After-trip: Provide comments and reviews about travel experiences		0.789			
After-trip: Obtain ideas of inspiration for next trip		0.577			
Note(s): KMO = 0.894, Bartlett's test of sphericity = 2802.947 at df 66 with a significance of $p = 0.000$					

tourism communities such as Qunar, C-trip and Flypig were used to evaluate cost-performance of transportation, hotels, admission tickets and other travel costs.

In the during-the-trip stage, third-party tourism communities like Yelp and Dazhongdianping were popular for searching information about nearby restaurants, attractions and for solving travel-related problems although some interviewees also used WeChat in this stage for different purposes. R4 and R7, for example, used WeChat search engine for food, transportation and attractions, whereas R3 just used WeChat as an instant communication tool to seek local friends in the destination for recommendations. Finally, in the post-trip stage, all the interviewees mentioned social networking sites, particularly WeChat for experience sharing.

Influence of social media on travel-related choices

Comparing the choices of travel-related areas in Table 7, all four types of travel-related choices tend to be influenced by social media with mean scores of influences higher than 5 out of 7. Specifically, social media had the strongest influence on accommodation choices (mean = 5.48) and the least effect on destination selection (mean = 5.02).

A round of one-sample t-test further identified that social media had a significantly greater influence on choice of accommodation than other travel-related areas. By taking the value of 5.48 (as an

Table 7	Influence of social media on travel-related choices (n = 406)										
	Level of influence (1 = no influence at all; 7 = extremely influential)										
Influence on choice of	1	2	3	4	5	6	7	Mean	SD	t-value	df
Accommodation	4	6	22	34	105	165	70	5.48	1.210	Test	
	1.0%	1.5%	5.4%	8.4%	25.9%	40.6%	17.2%			value = 5.48	
Destination	15	14	27	45	133	135	37	5.02	1.722	−6.591**	405
	3.7%	3.4%	6.7%	11.1%	32.8%	33.3%	9.1%				
Attraction	9	13	18	41	102	164	59	5.32	1.544	−2.394*	405
	2.2%	3.2%	4.4%	10.1%	25.1%	40.4%	14.5%				
Transportation	7	14	27	43	104	165	46	5.22	1.332	−3.909**	405
	1.7%	3.4%	6.7%	10.6%	25.6%	40.6%	11.3%				
Note(s): **$p < 0.01$; *$p < 0.05$											

observed mean score of influence on accommodation), the mean scores of destination, attraction and transportation choices were examined. As shown in Table 7, the influence of social media on accommodation was significantly higher than that of destination ($t = -6.591$; $p < 0.001$), attraction ($t = -2.394$; $p < 0.000$) or transportation ($t = -3.909$; $p < 0.001$) accordingly. The negative t-values in the above analyses are due to the highest test values rather than any directional implication.

Pearson correlation analysis was performed to verify the relationship between the influence level of social media and the possibility of subsequent changes made to overall travel plan. The results in Table 8 show that all four pairs of correlation are statistically significant. These findings show that levels of influence on destination ($r = 0.41$, $p < 0.01$), attractions ($r = 0.41$, $p < 0.01$), accommodation ($r = 0.31$, $p < 0.01$) and transportation ($r = 0.26$, $p < 0.01$) all demonstrated a moderate degree of positive correlation with the change in travel plan (Dancey and Reidy, 2011).

Similarly, another round of Pearson correlation test identified a positive relationship between levels of trust of social media and the influence levels of the four travel-related choices, where correlation coefficients of 0.43 (destinations), 0.45 (attractions), 0.48 (accommodation) and 0.31 (transportation) were observed ($p < 0.01$). These correlations were largely in a moderate level (Dancey and Reidy, 2011). In short, the higher the level of trust on social media, the more likely that travel-related choices would be affected by social media, and consequently more frequent changes would be made to travel plans.

Trustworthiness of social media in the travel planning process

More research findings on the varied levels of trust across traditional sources of information and traditional WOM in China are examined. Regarding the degree of trust of social media (Table 9), the traditional WOM (mean = 5.42) triumphed over UGC (mean = 4.86) and other traditional sources of information (mean = 4.52) such as DMOs and mass media. In particular, the information supplied by friends, relatives or other acquaintances was the most reliable (mean = 5.57), whereas travel agents were the least trusted type of source.

In terms of UGC in different types of social media, third-party tourism communities (mean = 5.16) appear to be the most trusted source of information, followed by microblogs and blogs (mean = 5.02). However, collaborative projects had the lowest level of trust (mean = 4.50). Independent-sample t-test verifies the inter-source differences between the three types of information. The results in Table 9 clearly showed that UGC in social media was significantly more trusted by respondents than traditional sources of information ($t = -7.31$, $p < 0.05$) but less trusted by respondents than traditional WOM ($t = 12.51$, $p < 0.05$). Qualitative responses by some interviewees further showed that their preference for specific social media types was due to the presence of one-stop source of information: "*compared with one-sided statement from friends and relatives, information on third-party tourism communities like Mafengwo is more comprehensive and is a reflection of current popular taste*" (R1).

Similar comparison between the levels of trust in different types of UGC of social media is presented in Table 10 through one-sample t-test. The findings show that all other social media

Table 8	Correlation between social media and change in original travel plan ($n = 406$)			
	Pearson correlation *The connection between social media and*			
	Destination choice	*Attraction choice*	*Accommodation choice*	*Transportation choice*
Subsequent change in travel plan	$r = 0.41$ $p < 0.01$	$r = 0.41$ $p < 0.01$	$r = 0.31$ $p < 0.001$	$r = 0.26$ $p < 0.01$
Trust in social media	$r = 0.43$ $p < 0.01$	$r = 0.45$ $p < 0.01$	$r = 0.48$ $p < 0.01$	$r = 0.31$ $p < 0.01$

Table 9 Trustfulness in online social media sources versus other sources of travel information (n = 406)

Item	1	2	3	4	5	6	7	Mean	SD
UGC in social media (mean = 4.86)									
I trust information from travellers on microblogs and blogs	4	8	10	74	180	116	14	5.02	1.041
	1.0%	2.0%	2.5%	18.2%	44.3%	28.57%	3.5%		
I trust information from travellers on social networking sites	3	11	15	76	167	121	13	4.99	1.126
	0.7%	2.7%	3.7%	18.7%	41.1%	29.8%	3.2%		
I trust information from travellers on tourism social networking	3	14	20	98	164	95	12	4.82	1.190
	0.7%	3.5%	4.9%	24.1%	40.4%	23.4%	3.0%		
I trust information from travellers on commercial tourism communities	2	12	18	105	166	92	11	4.83	1.088
	0.5%	3.0%	4.4%	25.9%	40.9%	22.7%	2.7%		
I trust information from travellers on third-party tourism communities	1	12	13	66	146	139	29	5.16	1.201
	0.3%	3.0%	3.2%	16.3%	36.0%	34.2%	7.1%		
I trust information from travellers on content communities	7	13	31	110	136	98	11	4.71	1.408
	1.7%	3.2%	7.6%	27.1%	33.5%	24.1%	2.7%		
I trust information from travellers on collaborative projects	10	25	38	114	128	79	12	4.50	1.673
	2.5%	6.2%	9.4%	28.1%	31.5%	19.5%	3.0%		
Traditional WOM (mean = 5.42; t = 12.513; p < 0.05)									
I trust information from friends, relatives or other acquaintances	0	3	7	39	121	180	56	5.57	0.908
	0.0%	0.7%	17%	9.6%	29.8%	44.3%	13.8%		
I trust information that people tell me face-to-face	1	8	12	65	129	155	36	5.27	1.161
	0.3%	2.0%	3.0%	16.0%	31.8%	38.2%	8.9%		
Traditional source of information (mean = 4.52; t = −7.310; p < 0.05)									
I trust information provided on state tourism websites	2	11	32	73	102	130	56	5.16	1.669
	0.5%	2.7%	7.9%	18.0%	25.1%	32%	13.8%		
I trust information provided by travel agents	17	30	73	126	105	49	6	4.09	1.723
	4.2%	7.4%	18.0%	31.0%	25.9%	12.1%	1.5%		
I trust information from commercial operators and/or accommodation sites	9	16	58	132	130	55	6	4.35	1.378
	2.2%	3.9%	14.3%	32.5%	32.0%	13.6%	1.5%		
I trust information received through mass media advertising, such as television, newspaper	5	18	48	126	142	58	9	4.46	1.320
	1.2%	4.4%	11.8%	31.0%	35.0%	14.3%	2.2%		

Note(s): UGC, user-generated content; WOM, word of mouth

Table 10 Comparison between the levels of trust of the types of UGC of social media (n = 406)

UGC from third-party tourism communities	Mean** for all respondents N = 406 (S.D.)	Test value = 5.16* t value	df	p
Microblogs and blogs	5.02 (1.020)	−2.673	405	0.01***
Social networking sites	4.99 (1.061)	−3.226	405	0.00***
Tourism social networking	4.82 (1.091)	−6.277	405	0.00***
Commercial tourism communities	4.83 (1.043)	−6.469	405	0.00***
Content communities	4.71 (1.186)	−7.065	405	0.00***
Collaborative projects	4.50 (1.293)	−10.244	405	0.00***

Note(s): UGC, user-generated content; (*) 5.16 is the mean value of trust with information provided by other travellers in social media; (**) Measured on a seven-point Likert scale where 1 = strongly disagree, 7 = strongly agree; (***) p < 0.05

UGC had significant differences (p < 0.05) in the mean scores from that of third-party tourism communities. Some interviewees also concurred with such result; for example, the information on third-party tourism communities like Mafengwo and Qiongyou was considered the most reliable: "*I most trust Mafengwo because information posted by other tourists is not for business profits and is more real*" (R3).

Discussion

Diversification of demand-and-supply pattern of social media

The research findings identified the pattern of social media usage in China, pinpointing to the travel planning process of tourists, and the resultant possibilities of tourism development futures connecting to smartness and innovativeness. Given a rapid development and vigorous usage of social media in China (CTA and Ctrip, 2017; Luo and Zhai, 2017), a great variety of online platforms were established in mainland China which facilitate more diversified functions of information provision and social networking. Such supply-side advancement also triggered multiple channels of social media usage on the demand side. This trend was particularly apparent amongst female and highly educated user segments in the travel process, who at least used different social media tools twice or more during each journey.

The selection and usage of specific types of social media are determined by the functions offered. Some social media apps were mostly confined to more specialized functions; for example, information search by Ctrip; travel reviews by Mafengwo and Dazhongdianping; experience and narrative sharing by WeChat, Weibo and QQ; and more generic factual platforms like Baidubaike. A clear provision of travel-related functions was well-established and defined by users. However, this research confirmed that Chinese tourists tend to install and utilize a number of social media simultaneously (Table 4) rather than picking up one or very few apps.

Moreover, multi-functional social media platforms were more acceptable by Chinese users. According to both survey and in-depth interviews, these platforms such as WeChat were predominantly used in travel planning process, especially in the pre-trip stage for product identification and information search as revealed by Cox *et al.* (2009). WeChat is popular for these searching functions in addition to its traditional communication app since WeChat has successfully transformed from a socializing software to a lifestyle-oriented platform, which penetrates into many areas in the communities such as public payments, online shopping, medical treatment and travel booking. Nevertheless, this study does not concur with the suggestion of Fotis *et al.* (2011) that it is a dominant travel-related app of social media in post-trip stage. In China, users prefer an app with social networking function embedded, which was also discovered in Chen (2017).

Functions and influences of China's social media on travel planning process

Regarding the usage of social media, the PCA results show that the common social media platforms in China were used for two purposes: search for travel information and sociability function. However, such two-fold functionality does not exist clearly across the three stages of the travel process. The influences of social media on individual travel planning could be identified. During the trip, tourists particularly need to search for information about specific attractions and leisure activities (Factor 1) and communicate with friends and acquaintances, and then connect with other travellers (Factor 2). This observation is therefore coherent with the earlier findings and notions that mainland Chinese tourists tend to accept and welcome multi-functional social media platforms and often combine the use of different apps. The during-the-trip function has been under explored (Liu *et al.*, 2020). This is also in line with the arguments of Xiang and Gretzel (2010) and Boley *et al.* (2013) on the contribution of social media to tourism futures in the travel information search process by tourists. Correlation analysis confirmed that social media influenced the possibility of subsequent or during-the-trip changes in all different aspects as reported by Fotis *et al.* (2011). Such influence of social media is in turn also moderately affected by varied levels of trust amongst different platforms or apps.

The level of trust across different platforms and usage pattern is an important issue in China supported by the empirical findings. Online UGC cannot effectively replace WOM supplied by the people known to the users (Fotis *et al.*, 2011). The level of trust across different types of social media depends on particular functions (Munar and Jacobsen, 2013). For example, third-party tourism communities such as Mafengwo, Zhihu, Xiaohongshu and Dazhongdianping were regarded as reliable sources of travel information due to a collection of online ratings, reviews and

comments altogether on a platform (Porter, 2004). Microblogs and blogs were relatively less trusted by users as they must conduct more information mining and consolidation before deciding. Baidubaike as one of collaborative projects was the least trusted since it was difficult for experienced visitors to verify the information accuracy. Travel-related websites provided by tourism industries were identified as trustworthy by Cox et al. (2009), but the same result is not supported in the current study.

Conclusion and implications

This paper demonstrated the case of social media usage in mainland China, which has been regarded as one of the fastest growing and influential tourist-generating markets and social media expansions in the world (CTA and Ctrip, 2017 CNNIC, 2017). Previous studies such as e.g. Shi (2013), Shang (2016) and Chen (2017) provided many pieces of useful references to the social media use pattern in different destinations in China. This study further addressed the knowledge gap by correlating social media usage and travel planning process of Chinese tourists. The research findings suggested diversification of the demand-and-supply pattern of social media users in China, as well as the use of social media as tools before, during and after travel. Users were diversified in terms of their adoption of social media, use behaviour, scope, the levels of trust, influence and the ultimate travel decisions (Munar and Jacobsen, 2013).

Implications to tourism development futures in China

Given a more fragmented and localized Chinese social media sector (Chiu et al., 2012), further academic studies on the individual influence of social media platforms are necessary. Another valuable knowledge area is the utilization of big data and data mining techniques to study the effect of UGC of social media on tourists' behaviour, innovation and sustainability of destinations (Chan et al., 2019; Luo and Zhai, 2017; Pikkemaat et al., 2019). This is needed to understand how much UGC contributes to various aspects of sustainable tourism futures such as economy, environment, destination image and local communities (Alaei et al., 2019; Fuchs et al., 2014; Lam et al., 2020; Li et al., 2018; Nowacki and Niezgoda, 2020; Qi and Chen, 2019).

In terms of policy recommendations for urban destinations or practical implications in tourism industries, first, some tactics for specific user segments should be carefully observed. When promoting specific tourism products to Chinese tourists, it is necessary to distinguish between permitted and prohibited platforms which may be different over time by policy change and also understand the user segmentation between platforms or apps. It is also important to integrate appropriate social media when conduct marketing campaigns in order to attract a higher number of visitors. For instance, DMOs and other tourism marketers should clearly identify the division of social media functions and effectively promote appropriate messages or information on the corresponding platforms (e.g. covert and autonomous sources of agents on social networking sites, microblogs and blogs; direct product-oriented advertising on commercial tourism communities; more user-friendly tools and wise integration of UGC into third-party tourism communities) (Ashworth and Voogd, 1994; Kislali et al., 2020).

Second, the higher level of trust in third-party tourism communities shows the difficulty in destination marketing in a globalized world because tourists are no longer receiving only single channel of information and promotion from DMOs and other tourism industry or communication agencies (Munar and Jacobsen, 2013). However, potential tourists might also search and trust much greater variety of information sources. There appears to be an increasingly uncertain level of trust on information in travel process (Dann, 2002) especially when the tension between social media and WOM becomes stronger (Inversini and Schegg, 2002). The flood of online information may challenge the accuracy and reliability of sources, which require more effective UGC management and integration into larger systems of smart tourism destinations (Chan et al., 2019). Tourism development futures require smartness of destinations that provokes more complicated attributes of information usage and networking. More social scientific studies on how people and

information sources interact would definitely benefit a smarter destination connecting people, place and industry.

Moreover, social media and network contribute to sustainable tourism development in postmodern era of travel and mobility (Sobhanifard and Vaeysi, 2020). Urban destinations such as cities are more well-connected geographically by improved transportation and technologically by smarter ICT and social media (Parra-López et al., 2011; Sarkar and George, 2018; Yoo et al., 2011). This research further proved the role of social media in sustainable tourism through the empirical observation of social media diversity and usage by tourists (Dinan and Sargeant, 2000; Tiziana et al., 2013). China is one of the most influential outbound market and inbound destinations worldwide. Her social media development and impacts should be examined from a demand–supply perspective (Jamal and Budke, 2020; Moscardo, 2020).

Research limitations

The linkage between ICT development, social media usage and sustainable practices in tourist destinations still deserves further investigation. This study has yet explored this area of information from the empirical findings but paved the way of this potential research area. Further studies should be conducted to understand, for example, the influence of the use of social media on the changing behavioural intention or actual activities by visitors in destinations. How the use of social media may induce more socially and environmentally conscious by visitors is a potential research question to be answered. More in-depth examination should be performed to test the applicability of the theoretical model developed, for example, through quantitative analysis of big data and the comparison between destinations and countries.

This study also faced methodological and practical limitations including constraints in sampling scale, sampling method and interpretations of interviews. The sampled survey respondents might not comprehensively represent the large number of Chinese tourists although the online questionnaire was distributed to all the Chinese social media platforms in this study to collect a more diversified user profile. There were only seven interviewees who had agreed to participate in the online interviews, and consequently, the sample size might not represent a comprehensive picture of the phenomenon. Nevertheless, the follow-up interviews aimed to provide supplementary information about the perceived use of social media and its influence on destination image of the survey respondents. Finally, the interview responses and the corresponding information in the analysis might have been determined by researchers' interpretations and thus carried a degree of subjectivity. It is therefore an opportunity for more vigorous and further in-depth research about the perception and sentiment analysis of these social media users.

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Author affiliations

Yuke Yuan is based at the The Chinese University of Hong Kong, Hong Kong, China.

Chung-Shing Chan is based at the Department of Geography and Resource Management, Centre for Environmental Policy and Resource Management (CEPRM), The Chinese University of Hong Kong, Hong Kong, China.

Sarah Eichelberger is based at the University of Innsbruck, Innsbruck, Austria.

Hang Ma is based at the Harbin Institute of Technology Shenzhen, Shenzhen, China.

Birgit Pikkemaat is based at the University of Innsbruck, Innsbruck, Austria.

About the authors

Yuke Yuan holds a Master's Degree in Social Science in Sustainable Tourism from the Department of Geography and Resource Management at the Chinese University of Hong Kong. Her main research interests include sustainable tourism, social media in tourism and online marketing.

Chung-Shing Chan is an Assistant Professor in the Department of Geography and Resource Management at the Chinese University of Hong Kong. His teaching and research interests include place branding and sustainable tourism. Chung-Shing Chan is the corresponding author and can be contacted at: ccs_johnson@cuhk.edu.hk

Sarah Eichelberger is a Pre-Doc University Assistant in the Department of Strategic Management, Marketing and Tourism at the Faculty of Business and Management, University of Innsbruck. Her research interests include quality of life in tourism, entrepreneurial ecosystems and tourism destinations.

Hang Ma is a Professor in the School of Architecture and Urban Planning, Harbin Institute Technology Shenzhen Graduate School. Her doctoral research investigates the renovation of traditional heritages in China. Her teaching and research interests include sustainable urban renovation, ecological urban design and architectural design.

Birgit Pikkemaat is an Assistant Professor in the Department of Strategic Management, Marketing and Tourism at the School of Management, University of Innsbruck. Her research interests include the areas of innovation and product development, destination management and small- and medium-sized (family) business.